INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6” x 9” black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor MI 48106-1346 USA
313/761-4700  800/521-0600
THE RELATIONSHIPS AMONG EMPATHY, LIKABILITY, COMMUNICATION EFFECTIVENESS, AND PERFORMANCE RATINGS, AND THEIR ROLES IN THE PREDICTION OF SUCCESS WITHIN AN ORGANIZATION

A DISSERTATION

Presented in Partial Fulfillment of the Requirements for

the Degree of Doctor of Philosophy in the

Graduate School of The Ohio State University

By

Andrea Thomas, B.A., M.A.

* * * * *

The Ohio State University

1996

Dissertation Committee:

Nancy E. Betz, Adviser

Robert Billings

Patrick Raymark

Approved by

Nancy E. Betz

Adviser

Department of Psychology
ABSTRACT

Many researchers have argued that general intelligence is the best predictor of success for both managerial and non-managerial jobs. However, there is considerable evidence indicating that there are factors other than general intelligence that influence individuals' performance in the workplace. One of these other factors is a construct frequently referred to as "social intelligence," often defined as the ability to understand and manage others. The primary goal of this study was to determine the extent to which empathy, a core component of social intelligence, is predictive of managerial success.

A model delineating the process by which empathy influences occupational success was developed and tested in a field study. The results of covariance structure modeling analyses indicated that this hypothesized model was not supported. However, after relatively minor modifications were made, the model fit the data very well. Specifically, the results showed that empathy, particularly cognitive empathy, did have an impact on managers' occupational success, and this relationship was mediated by the managers' likability, communication effectiveness, and performance ratings.
Dedicated to my sister, Tracy.
Thanks for being "My Biggest Fan."
ACKNOWLEDGMENTS

I cannot thank Nancy Betz and Bob Billings enough for agreeing to be my "co-advisers." Despite the fact that they both have taxing workloads and many students to advise, they provided me with the support and feedback that I needed to complete my degree. I also want to thank Pat Raymark for being a member of my committee and for providing me with very helpful feedback.

I am extremely grateful to Bob Myers, my boss and mentor, who encouraged me to complete my degree and gave me the time and place in which to do it. I am also grateful to the many individuals at work who helped me, especially Claudia Abrams, Brett Avner, Roy Cohen, Pegeen Rubinstein, Carole Watkins, Sandy West, and John Woodward.

I also wish to thank those who helped me with various statistical and computer problems, especially Michael Browne, Bud MacCallum, Dave Klein, Krishna Tateneni, and John Downing.

To Mom, Dad, Tray, and Greg – thank you for your love and support; I couldn’t ask for more. And to Tim, thank you for understanding.
VITA

December 4, 1967..............................Born, Columbus, Ohio

1990..............................................B.A., The Ohio State University.

1990 - 1994........................................Graduate Teaching and Research Associate,
The Ohio State University.

1993..............................................M.A., The Ohio State University.

1994 - 1996........................................Graduate Research Associate, The Limited,
Inc.

FIELDS OF STUDY

Major Field: Psychology
Studies in Industrial/Organizational Psychology
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>DEDICATION</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>VITA</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>ix</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>x</td>
</tr>
<tr>
<td>CHAPTERS:</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>History of Social Intelligence Research</td>
<td>7</td>
</tr>
<tr>
<td>Multidimensionality of Social Intelligence</td>
<td>9</td>
</tr>
<tr>
<td>Definition and Measurement of Empathy</td>
<td>12</td>
</tr>
<tr>
<td>Empathy and Work Related Outcomes</td>
<td>16</td>
</tr>
<tr>
<td>Empathy and Social Behavior</td>
<td>16</td>
</tr>
<tr>
<td>Social Behavior and Performance</td>
<td>24</td>
</tr>
<tr>
<td>Likability and Performance</td>
<td>24</td>
</tr>
<tr>
<td>Communication Effectiveness and Performance</td>
<td>27</td>
</tr>
<tr>
<td>Performance, Performance Ratings, and Organizational Rewards</td>
<td>31</td>
</tr>
<tr>
<td>2. METHOD</td>
<td>38</td>
</tr>
<tr>
<td>Participants and Procedure</td>
<td>38</td>
</tr>
<tr>
<td>Measures</td>
<td>40</td>
</tr>
<tr>
<td>Role-Taking</td>
<td>40</td>
</tr>
<tr>
<td>Empathic Concern</td>
<td>41</td>
</tr>
<tr>
<td>Likability</td>
<td>42</td>
</tr>
</tbody>
</table>
3. RESULTS ............................................................................................................. 55

Participants...................................................................................................... 55
Descriptive Statistics ...................................................................................... 55
Tests of Hypotheses......................................................................................... 62
Hypothesis One.................................................................................. 62
Hypothesis Two................................................................................. 62
Hypothesis Three............................................................................... 62
Hypothesis Four............................................................................... 64
Hypothesis Five............................................................................... 64
Hypothesis Six............................................................................... 64
Hypothesis Seven.............................................................................. 64
Hypothesis Eight............................................................................... 65
Hypothesis Nine............................................................................... 65
Hypothesis Ten................................................................................ 66
Ancillary Analysis ......................................................................................... 74

4. DISCUSSION ....................................................................................................... 80

Summary of Results....................................................................................... 80
Individual Direct Links in the Model - Hypotheses One through Eight................. 81
Relationships among Empathy, Intelligence, and Performance - Hypothesis Nine........ 81
Overall Fit of the Proposed Model - Hypothesis Ten........................................... 81
Ancillary Analyses ......................................................................................... 84
Conclusions ................................................................................................. 85
Conclusions Concerning Individual Links in the Model ............................... 85
Conclusions Concerning the Need to Remove Paths from the Model .............................. 86
Communication Effectiveness and Likability...................................................... 86
Empathic Concern and Communication Effectiveness........................................... 86
Critical Thinking and Performance Ratings ...................................................... 87
Likability and Non-Interpersonal Measures of Performance ................................. 90
Communication Effectiveness and Interpersonal Measures of Performance.......................... 90
Interpersonal Performance Ratings and Rate of Salary Increase............................................. 92
Conclusions Concerning the Models ...................................................................................... 92
Limitations ............................................................................................................................. 93
Implications for Theory and Practice .................................................................................... 95
Directions for Future Research ............................................................................................. 96

APPENDICES:

A. INTERPERSONAL REACTIVITY INDEX ................................................................. 97
B. GENERAL LIKABILITY SCALE ................................................................................ 100
C. COMMUNICATION EFFECTIVENESS SCALE ...................................................... 102
D. PERFORMANCE RATING FORM AND BEHAVIORAL ANCHORS ......................... 104
E. CRITICAL THINKING APPRAISAL ....................................................................... 108
F. WRITTEN SOLICITATION FOR PARTICIPATION ............................................. 118
G. DEBRIEFING STATEMENT ...................................................................................... 121
H. COMPETENCIES INCLUDED IN PERFORMANCE RATINGS ............................ 123

LIST OF REFERENCES ................................................................................................. 126
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Figure Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Empathy and Work Related Outcomes: Structural Model</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Empathy and Work Related Outcomes: Measurement Model</td>
<td>37</td>
</tr>
<tr>
<td>3</td>
<td>Modified Model</td>
<td>53</td>
</tr>
<tr>
<td>4</td>
<td>Model A</td>
<td>67</td>
</tr>
<tr>
<td>5</td>
<td>Model B</td>
<td>70</td>
</tr>
<tr>
<td>6</td>
<td>Model C</td>
<td>75</td>
</tr>
<tr>
<td>7</td>
<td>Model D</td>
<td>76</td>
</tr>
<tr>
<td>8</td>
<td>Model E</td>
<td>78</td>
</tr>
<tr>
<td>7</td>
<td>Model F</td>
<td>79</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Descriptive statistics for demographic variables</td>
<td>56</td>
</tr>
<tr>
<td>2</td>
<td>Descriptive statistics for scales</td>
<td>57</td>
</tr>
<tr>
<td>3</td>
<td>Scale reliabilities</td>
<td>59</td>
</tr>
<tr>
<td>4</td>
<td>Scale intercorrelations before combination of scales</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>Scale intercorrelations after combination of scales</td>
<td>63</td>
</tr>
<tr>
<td>6</td>
<td>Fit measures for path analyses of empathy and work related outcomes models</td>
<td>68</td>
</tr>
<tr>
<td>7</td>
<td>Factor loadings of performance competencies</td>
<td>72</td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTION

It is widely accepted that managers play a crucial role in determining the success of their organizations (Mintzberg, 1973; Johns, 1983). Thus, it is not surprising that much time and energy have been invested in attempts to understand how organizations can recognize and hire good managers. In pursuit of these goals, researchers have sought to identify and measure the individual qualities that are most predictive of managerial success. However, there is considerable disagreement about what these qualities are.

Some researchers argue that traditional measures of intelligence are often the most reliable selection tools for both managerial and non-managerial jobs (e.g., Schmidt & Hunter, 1993). That is, they argue that organizations should focus their energies on hiring individuals who score well, for example, on IQ tests. However, this assertion that intelligence is the best predictor of occupational performance has long been debated, especially with regard to managerial jobs. Although correlations between IQ test scores and academic performance tend to be fairly high, the correlations between such scores and performance on the job are often considerably lower. It is these relatively low correlations that have led some researchers to conclude that little of the variance in occupational performance can be accounted for by traditional measures of intelligence.
(McClelland, 1973; Wagner & Sternberg, 1985). Thus, researchers have sought to demonstrate that there are factors other than general intelligence that influence individuals’ performance in the workplace. One of these other factors is a construct frequently referred to as “social intelligence,” often defined as the ability to understand and manage others (Thorndike, 1920).

The following quote succinctly summarizes the view that academic or general intelligence should not be relied upon to predict all types of success:

The fact is, academically intelligent people do often behave stupidly. The existing evidence does not suggest that they are markedly more successful than the unintelligent, in the conduct of their affairs or of the affairs of others. Nor is it clear that the quality of their lives is more enviable than that of other people (Neisser, 1976, p. 139).

There are people who would disagree with this statement; namely, those who have found that general intelligence, or ‘g’, predicts success in a broad range of occupations (see Gottfredson, 1986). Still, even this research reveals that ‘g’ is not a perfect predictor of occupational success -- rather, it is the best predictor available.

There is considerable debate around the strength of g’s relationship with success (see Hunter, 1986; Sternberg & Wagner, 1993; and McClelland, 1993), but few would argue that it is the only factor that figures into the prediction of the success of an individual. Further, many would argue that social intelligence, if adequately defined and measured, would be the next-best predictor of success in many of life’s pursuits, including occupational, and especially with regard to managerial occupations.
Unfortunately, defining and measuring social intelligence has proven to be a daunting task, largely because the construct is multidimensional and complex. However, if the investigation of the construct is broken down into the separate study of its various dimensions, the process becomes more manageable. It is the purpose of this paper, therefore, to investigate only one of the core components of social intelligence, and to determine the extent to which it is predictive of managerial success.

After reviewing the various streams of research that, grouped together, comprise the social intelligence literature, it becomes clear that empathy is often a common link among these bodies of research. The construct is not always identified with the term “empathy”, but the conceptualizations are consistent across studies. However, despite the fact that empathy is a construct that figures prominently in the social intelligence literature, researchers have largely failed to investigate its usefulness as a predictor of occupational success. Sypher and Zorn (1986), who found a measure of empathy to be related to success within an organization, provide one notable exception to this statement, although they do not provide an explanation of the process by which this relationship might be explained. The research presented here is the result of an effort to provide additional empirical evidence for the empathy-success link, as well as a theoretical explanation of why this link exists. However, before proposing research linking empathy and success, it is important to clarify what is meant by the term “success.”

From a philosophical perspective, the meaning of success is certainly subjective and variable. For example, some people define the success of another as the amount of money that person makes, whereas others consider job satisfaction or a balance of
personal and work life to be gauges of success. In fact, there are innumerable conceptualizations of success. However, in the context of this research, success is defined from an organizational rather than an individual point of view. Thus, it is easier to employ an accepted conceptualization of success by basing it on commonly-used organizational measures of the construct. For the purposes of this research, success is operationalized with measures of salary and rate of promotion. These types of organizational rewards have typically been granted to individuals based on their level of contribution to their organizations. In other words, these rewards often serve as an organization's means of recognizing individual success in the workplace. These types of measures have been used as criteria of success by many researchers (e.g., Kraut, 1975; O'Reilly & Chatman, 1994; Thompson, 1994).

Based on the literature reviewed here, the construct of empathy will be defined as having the following components (see Figure 1): cognitive empathy (also called role-taking), and affective empathy (or empathic concern). Further, it is postulated that these two components influence one another. Additionally, it is proposed that empathy, so defined, influences social interaction and social outcomes on the job. Specifically, managers' capacity for and demonstration of empathy influences their communication effectiveness, as well as their overall likability. These outcomes, in turn, are predicted to influence the quality of performance and performance ratings, which are linked to occupational measures of success. General intelligence (e.g., IQ) is also proposed to influence performance, but it is not hypothesized to be linked to empathy. These relationships are delineated in a model that will be tested.
Figure 1: Empathy and Work Related Outcomes - Structural Model
As mentioned previously, the model presented here is hypothesized to be most helpful with regard to the study of managerial jobs. That is, it is proposed that the link between empathy and occupational success is strongest for individuals who manage others. This qualification is made because the relationships outlined in the model are only relevant when a job requires extensive interpersonal interaction. Research shows that jobs which are higher in the organizational hierarchy (i.e., managerial jobs) involve increasing amounts of job-related interpersonal contact (Johns, 1983). Thus, the model proposed here will be tested using managers.

The organization of this paper is as follows. First, a brief review of the history of social intelligence research will be presented (for thorough reviews of the early work in this area, see Taft, 1955; Walker & Foley, 1973). Second, the argument for a multidimensional approach to the study of social intelligence will be presented. Next, the scope of the paper will narrow and the benefits of focusing on empathy as a fundamental component of social intelligence will be addressed. Specifically, the problems associated with the definition and measurement of empathy will be discussed, followed by an examination of the relationship between empathy and social behavior and outcomes (e.g., the association between empathy and the quality of interpersonal communication). Subsequently, a discussion of the relationship between empathy-related social behavior (such as interpersonal communication) and occupational performance will be presented. And finally, the paper will include a brief discussion of the link between performance and occupational outcomes such as salary and rate of promotion.
At the conclusion of these sections, a case will have been made for the link between empathy and occupational outcomes by presenting both theoretical and empirical support for the mediating relationships discussed above. A field study that tests the extent of these relationships will then be presented. However, the primary focus of this research is the determination of the usefulness of empathy as a predictor of managers’ occupational success.

**History of Social Intelligence Research**

The concept of social intelligence has been discussed in academic journals for over seventy years. Thorndike (1920) defined social intelligence as *the ability to understand and manage others*. This definition is two-fold, as it emphasizes both cognition (understanding) and behavior (managing). Many others have built upon this basic conceptualization, with some focusing more on the understanding/empathy component, and others emphasizing the managing or action-oriented component. Additionally, there are several different streams of research that contribute to an understanding of the social intelligence construct.

Because of the vastness of the territory that Thorndike’s definition circumscribes, it is not difficult to understand why research has been launched from many different fields, often with little sharing of information. Consider, for example, the differences between the concepts of social self-efficacy and social competence, both of which have been categorized as components of social intelligence. Social self-efficacy reflects an individual’s “self-esteem or perceptions and feelings of competence in social situations”
(Marlowe, 1986, p. 53). On the other hand, social competence is defined, in part, as “the attainment of relevant social goals in specified social contexts” (Ford, 1982, p. 323). Note that the former conceptualization implies that one’s perceptions of self comprise part of the social intelligence construct, while the latter’s definition is focused on social outcomes. Still, underlying all research in this area is the hypothesis that some individuals are more adept at judging or “reading” people than others. As Kenny and Albright (1987) state, the goal of this type of research has always been the same: “to differentiate people in their ability to know the social world surrounding them” (p. 390). Additionally, although this statement is not always made explicitly, it is also usually assumed that individuals who are better able to understand their social world are also more successful in their interaction with others (related to Thorndike’s “managing” of others).

Early researchers (e.g. Thorndike & Stein, 1937; Chapin, 1942; Rothenberg, 1970) tended to view social intelligence as a unitary construct, the implication being that someone who is intelligent in this realm is someone who is equally adept at all things social. However, during the past two decades, the idea has grown that the ability to judge others (i.e., “social intelligence”) is complex and multidimensional. Researchers began to theorize about the possible multidimensionality of a social intelligence construct. That is, multiple bodies of related research indicate that there are many different components of social intelligence, including the ability to read nonverbal and verbal cues, as well as the ability to use information about norms (i.e., stereotypes) to inform person perception. The ability to control emotions has also been linked to successful social interaction.
(Goleman, 1995). Additionally, empathy appears to comprise part of the social intelligence construct. As Chen and Michael (1993) state, "[i]t is apparent that the construct of social intelligence is so complex that a single factor model would not be sufficient to explain it" (p. 639). A brief review of some of the research supporting this notion is presented next.

**Multidimensionality of Social Intelligence**

Marlowe and Bedell (1982) and Marlowe (1986) investigated the multidimensionality of the social intelligence construct. After administering many different tests, all of which were at some time linked to the construct, these researchers attempted to determine if there were distinct factors onto which the different measures loaded. Through the use of first- and second-order factor analyses, Marlowe (1986) concluded that there are five distinct factors that comprise social intelligence. These factors include prosocial attitude, social skills, empathy skills, emotionality, and social anxiety. According to Marlowe (1986), "the data strongly support a multidimensional model of social intelligence. Social intelligence clearly is not a unitary construct and should not be approached as if it were in research studies" (p. 57).

Lowman and Leeman (1988) also found evidence for the multidimensionality of social intelligence, although their factors were not as easily interpretable as Marlowe's. On the other hand, Riggio, Messamer, and Throckmorton's (1991) attempt to replicate Marlowe's results was unsuccessful. In fact, these researchers concluded that social intelligence is not distinct from academic intelligence. However, it is not surprising that
Riggio et al. obtained results that conflicted with Marlowe’s, as the scales used in the two studies were completely different. For example, Marlowe’s measures of social intelligence included assessments of self-esteem, social interest, and empathy, whereas Riggio et al. used measures of social etiquette, a social skills inventory, and O’Sullivan and Guilford’s (1976) factor tests of social intelligence. Riggio et al. (1991) argue that their use of a multi-method approach (as opposed to Marlowe’s use of self-report measures only) lends more credence to their results. However, the measures that they did use are of questionable validity, thereby rendering their results spurious. For example, the items comprising the Social Etiquette/Tacit Knowledge Test were developed based on behaviors designated in etiquette books as “appropriate” and “inappropriate.” Such a scale would seem better suited to the measurement of manners than the measurement of social intelligence, defined as the understanding and management of others. Thus, one is left with the feeling that more research should be conducted if the question of the dimensionality of social intelligence is to be answered.

It appears, then, that one means of improving our ability to assess social intelligence is to endeavor to understand fully the multiple dimensions of the construct. However, this process will require a considerable amount of both theoretical and empirical work. Indeed, it has been stated that

[a] taxonomy of social intelligence, one might suppose, would be at least as complex as a taxonomy of cognition... . The development of such a taxonomy would be a mammoth undertaking that would have to be attacked on a piecemeal basis (Frederiksen, Carlson, & Ward, 1984, p. 332).
As was stated earlier, the goal of this research is to determine if there are non-academic abilities that can be measured and used to predict managers’ occupational success. However, heeding the advice of Frederiksen et al., it makes sense to begin investigating only a few of the proposed dimensions of social intelligence that have received the most support in the literature. Specifically, some of the components of empathy, itself a multidimensional construct, appear to comprise, at least in part, the social intelligence construct (i.e., empathy is one of the components of social intelligence). Empathy has been selected as the focus of this research because it is the component of social intelligence that is most consistently represented in the various literatures related to social intelligence. It was also selected because, although there is little direct evidence of the link between empathy and occupational success, there is considerable theoretical and empirical support indicating that empathy is related to a number of variables that are, in turn, related to managerial success.

What follows is a review of the construct of empathy. First, some of the definitional problems will be addressed, followed by some of the difficulties that have been encountered when attempting to measure the construct. It will become evident that the problems associated with both defining and measuring empathy are intertwined. And finally, based on a definition of empathy that is more specific than those that are often used, an argument will be made for the importance of empathy with regard to social outcomes.
Definition and Measurement of Empathy

The construct of empathy has been studied for over a century, and during that period of time there has been considerable variability in its definition. In an all-encompassing description of empathy, Davis (1983) states that it "in the broadest sense refers to the reactions of one individual to the observed experiences of another" (p. 113). Most of those who study empathy would agree with this definition. However, it is when researchers attempt to define the construct more specifically that problems arise. The most divisive problem concerns the nature of the reaction that one person has to another: Is it cognitive, affective, or both? Is empathy "the intellectual...apprehension of another's condition or state of mind" (Hogan, 1969, p. 307), or is it "an involuntary vicarious experience of another's emotional state" (Mehrabian & Epstein, 1972, p. 525). For years, empathic reactions were defined as being either cognitive or affective. Thus, there were two streams of research within the empathy literature that developed somewhat independently of one another. However, there is a recent trend toward the recognition of empathy as a multidimensional construct (Davis, 1983; Feshbach, 1975; Goldstein & Michaels, 1985).

Chlopan, McCain, Carbonell and Hagen (1985) are among those researchers who advocate a multidimensional approach to the study of empathy. Following their extensive review of the literature, they concluded that there are at least two distinct components of the construct. This conclusion is based largely on evidence produced by research involving the use of two specific measures of empathy. Both of these measures have shown acceptable levels of validity and reliability. And, given that the correlations
between the two scales are not very high, Chlopan et al. (1985) surmise that they are in fact measuring different aspects of empathy.

The first scale, Hogan’s Empathy Scale (EM), measures role-taking ability (Chlopan et al., 1985). Role-taking refers to the cognitive process of attempting to understand the perspective of another, or “putting oneself into another’s shoes.” Individuals who score high on this self-report measure tend to be less anxious, less depressed, more likable, and better adjusted than those who score low (Chlopan et al., 1985). (It should be noted that role-taking has generally been believed to comprise a substantial component of the cognitive empathy construct. However, the term “cognitive empathy” is often used more broadly to describe both the role-taking process and the outcomes that are associated with it. This distinction will be discussed in more detail later. For the purposes of this paper, the terms “role-taking” and “cognitive empathy” should be considered interchangeable).

The second empathy scale, The Questionnaire Measure of Emotional Empathy (QME), measures a person’s tendency to experience vicarious emotional arousal (i.e., affective empathy) (Chlopan et al., 1985). This scale is also self-report. As further evidence that cognitive and affective empathy are separate dimensions of the empathy construct, the QME has not been shown to be associated with the same traits and behaviors that are associated with the Hogan Scale. Rather, the QME has been positively correlated with helping behavior, general emotionality, and neuroticism (Chlopan et al., 1985).
In his comprehensive review of the empathy literature, Davis (1994) presents a model that breaks empathy down into the affective and cognitive component parts described above. Within this model, empathy is broadly defined as “a set of constructs having to do with the responses of one individual to the experiences of another” (p. 12). By using such a general definition of empathy, Davis is able to present a temporal model of what he calls an “empathic episode.” Specifically, the model shows multiple components of empathy, each of which is distinct from the others, yet linked. The components include the *antecedents* of the empathic episode, which influence both the *processes* and the *outcomes* associated with empathy. For the purposes of this research, the important distinction in Davis’ model is the one between processes and outcomes.

It was mentioned previously that the terms “role-taking” and “cognitive empathy” are often used interchangeably. However, Davis (1994) makes a helpful distinction between these terms. Specifically, he notes that role-taking is a mechanism (or *process*) that may lead to any number of outcomes. For example, role-taking has been shown to lead to increased empathic concern and/or personal distress, which are affective outcomes. That is, perspective-taking (i.e., role-taking) is one means by which people are often able to experience vicarious affect. Additionally, role-taking can lead to cognitive outcomes such as improved accuracy of interpersonal perception (i.e., the successful interpretation of others’ traits and/or moods). (It should be noted here that neither role-taking nor empathic concern necessarily causally precedes the other. In other words, although Davis’ model designates empathic concern as one possible outcome of role-taking, he also states that the relationship may work the other way as well (Davis, 1994).
At this point, the research does not provide the empirical support that enables us to infer the direction of causation between these two variables.

Generally, when the term "cognitive empathy" is used, the distinction between process and outcome is blurred. That is, some researchers will assess cognitive empathy by measuring interpersonal perception accuracy, and they will simply infer that role-taking is the mechanism by which accuracy improves (e.g., Kerr & Speroff, 1954; Dymond, 1949, 1950). Other researchers assume that perspective-taking automatically leads to improved perception accuracy, although the fact that a person attempts to see things from another's perspective does not guarantee that he/she is, in fact, correctly understanding that perspective. Rather, there is evidence suggesting that role-taking is only one influence on the successful interpretation of others' characteristics (e.g., Higgins, Feldman & Ruble, 1980).

Thus, it is important to note that role-taking, when discussed in this paper, refers strictly to the process of attempting to apprehend another's perspective. Accuracy of person perception, on the other hand, is represented as being one of several possible outcomes that may be influenced by role-taking. Additionally, as mentioned previously, it is likely that the tendency to engage in role-taking and the tendency to experience affective empathy are correlated, with the direction of causation being difficult to determine (1 in figure 1). As Davis states, "the cognitive and affective components of empathy almost certainly comprise an interdependent, interactive system in which each influences the other" (p. 79). With these clarifications in mind, we may now consider a
model that delineates the relationship between empathy, social behavior, social outcomes, performance, and performance outcomes (Figure 1).

Empathy and Work Related Outcomes

Empathy and Social Behavior

As stated in the beginning of this paper, it has long been reasoned that social intelligence enhances social interaction and is therefore a likely predictor of success in many of life's pursuits. It is proposed here that empathy, particularly the role-taking component, is quite possibly one of the fundamental components of social intelligence. Thus, it follows that empathy influences social interaction. Support for this proposition is presented next.

When considering the link between empathy and social behavior, one should first recall Thorndike's (1920) definition of social intelligence, which states that it is the ability to understand and manage others. It appears that people are better able to understand others if they can see things from others' point of view. This understanding then facilitates the management of people. A discussion of some of the theoretical work that explains these relationships will follow. Then, empirical research supporting the theoretical assumptions will be presented.

Foote and Cottrell (1955) described the cognitive component of empathy in their discussion of interpersonal competence. Specifically, they theorized that cognitive empathy (or role-taking) is one of six components of interpersonal competence. That is, one's facility in getting along well socially, or interpersonal competence, is partially
dependent on one’s ability to interpret the emotions, attitudes, and intentions of others. Foote and Cottrell (1955) stated that empathy, or “the accuracy with which [one] can perceive situations from others’ standpoint” enables one to anticipate and predict the behavior of others (p. 54). (Note that their conceptualization of empathy is outcome-rather than process-oriented). Thus, this work begins to answer the question of why role-taking ability should be expected to be an important component of the social intelligence construct. However, it is helpful to consider this reasoning in more detail.

Feffer and Suchotliff (1966) suggested that the beginnings of the answer to the question of how empathy facilitates successful social interaction can be found in the work of Piaget (1950). Piaget discusses the concept of “decentering,” or shifting one’s focus from one part of the perceptual field to another. Specifically, he writes about the cognitive processes involved in the perception of objects in space. He purports that the act of focusing or centering on a particular part of the perceptual field leads to the distortion of other parts of the field. Piaget further posits that, as an individual matures, he/she becomes more adept at correcting such distortion. He proposes that this is accomplished as an individual develops the ability to attend to multiple aspects of a situation at the same time, known as simultaneous decentering.

Feffer and Suchotliff (1966) elaborated on Piaget’s framework in an effort to shed light on the process that might lead to the effectiveness of empathy in social interactions. Specifically, they posited that successful social interaction requires that an individual be able to anticipate another’s reaction to his/her behavior and to modify that behavior as a response to the anticipation. Further, they maintained that the ability to predict this
reaction accurately is contingent on the perceiver’s ability to see his/her intended
behavior from the other person’s point of view. However, if the perceiver hopes to
modify his/her behavior in light of this anticipation, he/she must be able to contemplate
the intended action from his/her own perspective simultaneously. Thus, an individual
who is able to focus simultaneously on his/her own perspective as well as others’ is more
likely to avoid distortion of social situations, and will therefore be more effective in those
situations. As explained by Davis (1994),

> Without a capacity to role-take, one’s relations with others would be
> inescapably self-centered and marked by interpersonal friction, as each
> social participant’s goals and objectives would conflict with those of
> others (p. 177).

The relationships discussed above are depicted in Davis’ Mediational Model.

Drawing from his own and others’ theoretical work, Davis reasons that empathy (both
affective and cognitive) influences a person’s behavior.¹ This behavior is then perceived
by a target, and, to the extent that the target’s perception matches the actor’s intentions,
the behavior tends to positively affect the social interaction between the two. For
example, if role-taking leads an actor to feel compassion for a target, the actor may
respond by moving to comfort the target. If the target then perceives the actor’s behavior
as compassionate, it is likely that the target will respond positively to the actor. Thus, the
actor’s empathy (i.e., role-taking and empathic concern) indirectly influences his/her

---

¹ Note that Davis includes three types of empathy in his model. “Perspective taking” is what has been described here
as role-taking or cognitive empathy. However, Davis breaks affective empathy down into two component constructs.
Specifically, “empathic concern” is defined as an affective state produced in an observer that is characterized by an
other-oriented feeling (e.g., compassion) for another person. Empathic concern has also been called sympathy and
sympathetic distress. “Personal distress”, on the other hand, is also an affective state produced in an observer, but it is
characterized by a self-oriented emotional reaction (e.g., a feeling of personal anxiety engendered by another’s
misfortune). In this paper, when discussing affective empathy, the implied definition is congruent with Davis’
“empathic concern.”
social interaction (e.g., communication effectiveness, likability) with the target (2 - 5 in Figure 1). Next we will turn to the empirical evidence that supports this view.

Several studies have investigated the effect of empathy (both role-taking and affective empathy) on various social outcomes. Within this stream of research, the assumption is made that there are meaningful individual differences in the dispositional tendency to engage in role-taking and to experience affective empathy. And in fact there is considerable evidence supporting the idea that people vary in the extent of their empathic capacities, and also in their tendency to exercise these capacities (Davis, 1994). These individual differences have often been assessed using paper-and-pencil measures such as the Hogan Empathy Scale, a scale that specifically measures role-taking ability. Some of this research is reviewed below.

Ford (1982) found that participants who scored high on the Hogan Empathy Scale tended to have higher peer, teacher, and self-judgments of social competence. They also tended to perform better in an interview during which their performance was rated according to their speaking effectiveness, their responsiveness to the interviewer's questions, and the appropriateness of their nonverbal behaviors (e.g., eye contact). Additionally, Hogan and Mankin (1970) found that individuals who scored high on the Hogan Scale tended to be rated as more generally likable than those who scored low (r = .60). Thus, since “managing others” (Thorndike, 1920) or “attaining relevant social goals” (Ford, 1982) is often cited as a component of social intelligence, it would appear that cognitive empathy or role-taking ability might be one means by which this component of social intelligence is developed. That is, as Feffer and Suchotliff (1966)
maintain, individuals who are good at seeing things from another’s point of view are also more competent in their interactions with others and more liked by them.

It is worth noting that a conceptual distinction can be made between the concepts of “liking” and “likability.” Specifically, liking implies that one person has a favorable reaction to a target person within the context of a dyadic relationship. Likability, on the other hand, refers to a characteristic of the target person. That is, a person who is likable in general is liked by many other individuals. Thus, one gains more confidence in the target’s likability as more individuals’ liking of that person is assessed. This distinction has implications for the research presented here and will be discussed further in the methods section. At this point, it should be stated that this research is generally concerned with the likability of individuals.

The Interpersonal Reactivity Index is a measure that was developed based on a multidimensional view of empathy, and it attempts to measure individual differences in empathic tendencies using four separate scales (IRI; Davis, 1980, 1983). One of these scales measures perspective-taking (cognitive empathy), and another measures empathic concern (affective empathy). Like the Hogan Empathy Scale, the IRI has been used as a predictor of social behavior and outcomes in a number of studies.

Much of the research investigating the relationship between empathy and social outcomes has used romantic couples as participants. For example, Franzoi, Davis and Young (1985) found that the perspective-taking scores of individuals within romantic relationships were significantly correlated with their reported levels of satisfaction with the relationship. However, other researchers have found that scores on a general measure
of perspective-taking were not correlated with satisfaction within a relationship. Instead, they found that measures of partner-specific perspective-taking were predictive of satisfaction (Long & Andrews, 1990; Rusbult, Verette, Whitney, Slovik & Lipkus, 1991). That is, if someone has a specific tendency to take the perspective of his/her romantic partner, then that partner reports more satisfaction with the relationship. Thus, at least in a romantic context, it is unclear whether a general tendency to engage in role-taking behavior results in positive social outcomes. However, there is evidence supporting Davis’ hypothesis that both types of empathy may influence behavior that, in turn, improves the quality of social interaction.

In general, measures of both dispositional perspective-taking and empathic concern have been shown to be related to what Davis terms “considerate social style” (1994). For example, individuals scoring high on a perspective-taking scale were more likely to avoid rude and egotistical behavior, and those scoring high on the empathic concern scale tended to be more generous and warm (Davis & Oathout, 1987; 1992; Davis, 1983b). However, it should be noted that these results are based on self-report predictor and criterion measures.

Another social outcome hypothesized to be influenced by empathy is the quality of communication between individuals. As Burleson (1982) writes, the possibility of coordinated social action depends on the individual’s capacity to “take” (i.e., imaginatively construct) the perspective of others: One must be able to represent and anticipate the other’s view of a situation in order to mesh one’s line of action with that of the other. More specifically, it has been proposed that role-taking serves a crucial function in such diverse communicative activities as effectively adapting the form and content of a message to an audience; managing the topic of a
There is evidence to support such propositions. For example, Feffer and Suchotliff (1966) found that participants scoring higher in perspective-taking tended to perform better on a simulation of Password, a game that requires effective communication between partners. Evidence for this link was also provided by Wiemann (1977), who studied the characteristics of communicators with high and low levels of effectiveness. In this study, various aspects of communicative competency were assessed, including behavioral flexibility, empathy, and affiliation/support. Using items such as "Subject generally knows how others feel" and "Subject can easily put herself in another person's shoes," Wiemann found that empathy was one of the defining characteristics of an effective communicator. Furthermore, Sypher and Sypher (1983) found that self-report measures of perspective-taking ability were significantly correlated with self-report measures of communication effectiveness. And finally, other studies have found that empathic concern is related to good communication within romantic relationships and among high school peers (Davis & Oathout, 1987; 1992).

Thus, there is evidence indicating that two components of empathy are related to various measures of communication effectiveness. However, the means of measuring communication effectiveness in the studies discussed above are quite varied, are not necessarily theoretically consistent, and have been used in several different contexts. Therefore, although all of the studies attempt to understand and/or measure some aspect of effective communication, there is little uniformity in how this construct is conceived.
This lack of consistency limits the conclusions that can be drawn regarding the relationship between empathy and communication effectiveness, so an attempt will be made here to provide a theoretically-supported conceptualization of communication effectiveness within managerial jobs and to test its relationship with role-taking and empathic concern. More discussion of this issue will be presented later.

A final social outcome associated with empathy appears to be interpersonal conflict. For example, perspective-taking tends to be negatively correlated with antagonistic hostility among males (Richardson, Hammock, Smith, Gardner, & Signo, 1992, cited in Davis, 1994; Davis, 1992). Additionally, empathic concern is more likely to predict a lack of hostility in females, and Franzoi et al. (1985) found that, among males, the tendency to take others' perspective was associated with working toward “give-and-take” solutions to problems. And finally, Neale and Bazerman (1983) found that individuals who scored high on a measure of perspective-taking were more likely to be good negotiators, and they were also more likely to leave their opponents feeling more satisfied with the outcome.

In light of the evidence presented above, it is tempting to conclude that both cognitive and affective empathy tend to lead to improved social interaction. In particular, individuals who engage in role-taking appear to communicate better with others, and they also tend to be perceived as more socially competent and more likable. However, the use of caution is advised when drawing conclusions from this literature. As noted earlier, many of the criterion measures used in the research are self-report, which is less compelling than research using objective measures of social outcomes. For example,
someone's self-description of his/her communication effectiveness is more likely to be biased than others' assessments of his/her ability to communicate (Murphy & Cleveland, 1995). Future research in this area, then, should avoid using only self-report measures of empathy and its hypothesized outcomes.

Social Behavior and Performance

Considerable evidence has been presented for the relationships delineated in the first stage of the model depicted in Figure 1 (i.e., the links between empathy and certain social behavior/outcomes, such as likability). Next the relationship between these social behavior/outcomes and performance will be discussed. Within this discussion, a distinction will be made between performance ratings and *actual* performance.

First, evidence will be presented indicating that ratees' likability and communication effectiveness influence raters' evaluations. It is suggested that this linkage is partially the result of rater bias. However, it is also posited here that ratees' communication effectiveness has a real effect on their job performance, which in turn influences performance ratings. Thus, ratees who are effective communicators and/or are more likable than their peers are likely to receive performance ratings that are biased in their favor. Additionally, ratees who communicate well are likely to be better performers, which will also positively affect the performance ratings they receive.

**Likability and Performance.** Success within an organization is, at least in theory, contingent on effective performance. Thus, common measures of success in this context include direct assessments of performance as well as those rewards that are often based on performance assessments, such as salary level, salary increases, and rate of promotion.
However, there is evidence indicating that performance assessments are seldom the objective, unbiased reflections of actual performance that they are meant to be. Not surprisingly, research shows that, in addition to objective indicators of performance, supervisors’ affective reactions to their subordinates influence the performance ratings they assign to those subordinates (6 in Figure 1).

For many years, models of information processing applied within the performance appraisal context overlooked the possible effect of the rater’s feelings toward the subject of the appraisal (Murphy & Cleveland, 1995). However, Feldman (1981) was among the first to propose that affect may influence ratings. Specifically, he proposed that liking (a positive evaluative response to a stimulus) may bias the causal attributions that raters make about ratee behaviors.

In a similar vein, Dipboye (1985) theorized that liking would have a direct effect on performance ratings. He proposed that earlier research tended to overlook this tendency because many studies were conducted in laboratories where raters were “passive observers” rating hypothetical ratees. This type of research, he argued, fails to recognize the importance of face-to-face, realistic interactions. Specifically, Dipboye stated that such interactions seem likely “to evoke stronger liking or disliking for a ratee...than is likely to occur in passive-observer research because of the larger number of auditory and visual cues” (p. 120). These feelings, then, serve to bias raters’ appraisals of ratees.

In a preliminary empirical test of these theories, Alexander and Wilkins (1982) found that supervisor liking was more highly correlated with performance ratings than objective measures of performance were. Additionally, Cardy and Dobbins (1986) found
that liking interfered with raters' performance evaluations despite the fact that the dimensions comprising the liking measure were unrelated to effective job performance. That is, their participants were unable to prevent liking from affecting the cognitive processing that preceded their assignment of a performance rating.

Another empirical study that lends support to the idea of a link between rater affect and ratings was conducted by Heneman, Greenberger, and Anonyuo (1989). Based on a model of leadership put forth by Green and Mitchell (1979), it was proposed that supervisor attributions about subordinates' performance would be influenced by the pre-existing relationship between supervisor and subordinate. This research was based on leader-member exchange theory, which holds that supervisors identify their subordinates as either ingroup or outgroup members (Dansereau, Graen, & Haga, 1975).

Within leader-member exchange theory, ingroup members are granted more trust, interaction, support, and rewards from their supervisors than outgroup members are. Thus, Heneman et al. (1989) proposed that supervisors' ratings may be biased because the attributions they make about ratee behaviors are influenced by the ratees' ingroup/outgroup status. Specifically, they hypothesized that supervisors will make more favorable attributions about the behavior of ingroup members than outgroup members when performance levels are equal. Their data support this hypothesis. That is, they found that effective performance was more likely to be attributed to internal causes (e.g., ability, effort) for ingroup members than outgroup members. On the other hand, ineffective performance was more likely to be attributed to internal causes for outgroup members than for ingroup members. In other words, subordinates who are liked by their
supervisors are more likely to get credit for good performance, and disliked subordinates are more likely to be held accountable for poor performance. It is a small leap, then, to infer how these kinds of causal attributions can affect supervisory performance ratings, especially in light of the fact that leader attributions have been shown to be related to such leader-controlled outcomes as reward decisions, task assignments, and selection decisions (Heneman et al., 1989).

Communication Effectiveness and Performance. There is also evidence supporting the idea that managers’ communication effectiveness influences both their actual performance and their performance ratings (7 in Figure 1). Papa and Graham (1991) studied the relationship between communication effectiveness and performance ratings among managers, stating that “substantial research indicates that communication is the activity most critical to managerial performance” (p. 381). Their definition of communication effectiveness included demonstration of listening skills, sensitivity to the needs of others, and conflict management skills. Based on this definition, the researchers trained managers to improve their communication effectiveness. Their data showed that, compared to managers who were *not* trained in this manner, those who *were* trained received higher performance ratings in the following areas: interpersonal skills, productivity, and problem solving skills.

Additional empirical evidence for the communication-performance ratings link is reported in a study by Penley, Alexander, Jernigan, and Henwood (1991), although their results are mixed. These researchers attempted to determine whether managers who rated themselves as effective communicators (in terms of accuracy and articulateness) were in
fact better performers than those who rated themselves as poorer communicators. They found that self-ratings of communication accuracy (e.g., consistency of verbal and nonverbal behavior) were significantly correlated with both subjective and objective evaluations of managers' performance, but self-ratings of communication articulateness (e.g., presenting ideas clearly and concisely to others) were not.

Previous research indicates that effective managers should be both accurate and articulate, but the self-report nature of these instruments offers a possible explanation for the mixed results reported in this study. That is, as mentioned previously, it is highly likely that managers' self-evaluations of their communication effectiveness are not the most valid measures that might be obtained. Still, given the objective nature of the performance criteria that were used, the results of this study do provide some support for the proposition that the communication-performance rating relationship is, at least in part, attributable to the effect of communication effectiveness on actual performance. Theoretical evidence supporting this claim is discussed below.

The argument has been presented that a manager's communication effectiveness is related to his/her performance. However, the question of what constitutes effectiveness has not yet been thoroughly addressed. A summary of the characteristics of an effective managerial communicator is presented next.

The first characteristic of an effective managerial communicator involves the simple notion of frequency. That is, managers who communicate more often with their subordinates are more likely to be viewed as effective communicators and to have a positive effect on their subordinates. It has been theorized that the process by which
communication frequency affects managerial performance involves role perception (Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964).

Kahn et al. (1964) posit that the frequency of contact between a supervisor and subordinate has a direct effect on the subordinate’s perception of role conflict and role ambiguity. Role conflict exists when a subordinate perceives certain expectations associated with his/her role to be incongruent. Role ambiguity results when role expectations are unclear. These role perceptions then serve to influence subordinates’ job performance and satisfaction, which, in turn, affect managers’ job performance.

Kahn et al. (1964) propose that the process by which this occurs is indirect. First, high role conflict and/or ambiguity often lead to the subordinate’s decrease in trust, liking, and respect for the supervisor. These reactions then lead to the withdrawal of the subordinate, which tends to lead to less communication and more role conflict and ambiguity. Therefore, the subordinate experiences even more confusion about what to do and how to do it, and his/her performance suffers. Additionally, because task performance is associated with much confusion, the subordinate will search for satisfaction elsewhere, denying the importance of task performance. Thus, a supervisor who is a relatively infrequent communicator is likely to negatively influence subordinates’ performance and satisfaction by increasing levels of role ambiguity and role conflict.

In two organizations, Schuler (1979) tested many of the theoretical propositions discussed above. Specifically, he found that the frequency of supervisor-subordinate communication does have an effect on subordinate performance and satisfaction.
Additionally, his results showed that this relationship could be explained by the effect of communication frequency on role perceptions, as the correlations between communication frequency and performance/satisfaction measures dropped nearly to zero when the effects of role perceptions were removed.

Schuler (1979) also elaborated on the work of Kahn et al. (1964) by proposing that the content of supervisory communication, not just the frequency of communication, would affect subordinate performance and satisfaction. For example, he hypothesized that the extent to which the communication included task-relevant information would be related to role conflict and ambiguity, and would thereby influence subordinate performance and satisfaction. His results supported this proposition, indicating that communication of high levels of task-relevant information, relative to other kinds of information, was related to reduced role conflict and ambiguity, as well as increased satisfaction and performance levels of subordinates.

Thus, it appears that both the frequency and content of supervisor communications affect subordinate outcomes by way of the subordinates’ role perceptions. And because a supervisor’s performance is dependent on his/her subordinates’ performance and satisfaction levels (Jablin, 1979), it follows that a supervisor’s communication effectiveness with subordinates has an effect on his/her own performance. However, at this point we have discussed only how the quantity and informational content of supervisory communication affects performance. It should also be noted that the quality of that communication is important as well.
Jablin (1979) summarized much of the research that compares the communication quality of effective versus ineffective supervisors. In general, effective supervisors tend to demonstrate the following tendencies:

1. They enjoy communicating with others
2. They are approachable and willing listeners
3. They tend to "ask" or "persuade" rather than "tell" or "demand"
4. They tend to be sensitive to the feelings and ego-defense needs of their subordinates
5. They are more open in their sharing of information, give advance notice of impending changes, and explain the "reasons why" changes occur.

In summary, then, positive organizational outcomes should be associated with supervisors who communicate effectively, with effective communication being characterized as occurring frequently and conveying much task-relevant information in the style outlined in the list above.

Performance, Performance Ratings, and Organizational Rewards

At this point, evidence has been provided in support of the link between empathy and social interaction, as well as for the link between social interaction and performance (and performance ratings). There is also ample evidence indicating that performance effectiveness has a significant relationship with performance ratings, although the strength of this correlation is contingent on many factors (e.g., the external environment, such as political and economic conditions, organizational culture, rater goals, rater motivation, and the existence of appropriate rating standards). As Murphy and Cleveland state,

Evidence shows that raters can provide reasonably valid judgments of the overall performance levels of their subordinates, and can reliably
identify their best and worst workers. [However], this does not mean that raters will provide valid ratings (1991, p. 217).

Within the context of this research, it is important to make the point that performance and performance ratings are related (albeit not perfectly), because it is not possible to obtain purely objective measures of performance in this study. Therefore, measures of performance are operationalized using supervisory ratings. Thus, the relationships in the model that depict the linkages of certain variables to performance cannot be tested directly. However, for reasons that will be discussed later, the performance ratings that are available are more likely than many to be relatively free from bias, thereby allowing for confidence that they largely reflect actual performance.

And finally, organizations have a long history of tying employee rewards such as salary and rate of promotion to performance and performance ratings (8 in Figure 1) (Schoderbek & Deshpande, 1993). For example, there is considerable evidence indicating that performance ratings often have a significant impact on both salary determinations (e.g., the percent increase awarded after a review) and promotion decisions (Heneman, 1973; Taylor, 1975; Chung & Leung, 1988; Heneman, Greenberger, & Strasser, 1988). However, the strength of these relationships varies across organizations. For example, salaries in some organizations are influenced more by external labor market conditions than by performance ratings, and some organizations are more likely to link the performance of a work group (rather than individual performance) to pay decisions (Markham, 1988). Additionally, some organizations are more likely than others to consider seniority as a factor when making promotion decisions. Still, it is
reasonable to assume that, in many organizations, performance ratings influence both salary and promotion decisions.

The means by which empathy serves to influence such employee rewards have now been outlined and depicted in a structural model. Listed below are some specific hypotheses concerning the relationships among the latent variables in the structural model. These hypotheses are based on the assumption that the measured variables are strongly related to the latent variables they are presumed to measure.

Hypothesis 1: Individuals who are high in the tendency to role-take will be more liked than those who are low in this tendency.

Hypothesis 2: The individual tendency to engage in role-taking will be positively related to the tendency to experience empathic concern.

Hypothesis 3: Individuals who are high in the tendency to experience empathic concern (affective empathy) will be more liked than those who are low in this tendency.

Based on evidence provided above, it is also proposed here that individuals who are more empathic will tend to be more effective communicators than their less-empathic co-workers. This effectiveness, in addition to likability, is predicted to be linked to performance and performance ratings. Thus, empathic individuals may receive inflated performance ratings because they are liked, but they are also likely to receive legitimately high performance ratings because their performance is truly enhanced by their likability and effective communication. Again, however, it is important to emphasize that objective measures of performance are not available for this study, so claims regarding the direct linkages between likability and communication and actual performance cannot
be made. Instead, only inferences about the effects of likability and communication on actual performance can be made based on their relationships with performance ratings.

**Hypothesis 4:** Individuals who are more liked will be better performers, as measured by performance ratings, than individuals who are less liked.

**Hypothesis 5:** Individuals who are high in the tendency to role take will be more effective communicators than those individuals who are low in this tendency.

**Hypothesis 6:** Individuals who are high in the tendency to experience empathic concern will be more effective communicators than those individuals who are low in this tendency.

**Hypothesis 7:** Individuals who are more effective communicators will be better performers, as measured by performance ratings, than individuals who are less effective communicators.

It is also put forth here that individuals who are better performers (based on performance ratings) will, in turn, be more successful at work based on multiple criteria of success (e.g., rate of promotion, salary increase, etc.). As argued earlier, the extent of these relationships can vary greatly across organizations. However, the sample that will be studied here comes from an organization that has a history of rewarding above-average performance with promotions. Also, the company has recently implemented a performance management system that links monetary rewards more directly to performance ratings.

**Hypothesis 8:** Individuals receiving high performance ratings will tend to receive higher salary increases and experience more rapid rates of promotion than individuals receiving low performance ratings.
Based on arguments presented at the beginning of this paper, the proposition that empathy contributes uniquely to the prediction of managerial success will also be tested. That is, although there is support indicating that traditional measures of intelligence are predictive of certain success criteria (9 in Fig. 1), it has been argued earlier in this dissertation that empathy measures (which are believed to represent, in part, the multidimensional construct of social intelligence) are also helpful predictors of managerial success. Further, it is posited that the two types of intelligence (social and traditional) are not highly correlated.

There is evidence that social intelligence, as measured by empathy, is not highly correlated with traditional measures of intelligence. For example, Brown and Anthony (1990) found that a measure of empathy was not correlated significantly with ACT scores and GPA. Additionally, Davis (1983) and Marlowe (1986) found that neither the tendency to role-take nor the tendency to experience empathic concern correlated significantly with measures of cognitive ability. Thus, there is reason to believe that empathy and cognitive abilities are distinct constructs. Therefore, it is proposed here that the tendency to experience empathy is not highly related to cognitive abilities and will therefore prove to be an independent predictor of performance in the workplace (cf. Riggio et al., 1991).

**Hypothesis 9: The tendency to role-take and to experience empathic concern will account for variance in performance at work in addition to the variance that is accounted for by traditional measures of intelligence.**
Finally, it is proposed that the fit of the model depicting empathy and work related outcomes, tested using covariance structural modeling, will be good (see Figure 2 for a depiction of the measurement model).

Hypothesis 10: The theoretical model depicting the process by which empathy influences managerial occupational success will fit the data adequately according to conventionally recognized criteria.
Figure 2: Empathy and Work Related Outcomes - Measurement Model
CHAPTER 2

METHOD

Participants and Procedure

Participants in the study included 132 managers in a large retail organization. Their positions in the organizational hierarchy ranged from one to four levels below the CEO. The sample was drawn from eight separate divisions within the organization.

Questionnaires designed to measure role-taking and empathic concern were sent to each employee, as well as a measure of communication effectiveness and cognitive ability. Surveys were sent to 384 employees, and 132 were returned, yielding a respectable response rate of 34%. Once the questionnaires were received from the original respondents, a second questionnaire was sent to each participant’s supervisor asking him or her to rate how much he/she liked the participant and to assess the participant’s communication effectiveness, tendency to role-take, and to experience empathic concern. Questionnaires were completed by 68 of the 132 supervisors, yielding a response rate of 52%. Additionally, all of the subordinates of the participants were asked to complete the same questionnaire with regard to the participant, unless a participant had more than four subordinates. In those cases the questionnaires were sent to four randomly-selected subordinates, chosen by the researcher from organizational
charts. The number of subordinates solicited for a particular participant varied, as some had only one subordinate, whereas others had as many as ten. A total of 302 surveys were mailed to subordinates, and 95 were returned, yielding a response rate of 32%.

An average of the participants' bosses' and subordinates' assessments ("secondary respondents") provided non-self-report measures of likability and communication effectiveness. It was determined that the self-report measures of communication effectiveness would not be used, given that self-assessments on this measure are of questionable value. However, self-reports of empathy are arguably valuable, as individuals are likely to have insight into their empathic tendencies that others may not have. Thus, measures of the two types of empathy were averaged with the secondary respondents' ratings. Depending on the participant, the number of secondary respondents varied from zero to five, so some of the empathy measures are based on more individuals' perspectives than others.

A cover letter (see Appendix F) explaining the study was sent to all participants, assuring them that their responses would be kept confidential. Respondents were asked to complete and return all questionnaires within two weeks. Upon receipt of these completed measures, the cover letter requesting participation from supervisors and subordinates was distributed, along with the questionnaire. The supervisors and subordinates who filled out questionnaires on behalf of the participants were asked to keep their responses and their participation in the study confidential.

Finally, once the data were collected from all participants and secondary respondents, they received a debriefing statement (Appendix G). Additionally, all
participants received feedback about their relative standing among their peers on the various measures in the form of a written summary.

**Measures**

(See Appendices for individual items of all measures)

**Role-Taking**

The Perspective-Taking (PT) subscale of Davis' Interpersonal Reactivity Index (IRI) was used as a self-report measure of the tendency to role-take (1980, 1983). Davis states that the subscale measures the "tendency to spontaneously adopt the psychological point of view of others in everyday life" (Davis, 1994). As discussed previously, there is evidence for the construct validity of the PT scale. Specifically, it has been shown to be related to other similar empathy measures and to several indices of social competence (Davis, 1983). For example, the PT scale was shown to correlate with the Hogan Empathy Scale (r = .40).

Since the early 70's, the Hogan scale has been the most commonly-used paper-and-pencil measure of cognitive empathy, although recently the IRI's PT scale has been used more often. It is likely that the IRI is more appealing to many researchers because it is considerably shorter than the Hogan scale. Additionally, there is evidence suggesting that Hogan's scale is multidimensional (Davis, 1994)), whereas the IRI's PT scale is unidimensional. This difference between the two scales also helps explain why the correlation between them is only moderately strong.
The PT scale focuses on the *process* of role-taking and includes seven items. Each response is based on a five-point scale ranging from 0 ("does not describe me well") to 4 ("describes me very well"). Some items are reversed scored (indicated by an "R"), and then the scores for each item are summed. The wording of these items were changed to make the scale third-person so that supervisors and subordinates could evaluate participants on the same scale. The scale has been demonstrated to have a test-retest reliability of .67 and internal reliability of .74 (Davis, 1983).

**Empathic Concern**

Affective empathy was assessed using the Empathic Concern (EC) subscale of the IRI. According to Davis, this scale measures the "tendency to experience feelings of sympathy and compassion for unfortunate others" (1994, p. 57). The EC scale, like the PT scale, has been shown to be related to similar measures (e.g., the Mehrabian and Epstein Emotional Empathy Scale; Davis, 1983). The scale has a test-retest reliability of .69; its internal reliability is .72 (Davis, 1983). The EC scale also has seven items, each based on a five-point scale. Additionally, the wording was changed to allow for third-person assessments.

Two subscales measuring different components of empathy (personal distress and fantasy) were mixed in with the Empathic Concern and Perspective-Taking subscales. The constructs represented by these subscales are not part of the proposed model, but the items served to make the instrument less transparent and helped to reduce the possibility of participants developing a response set when completing the measure.
Likability

The supervisors and subordinates of participants were asked to rate the degree to which they “liked” each of these participants using a four-item measure. Thus, some supervisors who had more than one of their subordinates participate rated more than one participant. Each item is measured on 5-point Likert-type scales. Wayne and Ferris (1990) reported alpha reliability estimates of .86 and .94 for this measure.

As mentioned previously, it should be noted that a distinction can be made between the constructs of “likability” and “liking.” The measure used in this study asks respondents how much they like the participant. Thus, in cases where only one liking assessment was returned, inferences about general likability are tenuous. As discussed in the introduction, one response on this type of measure yields information only about liking within the dyadic relationship. To make inferences about general likability, at least two liking measures are desired. For consistency, however, the term “likability” will be used within the context of this research.

Communication

Communication effectiveness was measured with the Communicator Competence Questionnaire (CCQ), a twelve-item scale designed to assess communication effectiveness within an organizational context. The scale shows strong internal reliability (one study reported .98; Papa & Tracy, 1988). The CCQ was selected because it measures the degree to which managers demonstrate several of the behaviors discussed earlier that are shown to distinguish effective from ineffective managers (e.g., listening well, being sensitive to others’ needs).
The scale was completed by the participant’s supervisor and one or more of his/her subordinates. Two items, designed to assess the frequency and task-oriented content of communication, have been added to the scale. An average of the secondary respondents’ responses will be calculated to determine the participant’s score on this measure. Responses are measured on 7-point Likert-type scales and range from “very strong agreement” to “very strong disagreement.”

Performance

Current performance ratings included in a leadership development database were used (see Appendix D). These ratings are determined by a manager’s supervisor, although there is often input from others, such as the CEO. This type of rating, which is used for developmental purposes only, is preferable to one that is linked to compensation because raters are more likely to use the low ends of a scale when they are providing feedback and not determining pay raises.

In her capacity as an intern at the organization, the researcher has security-approved access to the database in which this information is maintained. The cover letter soliciting participation (Appendix F) informed potential participants that this data would be used in the research study and that it would be kept confidential (i.e., only the researcher would see it). Their agreement to participate in the study indicated their consent to use this data, as is clearly specified in the letter.

The ratings include an Overall Assessment and a Leadership Skills Assessment. The Overall rating evaluates employees’ general performance and is based on a scale that includes the following ratings: 1) Greatly Exceeds Expectations, 2)
Exceeds Expectations, 3) Meets Expectations, 4) Does Not Meet Expectations, and 5) Far Below Expectations. The Leadership Skills ratings are based on a set of 18 competencies shown to be relevant to high performance within the organization. The competencies are grouped within the following categories: thinking, strategic management, leadership, entrepreneurial drive, interpersonal, and self-management. These groupings have been designated by the research company that developed the performance rating instrument. According to a company representative, these groupings were derived “partially empirically, partially intuitively.” It was therefore determined that factor analysis should be used to determine if the existing groupings (or factors) were supported by data from the sample. The results of this factor analysis will be reported in the Results chapter.

The scale used to rate the competencies is ordinal and includes the following rating options: Needs Demonstration (i.e., the ratee has not been called upon to use the competency), Ineffective/Needs Improvement, OK (i.e., ratee meets organization’s high standards), Highly Effective (i.e., ratee demonstrates this competency to the extent that he/she may serve as a role model to others), Overdone Strength (i.e., ratee’s use of this competency may be overused to the point of being detrimental to his/her performance), and Not Applicable.

Ratings of “Needs Demonstration”, “Not Applicable”, and “Overdone Strength” were omitted from analyses, and the remaining ratings were averaged to provide an overall Leadership rating. It was decided that the “Overdone Strength” rating would be omitted from the analyses because it is impossible to determine how each rater conceives
of this rating in relation to other ratings. The "Needs Demonstration" and "Not Applicable" ratings were excluded because they are not ratings of performance. Fortunately, all of these ratings were assigned relatively infrequently (approximately 20% of the ratings were one of these three), so even though they were treated as missing data, participants' leadership ratings were almost always based on the average of at least 14 other competency ratings for which they received ratings of "Ineffective," "OK," or "Highly Effective." Thus, the exclusion of the three types of ratings described above did not cause significant problems with the data analysis.

There is reason to believe that the performance ratings used here assess the behaviors that comprise effective managerial performance. Specifically, the competencies assessed by the rating form were selected as job-relevant based on extensive research into the nature of managerial work in general, as well as the specific nature of managerial work at the organization participating in this research. That is, a list of competencies that has been well-supported as job-relevant in a variety of organizations and industries was customized to reflect the specific requirements for good managerial job performance within this organization. Thus, the ratings are content valid.

A factor that probably contributes to the accuracy of ratings used in this study is the inclusion of behavioral anchors in the rating process (see Appendix D for examples). By focusing on behaviors rather than traits and by providing raters with specific examples of the various levels of performance, they are less likely to be influenced by factors that are unrelated to job performance (Landy & Farr, 1980). Additionally, as mentioned previously, the ratings in this research were actually produced for the purpose of
providing employees with developmental feedback as opposed to using them to
determine administrative outcomes such as pay raises. Research suggests that raters may
be more lenient on ratees when the ratings have important consequences for the ratees
(e.g., determination of pay) (Ilgen & Feldman, 1983). Thus, it is likely that one can have
more faith in the accuracy of these ratings due to the fact that they were not used to make
administrative decisions.

Organizational Outcomes

Two organizational outcome variables were used. First, “rate of promotion” was
measured by dividing the employees’ number of promotions received by their number of
years in the workforce. This is a means of assessing the rate of ascension during one’s
career. Sypher and Zorn (1986) used this measure and found that rate of promotion (or
“upward mobility”) was significantly related to perspective-taking.

It should be noted that the other measures used in this study are taken at one point in
time, whereas the rate of promotion measures one aspect of occupational success over a
considerable period of time. Thus, one might argue that correlations among rate of
promotion and variables such as role-taking and empathic concern would be low. Still, it
is not believed that this presents a serious problem, since the tendencies to role-take and
experience empathic concern are considered to be relatively stable over time (Davis &
Franzoi, 1991). That is, although these measures are taken at one time in this study, one
can infer with a moderate amount of confidence that they are reflective of the person’s
empathic tendencies over time. Thus, regardless of when empathic tendencies are
measured, the magnitude of their relationship with a long-term rate of promotion measure should be relatively consistent.

The second organizational outcome to be considered is related to salary increase. Heneman (1973) showed that measures of performance are significantly related to the percent of change in salary ($r = .65$). He reasons that this is a better means of assessing the pay-for-performance link than using salary level because salary level is influenced by too many other factors (e.g., job level, job type, etc.). To further control for the effects of salary level, this study compared each participant's percent increase with his/her divisional average. For example, if the average percent increase in a division was 7%, and a participant's increase was 9%, then that participant's score on this measure would be +2. In the same manner, the raises of participants who received a promotion within the past year were compared to the raises of other employees who received promotions, since their raises tend to be considerably higher than those of individuals not receiving promotions. And finally, participants who had been with the company less than a year were compared to other employees whose tenure with the company was similar, since these individuals tend to receive lower raises than other employees. It is believed that these measures of salary increase provide good reward-based indications of participants' relative standing among their coworkers.

**Cognitive Ability**

The Watson-Glaser Critical Thinking Appraisal, Form S was used as the traditional measure of intelligence. This test measures an individual's ability to draw inferences from available data, evaluate the strength of arguments, reason deductively,
and decide whether certain interpretations can be made logically. The test is a shortened version of the Watson-Glaser Form A and has been used as a predictor of success in many fields (e.g., banking, law enforcement, the ministry, etc.), so normative scores are available for a wide range of jobs.

The part-whole correlation between Form A and Form S is .96, indicating that the shorter version is equivalent to the longer version (Watson & Glaser, 1994). The Watson-Glaser Form S consists of 40 items and has shown good internal consistency (alpha = .81, p < .001) and test-retest reliability (r = .81, p < .001) (Watson & Glaser, 1994). The instrument takes approximately 30 minutes to complete, and it does not have to be timed; therefore, the presence of an administrator, although recommended, was not required for the participants to take the test.

Regarding the criterion validity of the WGCTA, there is evidence that the test predicts success both in the classroom (e.g., Bauwens & Gerhard, 1987; Holmgren & Covin, 1984) and on the job (e.g., Molidor, Elstein, & King, 1978; Sherman, 1978; Gaston, 1993). The test has also been shown to predict salary at all levels of management (e.g., Watson & Glaser, 1994).

Regarding the construct validity of the WGCTA, its use as a measure of general intelligence has been supported by studies showing that the test is significantly correlated with tests such as The Otis-Lennon Mental Ability Tests, the California Test of Mental Maturity, and the Wechsler Adult Intelligence Scale Verbal IQ. The WGCTA is also significantly correlated with ability measures such as the Miller Analogies Test and the Scholastic Aptitude Tests (Watson & Glaser, 1994).
Analyses

Different types of analyses were used to test the various hypotheses. Hypotheses 1 through 8, which were concerned with the direct links among pairs of measured variables in the model, were tested using zero-order correlations. In most cases, the two measured variables presented in the original model were collapsed to form a single average measure. For example, the participants’ self-report measures of role-taking were averaged with their bosses’ and subordinates’ ratings to obtain an average measure of role-taking tendencies. These measured variables are described in more detail in the next section.

Hypothesis 9, which proposed that both empathy and critical thinking would account for variance in performance ratings, was to be tested using hierarchical regression. However, the zero-order correlations among critical thinking and all other variables in the model were not significant (see Tables 4 and 5), thereby eliminating the need to run the regression.

Hypothesis 10, concerning the overall fit of the model, was tested with covariance structure analysis using the Reticular Action Model or Near Approximation program (RAMONA, Browne & Mels, 1993). There are several important indices of good fit provided by RAMONA, including the sample discrepancy function value, the Root Mean Squared Error of Approximation (RMSEA), the confidence interval for the RMSEA, and the Estimated Cross-Validation Index.
As indicated in Figure 2 and in the preceding discussion, it was intended that multiple measures of each latent variable would be used. However, for reasons that will be outlined in the next section, it was determined that several of the measured variables were inadequate. In some cases this was simply due to small sample sizes, but in others the measures themselves proved to be poor indicators of their respective latent variables. Thus, rather than testing the original model depicted in Figure 2, which includes both latent and measured variables, path analysis was used to test the relationships among only the measured variables presented in Figure 3.

**Elimination of Latent Variables from Model**

As mentioned above, there were problems associated with several of the measured variables depicted in Figure 2. First, the latent variables of "likability" and "communication effectiveness" were each proposed to influence bosses' and subordinates' ratings of these constructs. However, because the surveys were sent to each participant's boss and several randomly-selected direct reports, significantly more surveys were returned from subordinates than from bosses. For example, 68 boss ratings of likability and communication effectiveness were collected, whereas 95 subordinate ratings of these variables were collected. Unfortunately, when using covariance structure modeling there is no way to deal with varying sample sizes, so the analyses would have to be run based on a sample of 68, which is too small (MacCallum, Browne, & Sugawara, 1996).
Another measured variable that was problematic was the overall performance rating. This single-item measure of performance is based on a five-point scale, and represents an evaluation of an individual's overall performance with regard to results objectives. Unfortunately, there was considerable range restriction within the sample on this measure, as there were no ratings of '5' given ('Far Below Expectations) and only two ratings of "1" given ('Greatly Exceeds Expectations). Thus, since there was little variability in the ratings, the capacity to find significant relationships between this measure and others was reduced.

And finally, there was a problem with the rate of promotion index, which was based on work history information. It was hoped that this index would provide an accurate reflection of participants' occupational success over time. However, during the collection of the data it became apparent that it was nearly impossible to control for many confounding variables that reduced the usefulness of the measure. For example, individuals in merchandising (i.e., buyers) tend to share the same career path, and it is one that involves many promotions (e.g., from trainee to assistant buyer to buyer to senior buyer). On the other hand, individuals found in the more creative positions within the organization (e.g., designers, graphic artists) tend to spend much of their careers as freelancers. Thus, the relatively few number of official promotions they receive is deceiving if one uses rate of promotion to measure occupational success. Additionally, there is very little consistency in job titles across organizations, which made it very difficult to determine when someone had made a lateral versus an upward move.
Based on the problems regarding sample size, range restriction, and confounding variables described above, it was determined that the proposed relationships discussed in this research should be tested by path analyses. This decision made it possible to approximate the constructs of interest with one measured variable each (rather than the two that are required when latent variables are involved).

In the new model, which is depicted in Figure 3, self-ratings and other-ratings of roletaking and empathic concern are averaged to form one index for each construct. Additionally, as mentioned above, boss and subordinate ratings of likability and communication effectiveness are averaged to form single measures of each. The sole performance measure is the leadership assessment described previously. However, based on the notion that performance is a multidimensional construct (Murphy & Cleveland, 1995), a second model will be tested using two components of the performance measure. The factor analysis of the performance measure is reported in the next chapter.

The path analysis model also includes a single measure of intelligence (The Watson-Glaser Critical Thinking Appraisal, Form S). In the original model, it was proposed that the five scales comprising the Watson-Glaser could be used as separate measured variables, each influenced by the latent variable of “Intelligence.” In the path analysis model, however, the scores on these scales are simply summed to form a composite score that represents the measured variable “Critical Thinking.” And finally, the new model uses rate of salary increase as the single measure of occupational success.

It should now be clear that missing data and the inadequacy of certain measured variables have made the inclusion of latent variables (with the exception of error terms) in
Note
Two headed arrows for the four error terms represent their variances.

Figure 3
this field study impossible. Fortunately, the use of only measured variables still allows us to answer many of the research questions presented here. However, it should be recognized that the elimination of latent variables from the original model means that, to some extent, the generalizability of results is sacrificed. That is, the new model does not allow us to make strong inferences about the constructs that may underlie the measured variables.
CHAPTER 3

RESULTS

Participants

The hypotheses were tested using survey data collected from 132 primary respondents and 212 of their bosses and subordinates (secondary respondents). The participants are all employees of a large retailing organization. Descriptive information for the sample is presented in Table 1.

Descriptive Statistics

Descriptive statistics for the scales used in this study are included in Table 2. In some cases surveys were received from as many as five secondary respondents (e.g., boss and four subordinates), while in other cases a survey from only one secondary respondent (e.g., boss or one subordinate) was received. The table includes statistics for self ratings, the average subordinate ratings, and boss ratings. The table also presents statistics for the scores that averaged all secondary respondents' ratings, since the final analyses were based on composite scores that combined the boss and subordinate ratings. For example, participants' "Likability" scores are based on an average of their boss' and/or subordinates' ratings.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary</td>
<td>$125,000</td>
<td>6.6%</td>
</tr>
<tr>
<td>Less than 70,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>71,000-90,000</td>
<td></td>
<td>18.2%</td>
</tr>
<tr>
<td>91,000-120,000</td>
<td></td>
<td>43.0%</td>
</tr>
<tr>
<td>121,000-170,000</td>
<td></td>
<td>18.2%</td>
</tr>
<tr>
<td>171,000-220,000</td>
<td></td>
<td>5.0%</td>
</tr>
<tr>
<td>Over 220,000</td>
<td></td>
<td>8.3%</td>
</tr>
<tr>
<td>Age</td>
<td>39 years</td>
<td></td>
</tr>
<tr>
<td>Less than 30</td>
<td></td>
<td>4.1%</td>
</tr>
<tr>
<td>30-40</td>
<td></td>
<td>62%</td>
</tr>
<tr>
<td>41-50</td>
<td></td>
<td>21.5%</td>
</tr>
<tr>
<td>Over 50</td>
<td></td>
<td>7.4%</td>
</tr>
<tr>
<td>Tenure</td>
<td>6 years</td>
<td></td>
</tr>
<tr>
<td>One year or less</td>
<td></td>
<td>10.8%</td>
</tr>
<tr>
<td>2-3</td>
<td></td>
<td>28.3%</td>
</tr>
<tr>
<td>4-5</td>
<td></td>
<td>15.8%</td>
</tr>
<tr>
<td>6-8</td>
<td></td>
<td>19.2%</td>
</tr>
<tr>
<td>9-12</td>
<td></td>
<td>17.5%</td>
</tr>
<tr>
<td>Over 12</td>
<td></td>
<td>8.3%</td>
</tr>
<tr>
<td>Department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal/Real Estate</td>
<td>1.8%</td>
<td></td>
</tr>
<tr>
<td>Sourcing</td>
<td>1.7%</td>
<td></td>
</tr>
<tr>
<td>Planning &amp; Allocation</td>
<td>4.3%</td>
<td></td>
</tr>
<tr>
<td>Store Planning</td>
<td>4.3%</td>
<td></td>
</tr>
<tr>
<td>MIS</td>
<td>6.1%</td>
<td></td>
</tr>
<tr>
<td>Distribution</td>
<td>6.1%</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>9.6%</td>
<td></td>
</tr>
<tr>
<td>Human Resources</td>
<td>10.4%</td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td>10.4%</td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>16.5%</td>
<td></td>
</tr>
<tr>
<td>Merchandising</td>
<td>28.7%</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>62%</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Descriptive Statistics for demographic variables
<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roletaking - Self</td>
<td>3.7</td>
<td>.55</td>
<td>129</td>
</tr>
<tr>
<td>Roletaking - Subordinates Avg.</td>
<td>3.2</td>
<td>.77</td>
<td>97</td>
</tr>
<tr>
<td>Roletaking - Boss</td>
<td>3.3</td>
<td>.76</td>
<td>68</td>
</tr>
<tr>
<td>Roletaking - Boss + Subordinates</td>
<td>3.2</td>
<td>.70</td>
<td>113</td>
</tr>
<tr>
<td>Empathic Concern - Self</td>
<td>3.8</td>
<td>.59</td>
<td>129</td>
</tr>
<tr>
<td>Empathic Concern - Subordinates Avg.</td>
<td>3.4</td>
<td>.73</td>
<td>97</td>
</tr>
<tr>
<td>Empathic Concern - Boss</td>
<td>3.6</td>
<td>.69</td>
<td>68</td>
</tr>
<tr>
<td>Empathic Concern - Boss + Subordinates</td>
<td>3.4</td>
<td>.63</td>
<td>113</td>
</tr>
<tr>
<td>Likability - Subordinates Avg.</td>
<td>4.1</td>
<td>.76</td>
<td>97</td>
</tr>
<tr>
<td>Likability - Boss</td>
<td>4.2</td>
<td>.69</td>
<td>68</td>
</tr>
<tr>
<td>Likability - Boss + Subordinates</td>
<td>4.1</td>
<td>.66</td>
<td>113</td>
</tr>
<tr>
<td>Communication Effectiveness - Subordinates Avg.</td>
<td>5.3</td>
<td>.93</td>
<td>97</td>
</tr>
<tr>
<td>Communication Effectiveness - Boss</td>
<td>5.6</td>
<td>.74</td>
<td>68</td>
</tr>
<tr>
<td>Communication Effectiveness - Boss + Subordinates</td>
<td>5.4</td>
<td>.76</td>
<td>113</td>
</tr>
<tr>
<td>Performance</td>
<td>61.6</td>
<td>5.6</td>
<td>117</td>
</tr>
<tr>
<td>Performance - Interpersonal</td>
<td>20.0</td>
<td>2.2</td>
<td>117</td>
</tr>
<tr>
<td>Performance - Business Results</td>
<td>32.7</td>
<td>3.5</td>
<td>117</td>
</tr>
<tr>
<td>Relative Salary Increase</td>
<td>-.51</td>
<td>3.8</td>
<td>117</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>31.1</td>
<td>5.4</td>
<td>95</td>
</tr>
</tbody>
</table>

Note: **Roletaking** and **Empathic Concern** items are on a 1-5 scale with “1” indicating “Does not Describe this person well” and “5” indicating “Describes this person very well.” **Likability** items are on 1-5 scales. For item one, “1” represents “I don’t like this person at all” and “5” represents “I like this person very much” (reverse scored); for items 2-4, “1” indicates “Strongly Agree” and “5” indicates “Strongly Disagree.” **Communication Effectiveness** items are on a 1-7 scale with “1” indicating “Very Strongly Agree” and “7” indicating “Very Strongly Disagree.” Overall scores on this scale were reversed. **Performance** items were on a 3-point scale, with “2” indicating “Needs Improvement” and “4” indicating “Towerimg Strength” (“1” indicates “Needs Demonstration” and was not included).

Table 2: Descriptive statistics for scales
Included in Table 2 are scales used to assess the tendency to role-take and experience empathic concern, as well as measures of likability, communication effectiveness, performance, critical thinking, and relative salary increase. Note that the mean for relative salary increase is -.513, which means that the average salary increase among the sample was one half of one percent below the average salary increase corporate-wide.

Table 3 contains the number of items for each scale and the scales' reliabilities as measured by Cronbach's alpha, a measure of internal consistency. The alphas range from .72 to .90, demonstrating high internal consistency.

Intercorrelations among the scales before they were averaged to form composite scores are presented in Table 4. This matrix is based on pairwise comparisons. Almost all of the correlations are positive, and over half are significant at the .01 level. Note that the correlation between self ratings and other ratings of both role-taking and empathic concern are correlated significantly (both r's = .31). These significant correlations make the combination of the two scales into overall measures of their respective constructs rather easily defensible.

On the other hand, it should be pointed out that the correlations between boss and subordinate ratings of likability (r = .16) and communication effectiveness (r = .17) are positive yet not significant. These correlations indicate that bosses and subordinates evaluated participants' likability and communication effectiveness differently. This could be the result of participants behaving differently around bosses versus subordinates, or it could indicate that bosses and subordinates used different criteria when evaluating the participants' likability and communication effectiveness. In either case, the magnitude of
<table>
<thead>
<tr>
<th>Scale</th>
<th>Alpha</th>
<th># of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roletaking - Self</td>
<td>.72</td>
<td>7</td>
</tr>
<tr>
<td>Roletaking - Other</td>
<td>.88</td>
<td>7</td>
</tr>
<tr>
<td>Empathic Concern - Self</td>
<td>.78</td>
<td>7</td>
</tr>
<tr>
<td>Empathic Concern - Other</td>
<td>.88</td>
<td>7</td>
</tr>
<tr>
<td>Likability - Boss</td>
<td>.88</td>
<td>4</td>
</tr>
<tr>
<td>Likability - Subordinate</td>
<td>.89</td>
<td>4</td>
</tr>
<tr>
<td>Communication Effectiveness - Boss</td>
<td>.87</td>
<td>14</td>
</tr>
<tr>
<td>Communication Effectiveness - Subordinate</td>
<td>.90</td>
<td>14</td>
</tr>
<tr>
<td>Performance</td>
<td>.83</td>
<td>18</td>
</tr>
<tr>
<td>Performance - Interpersonal</td>
<td>.73</td>
<td>6</td>
</tr>
<tr>
<td>Performance - Business Results-Oriented</td>
<td>.80</td>
<td>10</td>
</tr>
<tr>
<td>Relative Salary Increase</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>.80</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 3: Scale reliabilities
<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Roletaking - Self</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Roletaking - Other</td>
<td>31**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Empathie Concern - Self</td>
<td>32**</td>
<td>12</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Empathie Concern - Other</td>
<td>28**</td>
<td>.71**</td>
<td>.31**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Likability - Boss</td>
<td>17</td>
<td>38**</td>
<td>.15</td>
<td>.31*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Likability - Subordinates</td>
<td>27**</td>
<td>.64**</td>
<td>.21*</td>
<td>.48**</td>
<td>16</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Comm. Effectiveness - Boss</td>
<td>20</td>
<td>43**</td>
<td>-14</td>
<td>28*</td>
<td>.65**</td>
<td>.10</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Comm. Effectiveness - Sub.</td>
<td>24*</td>
<td>.56**</td>
<td>.04</td>
<td>.31**</td>
<td>.03</td>
<td>.66**</td>
<td>17</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Performance</td>
<td>08</td>
<td>.16</td>
<td>04</td>
<td>08</td>
<td>.23</td>
<td>.14</td>
<td>.33**</td>
<td>.11</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Performance - Interpersonal</td>
<td>23*</td>
<td>.19</td>
<td>.15</td>
<td>.20*</td>
<td>27*</td>
<td>.34**</td>
<td>.09</td>
<td>.75**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Performance - Bus. Results</td>
<td>-.03</td>
<td>.12</td>
<td>.01</td>
<td>.03</td>
<td>19</td>
<td>.05</td>
<td>27*</td>
<td>.10</td>
<td>.89**</td>
<td>.42**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Rate of Salary Increase</td>
<td>.01</td>
<td>.09</td>
<td>.05</td>
<td>.04</td>
<td>32*</td>
<td>-.04</td>
<td>.33**</td>
<td>-.13</td>
<td>.33**</td>
<td>.20*</td>
<td>.34**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>13. Critical Thinking</td>
<td>-.10</td>
<td>-.06</td>
<td>-.03</td>
<td>-.17</td>
<td>-.05</td>
<td>-.16</td>
<td>.04</td>
<td>-.08</td>
<td>-.01</td>
<td>-.03</td>
<td>.02</td>
<td>.06</td>
<td>-</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01
n's range from 52 to 129

Table 4: Scale intercorrelations before combination of scales
these correlations does not prohibit the combination of the two ratings. Rather, the low yet positive correlations indicate that the constructs of likability and communication effectiveness are probably multidimensional, and since there is no reason to question the validity of the bosses' or subordinates' ratings, it is reasoned here that the combined indices may provide more complete assessments of the constructs in question than the separate indices.

On the other hand, given that the boss ratings of communication effectiveness and likability were highly correlated ($r = .65, p < .01$), and the subordinate ratings of these variables were also highly correlated ($r = .66, p < .01$), it appears that rating source has considerable influence over the participants' scores on these scales. Thus, by including boss ratings in the overall measures of communication effectiveness and likability, it is possible that significant relationships between these variables and performance ratings, which are also based on boss ratings, could be significantly inflated. In other words, if communication effectiveness and/or likability ratings are shown to be linked to performance ratings (as the model proposes), it is difficult to determine if this relationship is the result of common rating methods or if it shows a real relationship between the variables in question. Based on this argument, a decision was made to run an ancillary analysis that tests the model using only subordinate ratings of communication effectiveness and likability. This analysis is described in more detail at the end of this chapter.
Table 5 shows only the intercorrelations among the variables used in the path analysis, such as “Role-taking,” which is a composite score formed by averaging primary respondents’ self ratings with all of their secondary respondents’ ratings.

**Tests of Hypotheses**

**Hypothesis One**

Hypothesis One proposed that individuals who were high in the tendency to role-take would be more liked by their co-workers (i.e., supervisors and/or subordinates). This hypothesis was supported, as evidenced by the strong positive correlation between these two measured variables ($r = .58$, $p < .01$).

**Hypothesis Two**

Hypothesis Two proposed that the tendency to role-take would be significantly related to the tendency to experience empathic concern. This hypothesis was also supported by a positive, significant correlation between the two variables ($r = .51$, $p < .01$). Thus, individuals who are high in the tendency to role-take are more likely to be high in the tendency to experience empathic concern (and vice-versa).

**Hypothesis Three**

There is also support for Hypothesis Three, which proposed that individuals who were high in the tendency to experience empathic concern would be more liked by co-workers. The correlation between these two variables was .43, which is significant at the .01 level.
<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Roletaking</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Empathic Concern</td>
<td>.51**</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Likability</td>
<td>.58**</td>
<td>.43**</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Comm. Effectiveness</td>
<td>.56**</td>
<td>.25**</td>
<td>.66**</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Performance</td>
<td>.11</td>
<td>.07</td>
<td>.22*</td>
<td>.23*</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Performance - Interpersonal</td>
<td>.20*</td>
<td>.19*</td>
<td>.29**</td>
<td>.17</td>
<td>.75**</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Performance - Business Results</td>
<td>.04</td>
<td>.02</td>
<td>.10</td>
<td>.17</td>
<td>.89**</td>
<td>.42**</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Rate of Salary Increase</td>
<td>.07</td>
<td>.03</td>
<td>.11</td>
<td>.05</td>
<td>.33**</td>
<td>.20*</td>
<td>.36**</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>2. Critical Thinking</td>
<td>-.09</td>
<td>-.12</td>
<td>-.16</td>
<td>-.07</td>
<td>-.01</td>
<td>-.03</td>
<td>.02</td>
<td>.06</td>
<td>–</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01
n’s range from 102 to 132 for all correlations except for those including critical thinking, which range from 84 to 95

Table 5: Scale intercorrelations after combination of scales
Hypothesis Four

Hypothesis Four stated that individuals who were more liked would receive higher performance ratings than individuals who were less liked. The correlation between likability ratings and performance ratings was positive and significant ($r = .22$, $p < .05$), thereby supporting Hypothesis Four. However, after the performance measure was factor analyzed and broken down into two components (“Interpersonal Skills” and “Business Results-Oriented Skills”), likability was only found to correlate significantly with the interpersonal measure ($r = .29$ vs. $r = .10$).

Hypothesis Five

Hypothesis Five posited that the tendency to role take would be positively related to an individual’s tendency to communicate effectively. The data support this hypothesis, as the correlation between participants’ role-taking and communication effectiveness scores was $.56$ ($p < .01$).

Hypothesis Six

There is also support for Hypothesis Six, which proposed that the tendency to experience empathic concern would be positively related to effective communication. The results showed a correlation of $.25$ ($p < .01$) between these two variables, indicating that individuals who are more likely to experience empathic concern are more likely to be effective communicators than their less empathic peers.

Hypothesis Seven

Hypothesis Seven predicted that individuals who were more effective communicators would receive higher performance ratings than those who were less
effective communicators. This hypothesis was also supported, as the data showed a correlation of .23 (p < .05) between the measures of communication effectiveness and performance. However, after the performance measure was factor analyzed and broken down into two components ("Interpersonal Skills" and "Business Results-Oriented Skills"), communication effectiveness was not significantly correlated with either measure (both r's = .17).

**Hypothesis Eight**

Hypothesis Eight predicted that individuals receiving high performance ratings would tend to receive higher salary increases and experience more rapid rates of promotion than individuals receiving low performance ratings. There is support for the first part of this hypothesis, as indicated by the correlation between overall performance ratings and rate of salary increase (RSI) (r = .33, p < .01). Participants' ratings on each performance subscale (interpersonal and business results) were also linked to rate of salary increase (r's = .20 and .36, respectively). However, the second part of the hypothesis was not supported, as the measure of participants' rate of promotion was not significantly correlated with any performance measure (r's from -.02 to .13).

**Hypothesis Nine**

Hypothesis Nine proposed that the tendency to role-take and to experience empathic concern would account for variance in performance at work in addition to the variance that was accounted for by a traditional measure of intelligence. This hypothesis was to be tested using multiple regression. However, the critical thinking measure did
not correlate with empathy or with performance. Thus, there was no reason to run the regression as it was clear that there was no support for Hypothesis Nine.

**Hypothesis Ten**

Hypothesis Ten stated that the model depicting the process by which empathy influences managerial occupational success would fit the data adequately according to conventionally recognized criteria. This hypothesis was tested using the Reticular Action Model or Near Approximation program to run a covariant structure analysis (RAMONA, Browne and Mels, April, 1993 version). The hypothesized model ("Model A") contains seven measured variables and four error terms. The results of the path analysis are depicted in Figure 4. The values of the sample discrepancy function and RMSEA are .366 and .139, respectively, and the ECVI is .630 (see Table 6). These values indicate that the model does not fit the data well. Additionally, it should be noted that the confidence intervals for four of the point estimates cross zero, indicating that these parameters cannot be assumed to be non-zero. These four relationships are listed below:

1. Empathic Concern $\rightarrow$ Communication Effectiveness
2. Likability $\rightarrow$ Performance
3. Communication Effectiveness $\rightarrow$ Performance
4. Critical Thinking $\rightarrow$ Performance

Thus, there is not support for Hypothesis Ten (i.e., the model does not fit the data well), and there are questions regarding the practical usefulness of the model. These questions are raised in response to the size of some of the point estimates and the width of their confidence intervals (CI). Specifically, the point estimates (and their CI's)
Model A

Note
Numbers represent the point estimates for the paths.
Two headed arrows for the four error terms represent their variances.

Figure 4
<table>
<thead>
<tr>
<th>Model</th>
<th>Fs</th>
<th>RMSEA</th>
<th>RMSEA C.I.</th>
<th>ECVI</th>
<th>C.I.'s crossing zero</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.366</td>
<td>.139</td>
<td>(.09 - .19)</td>
<td>.63</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>.016</td>
<td>.00</td>
<td>(.00 - .00)</td>
<td>.26</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>.034</td>
<td>.00</td>
<td>(.00 - .02)</td>
<td>.41</td>
<td>4</td>
</tr>
<tr>
<td>D</td>
<td>.050</td>
<td>.00</td>
<td>(.00 - .00)</td>
<td>.37</td>
<td>0</td>
</tr>
<tr>
<td>E</td>
<td>.105</td>
<td>.00</td>
<td>(.00 - .09)</td>
<td>.44</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>.110</td>
<td>.00</td>
<td>(.00 - .08)</td>
<td>.40</td>
<td>0</td>
</tr>
</tbody>
</table>

Note:
A: Hypothesized causal model of empathy and work related outcomes
B - F: Modified causal models of empathy and work related outcomes
(Models E and F described in "Ancillary Analyses")
Fs: Sample discrepancy function value
Interpretation Guideline: <.10 is good
RMSEA: Root Mean Square Error of Approximation
Interpretation Guidelines: .1 or higher = poor fit; .08 = reasonable fit; .05 = close fit
RMSEA CI: Confidence interval of the RMSEA at p < .05
ECVI: Expected cross-validation index

Table 6: Fit measures for path analyses of empathy and work related outcomes models
representing the strength of the relationships between performance and its three antecedents, as well as the relationship between empathic concern and communication effectiveness, indicate that there are some problems with the model. And finally, the correlation between communication effectiveness and likability is strong \((r = .662)\), although there is no path linking these two variables. This fact is also a likely contributor to the poor fit of the model.

Based on the findings outlined above, it was determined that making modifications to the model might improve its interpretability. However, it is not appropriate simply to remove the paths with unimpressive point estimates and confidence intervals. For example, the paths from likability to performance and from communication effectiveness to performance are integral components of the proposed theoretical model, so it does not make sense to remove these paths. However, the correlation between empathic concern and communication effectiveness is not significant, nor is the path an integral part of the model, so the modified model will not include this path. The same argument holds for the critical thinking \(\rightarrow\) performance link, so this path will be removed as well. And finally, a path will be added linking communication effectiveness to likability.

The modified model ("Model B") is depicted in Figure 5. Note that the fit measures have improved tremendously (Table 6), indicating that Model B fits the data much better than Model A. However, although the new model demonstrates exceptional fit and has fewer confidence intervals overlapping zero, the problem still exists with the
Model B

Note
Numbers represent the point estimates for the paths.
Two headed arrows for the four error terms represent their variances.

Figure 5
paths from likability to performance and from communication effectiveness to performance. Thus, although Model B has fewer wide confidence intervals and demonstrates better fit than Model A, there are still concerns about its interpretation. Based on these concerns, a third path analysis was run. For this analysis, Model B was further modified by replacing the single measure of performance with two components that were extracted using factor analysis (interpersonal skills vs. business results-oriented skills). The details concerning this factor analysis are presented below.

Using maximum likelihood analysis with oblique rotation, a two-factor solution was specified. Fifteen of the nineteen competencies in the performance measure showed high loadings (e.g., .35) on one of the two factors (see Table 7). Additionally, the two factors that were extracted were logically interpretable. Specifically, the ten competencies that have high loadings on the first factor could be described as reflecting a business results orientation. For example, this factor contains competencies such as “Drive for Results,” “Visionary Thinking,” and “Ensuring Alignment with Strategy.” Note that these competencies describe a focus on business goals and the achievement of those goals, and they do not imply interpersonal competence.

The second factor was comprised of five competencies, including “Building Relationships,” “Challenging and Inspiring Others,” “Attracting and Developing Talent,” “Teamwork,” and “Integrity and Trust.” Logically, it follows that these competencies might all be grouped within a category described generally by the label “interpersonal skills.” (Note that the company that created the rating form categorized all of the identified competencies as either “interpersonal” or “leadership” skills). Also,
<table>
<thead>
<tr>
<th>Competencies</th>
<th>Factor 1 &quot;Business Results-Oriented Skills&quot;</th>
<th>Factor 2 &quot;Interpersonal Skills&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis &amp; Decision Making</td>
<td>.754</td>
<td>.139</td>
</tr>
<tr>
<td>Leading Change &amp; Innovation</td>
<td>.715</td>
<td>.057</td>
</tr>
<tr>
<td>Leadership Courage</td>
<td>.470</td>
<td>.021</td>
</tr>
<tr>
<td>Customer Intimacy</td>
<td>.448</td>
<td>.068</td>
</tr>
<tr>
<td>Drive for Results</td>
<td>.358</td>
<td>.048</td>
</tr>
<tr>
<td>Driving Execution</td>
<td>.487</td>
<td>.103</td>
</tr>
<tr>
<td>Financial Acumen</td>
<td>.443</td>
<td>.047</td>
</tr>
<tr>
<td>Self-Development</td>
<td>.481</td>
<td>.182</td>
</tr>
<tr>
<td>Ensuring Alignment w/ Strategy</td>
<td>.476</td>
<td>.178</td>
</tr>
<tr>
<td>Visionary Thinking</td>
<td>.690</td>
<td>.063</td>
</tr>
<tr>
<td>Building Relationship</td>
<td>.047</td>
<td>.684</td>
</tr>
<tr>
<td>Communication</td>
<td>.067</td>
<td>.309</td>
</tr>
<tr>
<td>Challenging &amp; Inspiring Others</td>
<td>.145</td>
<td>.563</td>
</tr>
<tr>
<td>Attracting &amp; Developing Talent</td>
<td>.142</td>
<td>.500</td>
</tr>
<tr>
<td>Teamwork</td>
<td>.060</td>
<td>.831</td>
</tr>
<tr>
<td>Integrity &amp; Trust</td>
<td>.133</td>
<td>.389</td>
</tr>
<tr>
<td>Adaptability</td>
<td>.210</td>
<td>.302</td>
</tr>
<tr>
<td>Influencing and Negotiating</td>
<td>.322</td>
<td>.272</td>
</tr>
<tr>
<td>Fashion Sense</td>
<td>.001</td>
<td>.173</td>
</tr>
</tbody>
</table>

Note: Underlined numbers are those factor loadings that are either greater than .35 or are close to .35 and do not load highly on the other factor.

Table 7 - Factor Loadings of Performance Competencies
there was a sixth competency ("Communication") that loaded highly on this second factor (factor loading = .30), although it missed the cut-off of .35. However, since the definition of "communication" clearly indicates that the competency belongs with the interpersonal measure (see Appendix H), and it did not load on the first factor at all (factor loading = .07), it was included as part of the interpersonal subscale.

There were also three competencies that did not load on either factor at the .35 level. Additionally, two of these competencies ("Negotiating and Influencing Others," and "Adaptability) loaded comparably on both factors; the third competency ("Fashion Sense") loaded on neither factor. Based on the fact that there was no clear evidence indicating whether these skills should be included in one versus the other factor, as well as an absence of strong factor loadings, these three competencies were not included in the newly-defined performance measures of "Interpersonal Skills" and "Business Results-Oriented Skills."

It is likely that the interpersonal subset of the performance measure would be more highly correlated with empathy, likability, and communication effectiveness than the overall measure of performance. This statement is based on the fact that much of the argument presented here regarding the relationships among empathy measures and performance is based on the interpersonal nature of managerial job performance. That is, empathy is proposed to affect performance ratings because managers' jobs require much interaction with others, and empathy facilitates these interactions with others.

Thus, the second path analysis replaces the overall measure of performance with two of its components, described as "Interpersonal Skills" and "Business Results-
Oriented Skills” (see Appendix H for a complete description of the two performance subscales). Figure 6 depicts the second modified model (“Model C”).

The fit of Model C to the data is still very good (see Table 6), but there are four paths for which the confidence interval crosses zero (Likability \(\rightarrow\) Business Results Performance, Communication Effectiveness \(\rightarrow\) Business Results Performance, Communication Effectiveness \(\rightarrow\) Interpersonal Performance, and Interpersonal Performance \(\rightarrow\) Rate of Salary Increase). Thus, three of these paths were removed from the model and the analysis was run a final time (see “Model D, Figure 7).

Like the other models, Model D demonstrates good fit to the data, although the fit is slightly inferior to the other models (Table 6). However, Model D is more interpretable than the other models because none of the confidence intervals for the point estimates crosses zero. Thus, there is a 90% chance that all of the specified paths are positive and non-zero, and many of the path estimates indicate fairly strong relationships among the variables.

Ancillary Analysis

As mentioned previously, based on the correlations presented in Table 4 it appears that rating source had considerable influence over the participants’ scores on likability and communication effectiveness scales. This result raises two issues. First, it is possible that the two viewpoints (boss and subordinate) provide measures of two different things.
Model C

Note
Numbers represent the point estimates for the paths.
Two headed arrows for the four error terms represent their variances.

Figure 6
Model D

Note
Numbers represent the point estimates for the paths.
Two headed arrows for the four error terms represent their variances.

Figure 7
That is, perhaps "likability" in the eyes of a boss is qualitatively different from "likability" in the eyes of subordinates. Thus, the combination of ratings from these two sources may produce an average score that is difficult to interpret.

The second issue concerns the possibility of a common method problem. Specifically, if rating source is responsible for the high correlations between boss scores on likability and communication effectiveness, then it may also be responsible for the correlations between these variables and the two performance measures, as the performance measures are also provided by bosses. On the basis of this concern, as well as the one described above, it was decided that an additional model should be tested.

This new model ("Model E") is the same as Model D except that the likability and communication effectiveness measures include subordinate ratings only. Additionally, the sample size for the analysis was decreased slightly (from 102 to 97) due to the loss of boss ratings (i.e., there were five subjects for whom there were no subordinate ratings of likability and communication effectiveness). This model is presented in Figure 8, and the fit indices are shown in Table 6. The fit of this model, while not as exceptional as the fit of Model D, is still good. However, the CI of the path estimate for the link between communication effectiveness and business results-oriented performance measure crosses zero. Thus, this path was eliminated and the analysis was carried out again ("Model F," Figure 9). The fit indices, presented in Table 6, indicate that the fit to the data of Models E and F are comparable. However, Model F is the preferred model because none of the CI's of its path estimates cross zero.
Model E

Note
Numbers represent the point estimates for the paths.
Two headed arrows for the four error terms represent their variances.

Figure 8
Model F

Note
Numbers represent the point estimates for the paths.
Two headed arrows for the four error terms represent their variances.
Summary of Results

The research presented here was conducted in an effort to further our understanding of the antecedents of managerial effectiveness. Specifically, the goal was to collect evidence to support the hypothesis that empathy is a predictor of managers' success in the workplace. Additionally, an effort was made to understand the process by which empathy affects managerial success. Thus, a causal model of empathy and work related outcomes was developed and evaluated.

Ten hypotheses were proposed and tested. The first eight hypotheses were concerned with the individual direct links among the variables included in the model. The ninth hypothesis addressed the relationships among empathy, intelligence, and performance. The final hypothesis concerned the overall fit of the proposed model of empathy and work related outcomes. The findings associated with each of these hypotheses are summarized below.
Individual Direct Links in the Model - Hypotheses One through Eight

With the exception of the second half of Hypothesis Eight (performance ratings predicting rate of promotion), all of the hypotheses predicting direct links between variables in the model were supported. Correlations between the variables involved in all of these links were positive and significant.

Relationships among Empathy, Intelligence, and Performance - Hypothesis Nine

It was hypothesized that both empathy and intelligence (as measured by critical thinking) would be predictors of performance (as measured by performance ratings); additionally, it was proposed that both types of empathy would account for variance in the performance measure beyond that which was accounted for by the critical thinking measure. However, although the positive correlation between role-taking and the interpersonal measure of performance was significant, the critical thinking measure did not correlate significantly with either measure of performance. Thus, Hypothesis Nine was not supported.

Overall Fit of the Proposed Model - Hypothesis Ten

The original model that was proposed included seven latent variables, each of which influenced two measured variables (with the exception of the latent variable “intelligence,” which influenced five measured variables). However, after the data were collected, it became clear that there were problems concerning some of the measured variables. Specifically, insufficient sample sizes existed for boss assessments of likability and communication effectiveness, and one measure of performance was inadequate due to range restriction. Additionally, the “rate of promotion” measure of occupational
success was influenced by many confounding variables, thereby rendering the measure almost meaningless.

Based on the problems described above, a new model proposing relationships among measured variables only was developed and tested using path analyses. This model included the following variables: Role-taking (average of “self” and “other” scores), Empathic Concern (average of “self” and “other” scores), Likability (average of “boss” and “subordinates” scores), Communication Effectiveness (average of “boss” and “subordinates” scores), Performance (leadership assessment), and Rate of Salary Increase.

Hypothesis Ten, which proposed that the overall fit of the model to the data would be good, was not supported. Additionally, the model was difficult to interpret because several of the path estimates for direct links between variables could not be determined to be non-zero (i.e., the variables may or may not be significantly correlated). Thus, without making changes that would affect the core relationships within the hypothesized model, a modified model (“Model B”) was tested.

In Model B (Figure 5), a path was added from communication effectiveness to likability. Additionally, the path from empathic concern to communication effectiveness was removed, as well as the path from critical thinking to performance. These modifications removed two of the insignificant paths, and they also greatly improved the fit of the model. However, there were still two relationships that were integral to the model that had insignificant path estimates. Specifically, the strength of the relationships between performance and its two antecedents (likability and communication effectiveness) were impossible to evaluate.
Given that the model was still difficult to interpret, a decision was made to run the analyses using two measures of performance that were components of the original measure, broken down on the basis of factor analysis results. As discussed previously, it was logical to hypothesize that the relationships between performance and its antecedents in the model would change after the performance measure was divided into two subscales. This reasoning is based primarily on the fact that one of the subscales was comprised of competencies that were interpersonal in nature (e.g., "building relationships," "challenging and inspiring others"), whereas the other subscale was comprised of competencies that were business results-oriented and not interpersonal in nature (e.g., "drive for results," "visionary thinking"). Specifically, it was reasoned that likability and communication effectiveness would be related to both measures of performance, albeit more strongly related to the measure of performance that included interpersonal competencies. Paths were also drawn from each measure of performance to rate of salary increase.

The newly-modified model ("Model C") was tested. The results showed that, while the fit remained good, there were three path estimates in Model C that were insignificant (Figure 6). These three paths, which were different from insignificant paths in previous models, included the link from communication effectiveness to the interpersonal measure of performance, as well as the link from likability to the business results-oriented measure of performance. The final insignificant path was from interpersonal performance to rate of salary increase. Thus, these three paths were
removed and a final model ("Model D") was tested. Path analysis of Model D showed good fit and all of the paths were significant (Figure 7).

**Ancillary Analyses**

Based on the high intercorrelations between same-source ratings of likability and communication effectiveness, concerns were raised regarding the effect of a common rater on the relationships between several variables in the model (e.g., likability and performance). Additionally, the absence of significant correlations between boss and subordinate ratings of likability (and boss and subordinate ratings of communication effectiveness) raised concerns about the interpretability of these variables, since the variables were derived by combining ratings from these two sources. Based on these concerns, a model that only used subordinate ratings of likability and communication effectiveness was tested.

The results indicated that, with the exception of the path between communication effectiveness and business results-oriented performance, the model still fits the data well. This finding provides further evidence for the hypothesis that empathy impacts performance ratings via likability. However, it also changes the conclusions that can be drawn with regard to the effect of empathy on occupational success. This statement is based on the fact that communication effectiveness was one of the primary mediating variables when the model delineating the effect of empathy on occupational success was supported. Specifically, if the positive, significant relationship found between communication effectiveness and performance ratings in Model D is attributable primarily to the fact that boss ratings were used in the measurement of both variables,
there are associated implications for the interpretation of the model. Specifically, this finding suggests that communication effectiveness as rated by one's boss is one of the crucial variables mediating the relationship between empathy and occupational success. In other words, empathy impacts occupational success via the impact it has on bosses' perceptions.

**Conclusions**

The original model proposed in this research, which depicted the relationships among seven latent variables, outlined a process by which empathy influences occupational success. This model could not be tested due to problems associated with some of the measured variables. Thus, an alternative model comprised of the acceptable measured variables was delineated. Conclusions pertaining to the individual links in this model are presented below. Additionally, possible explanations for the insignificant path estimates that were found, thus leading to model modifications, are discussed. And finally, conclusions regarding the overall fit of the model are presented.

**Conclusions Concerning Individual Links in the Model**

The individual links depicted in the original model were supported by results showing the existence of positive, significant correlations between the variables of interest. Specifically, the two measures of empathy were positively related to each other, and they were also each related to likability and communication effectiveness. Additionally, likability and communication effectiveness were related to a measure of performance, which was in turn related to rate of salary increase.
Conclusions Concerning the Need to Remove Paths from the Model

The original model did not demonstrate good fit to the data. Additionally, despite the fact that the individual direct links between variables were supported by significant correlations, some of these relationships became insignificant when the entire model was tested. Based on these findings, modifications were made that maintained the good fit of the model while improving its interpretability. Possible explanations for the findings that necessitated the specific modifications will be discussed below.

Communication Effectiveness and Likability. The decision to add a path from communication effectiveness to likability was admittedly data-driven, although it is not surprising that a strong correlation exists between these two variables. First, the ratings on the variables were produced by the same people (i.e., participants' bosses and subordinates). Also, although there is a lack of research investigating the effect of good communication on likability, the relationship has intuitive appeal. Specifically, it makes sense that someone who listens to others and is easy to talk to would be liked by those with whom he/she interacts. And it should be noted that, similar to the relationship between role-taking and empathic concern, it is possible that the relationship between these two variables works in the opposite direction. However, this research is not designed to test this hypothesis, and since past research does not provide a guide, the directionality was determined solely by its logical appeal. Thus, this path was added to the model, thereby improving the fit considerably.

Empathic Concern and Communication Effectiveness. There was ample theoretical and empirical support in the literature for the link between role-taking and
communication effectiveness, as well as for the link between role-taking and empathic concern. However, there was less evidence for the direct link between empathic concern and communication effectiveness. Specifically, the prediction was based on the results from two empirical studies, each showing a relationship between the two variables.

Admittedly, therefore, this is the link in the model that had the least support, both theoretically and empirically. Thus, it is not surprising that the path analysis indicated empathic concern was not significantly related to communication effectiveness. However, it is worth noting that the zero-order correlation between these two variables was positive and significant \((r = .249, p < .01)\). Therefore, although the relationship between the variables may exist in the population, this relationship may not be strong enough for the magnitude to be determined using path analysis (especially given the relatively small size of the sample) (Browne, personal conversation).

**Critical Thinking and Performance Ratings.** Contrary to the relationship between empathic concern and communication effectiveness, the relationship between intelligence and job performance is well supported in the literature (see Hunter, 1986). It was therefore surprising that scores on the critical thinking measure were not significantly correlated with performance ratings. However, there are some possible explanations why this relationship may not have been detected.

Two possible explanations concern the validity of the critical thinking and performance measures used. That is, to what extent do scores on the Watson-Glaser Critical Thinking Appraisal - Short Form (WGCTS) approximate a measure of intelligence or general cognitive ability? In other words, is it a valid measure of the kind
of intelligence that is related to performance? And how closely do performance ratings reflect actual performance? If participants’ scores on the critical thinking measure are not fairly representative of their general intelligence, and if performance ratings are not accurate measures of performance, then the link between intelligence and performance found in the literature would not necessarily support a link between the variables used in this study.

In an effort to answer the questions posed above, one must first consider the validity of the WGCTS. Specifically, is there evidence suggesting that individuals who perform better on the test also perform better on the job (criterion-related validity), and does the test correlate with other tests that claim to measure similar constructs (construct validity)? Evidence presented earlier indicates that the answer to both of these questions is “yes.” However, it should be noted that the test was not taken under ideal conditions, as there was no administrator present.

It is reasonable to propose, then, that participants’ might have sought help from others when completing their tests, thereby inflating their scores. However, evidence indicates that this was not the case, since the group mean was similar to the means of other comparable groups (Watson & Glaser, 1994). Thus, it seems unlikely that the insignificant relationship found between critical thinking and performance ratings was due to the use of the WGCTS as the measure of critical thinking. However, this possibility cannot be ruled out, as there are other factors, such as motivation, that could have affected the participants’ tests scores.
Another explanation to consider is the notion that performance ratings are not an adequate measure of actual performance. There is a large body of research dedicated to establishing whether performance ratings provide an accurate reflection the actual performance of ratees. Within this literature, one can find numerous methods that have been employed in an attempt to answer this fundamental question, and the problems associated with these methods are well documented (see Murphy & Cleveland, 1995). Thus, there are limitations to the claims that can be made about the accuracy of ratings regardless of the method of evaluation (e.g., psychometric characteristics, rater errors, etc.). However, this statement does not imply that it is futile to attempt to establish the quality of performance ratings. As discussed previously, it was believed that the quality of the ratings used in this research would be good. This belief was based on the following characteristics of the rating instrument and process:

1. The raters were given behavioral anchors, thereby reducing the impact of rater error;
2. The ratings were to be used for the purpose of providing feedback, not for determining administrative outcomes such as pay, and

Despite the arguments made above, it is still not clear that the ratings used in this study are accurate reflections of actual performance. That is, even when behavioral anchors are provided, ratings are still afflicted by rater errors. Additionally, there was evidence of range restriction in the ratings, which is not unexpected given that the scale was reduced to three points and the sample consisted of individuals who were relatively high in the organizational hierarchy. Thus, it is possible that inaccuracy in the
performance measure is one factor contributing the finding that critical thinking was not related to performance.

In addition to the removal of two insignificant paths from the model, the single measure of performance was parceled into two subscales based on the results of a factor analysis. The model was then tested again using path analysis. The results of this analysis showed once more that there were unsupported paths, so these paths were removed, producing the final model that showed good fit. However, it is important to understand why these changes in the model were necessary to improve its interpretability. Thus, possible explanations for the lack of support for certain paths are discussed below.

**Likability and Business Results-Oriented Measures of Performance.** The path between likability and business results-oriented performance was removed because, although likability was positively correlated with both measures of performance, it was only significantly correlated with the measure that included interpersonal competencies. This is intuitively logical, given that a person who is likable will probably have more positive interpersonal experiences than one who is not. On the other hand, likability is not relevant when competence in non-interpersonal areas such as “visionary thinking” or “ensuring alignment with strategy” is required. Thus, the elimination of the path from likability to business results-oriented performance ratings was based on both logical and data-driven justifications.

**Communication Effectiveness and Interpersonal Measures of Performance.** As with the likability measure, communication effectiveness was also positively correlated with both measures of performance, but the relative strengths of the relationships were
reversed. That is, communication effectiveness was significantly correlated with the business results-oriented measure of performance, but not with the interpersonal measure. Therefore, this path was also removed.

One possible explanation for this finding concerns individuals' tendency to "manage up" within an organization, and particularly within the culture of the organization studied here. That is, it is not uncommon to hear people within the organization complain about the fact that managers often interact differently with their subordinates than they do with their superiors. Specifically, it has been observed that managers tend to be much more demanding and unreasonable with the people who report to them than they are with their bosses. Thus, since the communication effectiveness ratings are weighted disproportionately by subordinate ratings, and the performance ratings are given by bosses, this "managing up" phenomenon may provide an explanation for the absence of a link between communication and performance.

It should be stated that there are no hard data to support the claim that managers in the participating organization demonstrate the "dual personalities" described above, although it has often been supported anecdotally. Additionally, this cultural problem has been one of the primary reasons behind an overhaul of the performance management system used by the organization. For example, during performance evaluations next year, leaders' ratings on the competencies in the interpersonal measure will be linked to their pay, which is a linkage that has never existed in the past. This change was made in an effort to reduce the high turnover rates experienced in the organization, and to make recruiting easier by improving the organization's reputation.
Interpersonal Performance Ratings and Rate of Salary Increase. The final path that was removed from the model was the one linking interpersonal performance ratings to rate of salary increase. Again, the absence of a strong relationship between these two variables can most likely be explained by the participating organization's culture. That is, the organization has been known for its tendency to reward outstanding results, without paying attention to how those results were attained. Thus, it is not surprising that individuals' ratings on competencies such as "Drive for Results" and "Driving Execution" are related to their salary increases, but their ratings on competencies such as "Teamwork" and "Integrity and Trust" are not; these findings support the organizational culture and its accompanying reward structure.

Conclusions Concerning the Models

There is good support for the modified model delineating the process by which empathy impacts performance ratings and occupational success, as measured by rate of salary increase. More specifically, it appears that empathy, and particularly the tendency to role-take, is predictive of likability and communication effectiveness. Additionally, likability is associated with higher ratings on measures of interpersonal performance, and communication effectiveness leads to higher ratings on measures of business results-oriented performance. And finally, ratings on non-interpersonal measures of performance are related to rates of salary increase.

It should be noted that the results of an ancillary analysis wherein boss ratings of likability and communication effectiveness were removed from the model indicates that the source of communication effectiveness ratings is important. Specifically, it appears
that empathy impacts occupational success via the impact it has on bosses' perceptions of
communication effectiveness and performance. However, given that the modified model
was data-driven and the sample size was relatively small, caution must be exercised when
generalizing any of the results presented here (Breckler, 1990). Additionally, the model
presented here is based on the assumption that “the system” is working as expected. That
is, it assumes that organizations do recognize good performance with rewards such as
salary increases. As mentioned previously, however, the extent to which this assumption
holds in different organizations varies. Therefore, to increase confidence in the
usefulness of the model and to further understand the impact of different rating sources
on the relationships it describes, the model should be tested in another sample with boss
and subordinate ratings separated.

Limitations

There were several limitations to the research presented here. First, as mentioned
above, the generalizability of the findings is limited due to the fact that the final model
was data-driven. Additionally, the fact that there was only one available measure for
each construct of interest reduces our ability to make strong inferences about the
relationships among the constructs that may underlie the measured variables. For
example, there is theoretical support for the proposition that empathy, likability, and
communication effectiveness would all affect both performance ratings and actual
performance. However, only subjective measures of performance were available, thereby
greatly reducing our ability to make inferences about the role of actual performance in the
process by which empathy influences occupational success. A final limit on
generalizability concerns the context in which the research was conducted. Specifically, because all of the participants in this study are employed by the same company, it is not reasonable to assume that the findings will apply in other organizations, particularly those with cultures that are considerably different from that of the organization studied here.

Another limitation concerns the performance ratings that were used. First, because the ratings were not based on an interval scale, the five-point scale was reduced to a three-point scale, thereby reducing the amount of discrimination that could be made among participants. A second issue pertaining to the ratings concerns the lack of variability in overall performance scores (see Table 2). Because the sample included only individuals who ranked fairly high in the organizational hierarchy, there was not as much variability in performance, thereby creating a range restriction problem. Therefore, given that this problem tends to reduce effect sizes, it is likely that the strength of the relationships between performance ratings and other variables in the model is underestimated.

And finally, because of the demands made on participants' time and trust, the sample size used in this research was relatively small. Thus, the power to detect the existence of relatively weak, yet still meaningful, relationships among variables was reduced. Additionally, as mentioned previously, small sample sizes for certain variables made it impossible to test the originally-hypothesized model that included a number of theoretically interesting latent variables.
Implications for Theory and Practice

The results of this study have several interesting implications for both theory and practice. First, the findings support the notion that empathy, and role-taking in particular, is an important influence on social outcomes in the workplace. Additionally, the results support the oft-proposed but rarely-tested idea that “successful” managers tend to be more socially intelligent than their less successful peers. Also supporting theory, it appears that this type of social ability is not related to cognitive ability as it is traditionally conceived.

Another implication for theory relates to the results concerning likability and its effect on performance ratings. Heneman et al. (1989) propose that an individuals’ status as either “ingroup” or “outgroup” members with their managers (i.e., how much they are liked) affects the performance ratings that they receive from those managers. The findings here suggest that this relationship may only hold when the ratings are interpersonal in nature. That is, it may be that managers are more objective when rating subordinates on skills that do not rely heavily on person-to-person interaction (e.g., “Drive for Results” and “Financial Acumen”) than they are when rating performance on skills that require extensive interpersonal interaction (e.g., “Teamwork” and “Building Relationships”).

These findings also have important implications for practice. For example, by paying attention to individuals’ cognitive and affective empathic tendencies during the hiring process, organizations will probably have a greater chance of selecting managers who are likable and effective communicators, as well as good performers. Additionally,
to the extent that empathic tendencies can be learned, these results also have implications for training. Specifically, if organizations can teach their managers to consider others' perspectives more frequently, the effectiveness of those managers is likely to be improved.

**Directions for Future Research**

Future research investigating the relationship between social intelligence and managerial success should include objective measures of performance. This improvement will aid researchers in their efforts to determine whether role-taking and the social outcomes associated with it serve only to influence *ratings* of performance, or if these variables are also predictors of *actual* performance. If the latter is true, then the implications for this line of research reach even farther than these results would indicate.

Given that empathy, and role-taking in particular, tends to predict important outcomes in the workplace, researchers should also endeavor to understand what its antecedents are. That is, are there particular experiences that predispose individuals to be more empathic? Are there parenting techniques that encourage and influence role-taking behavior in children? If questions such as these could be answered, organizations would know whether to focus on the selection of empathic individuals (if empathy is difficult to teach) or on the training of current employees (if empathy is not difficult to teach).

Research in this area should also be conducted in different contexts. If the model presented here were supported in multiple organizations, it would be possible to generalize the findings and assert that empathy has an effect on managerial success regardless of the particular sample that is tested.
APPENDIX A

INTERPERSONAL REACTIVITY INDEX:

(INCLUDES PERSPECTIVE TAKING AND EMPATHIC CONCERN SUBSCALES)
Instructions: Please indicate the degree to which the items below describe you.
Using the 1-5 scale below, place the appropriate number on the line preceding that item.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not describe me well</td>
<td></td>
<td></td>
<td></td>
<td>Describes me very well</td>
</tr>
</tbody>
</table>

1. _____ I daydream and fantasize, with some regularity, about things that might happen to me.

2. _____ I often have tender, concerned feelings for people less fortunate than me.

3. _____ I sometimes find it difficult to see things from the "other guy’s" point of view.

4. _____ Sometimes I don’t feel very sorry for other people when they are having problems.

5. _____ I really get involved with the feelings of the characters in a novel.

6. _____ In emergency situations, I feel apprehensive and ill-at-ease.

7. _____ I am usually objective when I watch a movie or play, and I don’t often get completely caught up in it.

8. _____ I try to look at everybody’s side of a disagreement before I make a decision.

9. _____ When I see someone being taken advantage of, I feel kind of protective towards them.

10. _____ I sometimes feel helpless when I am in the middle of a very emotional situation.

11. _____ I sometimes try to understand my friends better by imagining how things look from their perspective.

12. _____ Becoming extremely involved in a good book or movie is somewhat rare for me.
13. _____ When I see someone get hurt, I tend to remain calm.

14. _____ Other people's misfortunes do not usually disturb me a great deal.

15. _____ If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.

16. _____ After seeing a play or movie, I have felt as though I were one of the characters.

17. _____ Being in a tense emotional situation scares me.

18. _____ When I see someone being treated unfairly, I sometimes don't feel very much pity for them.

19. _____ I am usually pretty effective in dealing with emergencies.

20. _____ I am often quite touched by things that I see happen.

21. _____ I believe there are two sides to every question and try to look at them both.

22. _____ I would describe myself as a pretty soft-hearted person.

23. _____ When I watch a good movie, I can very easily put myself in the place of a leading character.

24. _____ I tend to lose control during emergencies.

25. _____ When I'm upset with someone, I usually try to "put myself in his shoes" for awhile.

26. _____ When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.

27. _____ When I see someone who badly needs help in an emergency, I go to pieces.

28. _____ Before criticizing somebody, I try to imagine how I would feel if I were in their place.
APPENDIX B

LIKING SCALE
Please circle the point on the scale that best describes how you feel:

1.) How much do you like this subordinate?

   1  2  3  4  5
I don’t like this subordinate at all  I neither like nor dislike this subordinate  I like this subordinate very much

Please circle the response that best describes how you feel:

2.) I get along well with this subordinate

   strongly agree    agree    neutral    disagree    strongly disagree

3.) Supervising this subordinate is a pleasure

   strongly agree    agree    neutral    disagree    strongly disagree

4.) I think this subordinate would make a good friend

   strongly agree    agree    neutral    disagree    strongly disagree

101
APPENDIX C

COMMUNICATION

EFFECTIVENESS SCALE
**Instructions:** In this series of questions we would like you to describe how your manager (subordinate) communicates. Think about his/her behavior in general, rather than about specific situations.

Using the 1-7 scale below, place the appropriate number on the line preceding that item.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Very Strongly Agree</th>
<th>Strongly Agree</th>
<th>Mildly Agree</th>
<th>Neutral or Don't Know</th>
<th>Mildly Disagree</th>
<th>Strongly Disagree</th>
<th>Very Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

1. _____ My manager has a good command of the language.
2. _____ My manager is sensitive to others' needs of the moment.
3. _____ My manager typically gets right to the point.
4. _____ My manager pays attention to what other people say to him or her.
5. _____ My manager can deal with others effectively.
6. _____ My manager is a good listener.
7. _____ My manager's writing is difficult to understand.
8. _____ My manager expresses his or her ideas clearly.
9. _____ My manager is difficult to understand when he or she speaks.
10. _____ My manager generally says the right thing at the right time.
11. _____ My manager is easy to talk to.
12. _____ My manager usually responds to messages (memos, phone calls, reports, etc.) quickly.
13. _____ My manager spends enough time communicating his or her expectations to me.
14. _____ My manager provides me with the information I need to do my job well.
## OLR PROFILE

**Name:**

**Performance Rating:**

**Performance Trend:**

- [ ] Seeking Responsibility  
- [ ] Expecting Action

**Performance Highlights**

### Short Term (0-12 months)

<table>
<thead>
<tr>
<th>Action Code</th>
<th>Move Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Job</td>
<td>Function:</td>
<td>When:</td>
</tr>
<tr>
<td>Secondary Job</td>
<td>Function:</td>
<td>When:</td>
</tr>
</tbody>
</table>

### Long Term (1-3 years)

<table>
<thead>
<tr>
<th>Action Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Job</td>
<td>Function:</td>
</tr>
<tr>
<td>Secondary Job</td>
<td>Function:</td>
</tr>
</tbody>
</table>

### Leadership Skills

<table>
<thead>
<tr>
<th>Skill</th>
<th>NA</th>
<th>ND</th>
<th>✓</th>
<th>✓+</th>
<th>OB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyse &amp; Decisions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visionary Thinking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alignment w/Strategy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driving Execution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leadership Courage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developing Talent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>inspiring Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teamwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negotiation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leading Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Drive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- NA = not applicable  
- ND = needs demonstration  
- ✓ = needs improvement  
- ✓+ = meets our high standards  
- OB = overdone strength

### Key Questions
## ANALYSIS AND DECISION MAKING

Gathers relevant information and identifies key issues and trends; evaluates costs and benefits of plans and their effects throughout the organization; makes effective short and long-term decisions under ambiguous circumstances.

<table>
<thead>
<tr>
<th>Towering Strength</th>
<th>O.K./Effective</th>
<th>Ineffective/Needs Improvement</th>
<th>Overused Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gathers appropriate information from diverse sources (e.g., associates, vendors, agents, customers) to fully understand issues.</td>
<td>Generally gains a fair understanding of issues; gathers too much detailed, unnecessary information.</td>
<td>Rarely seeks sufficient information to understand issues; makes quick decisions when gathering additional information is most appropriate.</td>
<td>Gathers so much information that analysis is not timely or too detail oriented.</td>
</tr>
<tr>
<td>Identifies or recognizes the key issues, trends, and/or opportunities when confronted with complex or ambiguous problems.</td>
<td>Identifies or recognizes the most important issues, trends, or opportunities; may miss or overlook some important points.</td>
<td>Identifies or recognizes only the obvious issues, trends, or opportunities; often misses or overlooks important points.</td>
<td>Concentrates so much on issue identification that implementation plans are not developed.</td>
</tr>
<tr>
<td>Effectively integrates various pieces of information (e.g., sales, marketing, competitor, economic) to identify issues, problems, or opportunities; demonstrates a clear grasp of the relationships among issues.</td>
<td>Integrates some different types of information when identifying issues, problems, or opportunities; misses some relationships among issues or deals with some related issues as though they are separate problems.</td>
<td>Deals with related issues as separate problems; misses critical relationships among issues.</td>
<td>Performs analysis of the linkage of issues to exclusion of drawing conclusions.</td>
</tr>
<tr>
<td>Effectively analyzes financial information to identify key issues, trends, and opportunities.</td>
<td>Demonstrates a general understanding of basic financial indicators, but occasionally doesn't grasp subtle but important issues, trends, or opportunities.</td>
<td>Is often unable to independently use financial indicators to identify important issues, trends, or opportunities.</td>
<td>Analyses of issues depends too much on financial considerations, other issues not properly considered.</td>
</tr>
</tbody>
</table>
**BUILDING RELATIONSHIPS**

Develops strong relationships with coworkers and customers; establishes rapport; relates to others with diverse backgrounds in a friendly and respectful manner.

<table>
<thead>
<tr>
<th>Towering Strength</th>
<th>O.K./Effective</th>
<th>Ineffective/Needs Improvement</th>
<th>Overused Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiates interactions and conversations with others; projects warmth, sincerity, and openness.</td>
<td>Appears cooperative and pleasant, but may not initiate minimal rapport building.</td>
<td>Shows no interest in building rapport with others; seems aloof or overly task focused.</td>
<td>Neglects substance by concentrating on interpersonal relationships.</td>
</tr>
<tr>
<td>Works to gain an understanding of diverse points of view; clarifies differences in a productive way.</td>
<td>Clarifies some issues, but may not always gain a complete understanding of different points of view.</td>
<td>Does not seek to understand different point of view; fails to respect different perspectives.</td>
<td>Impedes progress on issues by spending too much time on the airing and clarifying of points of view.</td>
</tr>
<tr>
<td>Expresses disagreement tactfully and sensitively.</td>
<td>Expresses disagreement with tact and sensitivity but may show some emotion.</td>
<td>Expresses disagreement bluntly and argumentatively.</td>
<td>Diminishes impact by being overly concerned with potential discomfort of others.</td>
</tr>
<tr>
<td>Takes clear steps to develop and maintain effective working relationships.</td>
<td>Works well with others but may not always be proactive in fostering strong relationships.</td>
<td>Does not develop effective working relationships or interact well with others.</td>
<td>Neglects execution by overemphasizing the building of relationships.</td>
</tr>
<tr>
<td>Consistently recognizes others' contributions and shares credit for success.</td>
<td>Recognizes others' contributions but may not actively share credit.</td>
<td>Fails to acknowledge contributions of others.</td>
<td>Masks own contributions by looking for others to credit with accomplishments.</td>
</tr>
<tr>
<td>Facilitates constructive resolution of disagreement or conflict.</td>
<td>Generally takes some steps to resolve disagreement or conflict.</td>
<td>Avoids conflict and/or damages relationship while attempting to address conflict.</td>
<td>Creates inefficiencies by not being selective as to which disagreements to resolve.</td>
</tr>
</tbody>
</table>
APPENDIX E

CRITICAL THINKING APPRAISAL

(TRADITIONAL MEASURE OF INTELLIGENCE)
Directions: The following pages contain five sections. Each section has separate directions that should be read carefully. There is no limit to the time allowed to answer these questions.

All answers should be marked on the separate answer sheet provided. Return only the answer sheet (not the questions) to the researcher.
TEST 1: INFERENCE

DIRECTIONS

An inference is a conclusion a person can draw from certain observed or supposed facts. For example, if the lights are on in a house and music can be heard coming from the house, a person might infer that someone is at home. But this inference may or may not be correct. Possibly the people in the house did not turn the lights and the radio off when they left the house.

In this test, each exercise begins with a statement of facts that you are to regard as true. After each statement of facts you will find several possible inferences—that is, conclusions that some persons might draw from the stated facts. Examine each inference separately and make a decision as to its degree of truth or falsity.

For each inference you will find spaces on the answer sheet labeled T, FT, ID, PF, and F: For each inference make a mark on the answer sheet under the appropriate heading as follows:

T if you think the inference is definitely TRUE; that it properly follows beyond a reasonable doubt from the statement of facts given.

FT if, in the light of the facts given, you think the inference is PROBABLY TRUE; that it is more likely to be true than false.

ID if you decide that there are INSUFFICIENT DATA: that you cannot tell from the facts given whether the inference is likely to be true or false; if the facts provide no basis for judging one way or the other.

PF if, in the light of the facts given, you think the inference is PROBABLY FALSE; that it is more likely to be false than true.

F if you think the inference is definitely FALSE; that it is wrong, either because it misinterprets the facts given, or because it contradicts the facts or necessary inferences from those facts.

Sometimes, in deciding whether an inference is probably true or probably false, you will have to use certain commonly accepted knowledge or information that practically every person has. This will be illustrated in the example that follows.

Look at the example in the next column; the correct answers are indicated in the block at the right.

In the above example, inference 1 is probably true (PT) because (as common knowledge) most people in their early teens do not show so much serious concern with broad social problems. It cannot be considered definitely true from the facts given because these facts do not tell how much concern other young teenagers may have. It is also possible that some of the students volunteered to attend mainly because they wanted a weekend outing.

Inference 2 is probably false (PF) because the students' growing awareness of these topics probably stemmed at least in part from discussions with teachers and classmates.

There is no evidence for inference 3. Thus, there are insufficient data (ID) for making a judgment on the matter.

Inference 4 is definitely false (F) because it is given in the statement of facts that the topics of race relations and means of achieving world peace were the problems chosen for discussion.

Inference 5 necessarily follows from the given facts: it therefore is true (T).

In the exercises that follow, more than one of the inferences from a given statement of facts may be true (T), or false (F), or probably true (PT), or probably false (PF), or have insufficient data (ID) to warrant any conclusion. Thus, you are to judge each inference independently.

Make a heavy black mark in the space under the heading that you think best describes each inference. If you change an answer, erase it thoroughly. Make no extra marks on the answer sheet.
EXERCISES

In 1946 the United States Armed Forces conducted an experiment called “Operation Snowdrop” to find out what kinds of military personnel seemed to function best under severe arctic climatic conditions. Some of the factors examined were weight, age, blood pressure, and national origin. All of the participants in “Operation Snowdrop” were given a training course in how to survive and function in extreme cold. At the conclusion of the experiment, it was found that only two factors among those studied distinguished between personnel whose performance was rated as “effective” and those rated as “not effective” on the arctic exercises. These factors were: (1) desire to participate in the experiment, and (2) degree of knowledge and skill regarding how to live and protect oneself under arctic conditions.

1. Despite the training course given to all of the participants in “Operation Snowdrop,” some participants exhibited greater arctic survival knowledge or skill than others.
2. It was believed by the Armed Forces that military operations might someday be carried out in an arctic-like environment.
3. A majority of the personnel who participated in “Operation Snowdrop” thoroughly disliked the experience.
4. Participants having normal weight and blood pressure were rated as significantly more effective on the arctic exercises than were the other participants.

Some time ago a crowd gathered in Middletown to hear the new president of the local Chamber of Commerce speak. The president said, “I am not asking, but demanding, that labor unions now accept their full share of responsibility for civic improvement and community welfare. I am not asking, but demanding, that they join the Chamber of Commerce.” The members of the Central Labor Unions who were present applauded enthusiastically. Three months later all the labor unions in Middletown were represented in the Chamber of Commerce. These representatives worked with representatives of other groups on committees, spoke their minds, participated actively in the civic improvement projects, and helped the Chamber reach the goals set in connection with those projects.

5. Both the labor union representatives and the other members of the committees came to a better recognition of one another’s viewpoints through their Chamber of Commerce contacts.
6. Union participation in the Middletown Chamber of Commerce greatly reduced worker-management disputes in that town.
7. Most of the union representatives regretted having accepted the invitation to participate in the Chamber of Commerce.

Go on to the next page •
DIRECTIONS

An assumption is something presupposed or taken for granted. When you say, “I’ll graduate in June,” you take for granted or assume that you will be alive in June, that your school will judge you to be eligible for graduation in June, and similar things.

Below are a number of statements. Each statement is followed by several proposed assumptions. You are to decide for each assumption whether a person, in making the given statement, is really making that assumption — that is, taking it for granted, justifiably or not.

If you think that the given assumption is taken for granted in the statement, make a heavy black mark under “ASSUMPTION MADE” in the proper place on the answer sheet. If you think the assumption is not necessarily taken for granted in the statement, blacken the space under “ASSUMPTION NOT MADE.” Remember to judge each assumption independently.

Below is an example. The block at right shows how these items should be marked on the answer sheet.

---

EXAMPLE

Statement: “We need to save time in getting there so we’d better go by plane.”

Test 2

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Made</th>
<th>Not Made</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>2</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

Proposed Assumptions

1. Going by plane will take less time than going by some other means of transportation. (It is assumed in the statement that the greater speed of a plane over the speeds of other means of transportation will enable the group to reach its destination in less time.)
2. There are plane services available to us for at least part of the distance to the destination. (This is necessarily assumed in the statement since, in order to save time by plane, it must be possible to go by plane.)
3. Travel by plane is more convenient than travel by train. (This assumption is not made in the statement — the statement has nothing to do with saving time, and says nothing about convenience or about any other specific mode of travel.)

---

EXERCISES

Statement: “Zenith is the city to move to — it has the lowest taxes.”

Proposed assumptions:

1. Lower taxes imply efficient city management.
2. In deciding where to live, it is important to avoid high taxes.
3. The majority of the residents in Zenith are content with their present city government.

Statement: “I’m traveling to South America. I want to be sure that I do not get typhoid fever, so I shall go to my physician and get vaccinated against typhoid fever before I begin my trip.”

Proposed assumptions:

1. If I don’t take the injection, I shall become ill with the fever.
2. By getting vaccinated against typhoid fever, I decrease the chances that I will get the disease.
3. Typhoid fever is more common in South America than it is where I live.

Statement: “If war is inevitable, we’d better launch a preventive war now while we have the advantage.”

Proposed assumptions:

14. If we fight now, we are more likely to win than we would be if forced to fight later.
15. If we don’t launch a preventive war now, we’ll lose any war that may be started by an enemy later.

Go on to the next page.
TEST 3: DEDUCTION

DIRECTIONS.

In this test, each exercise consists of several statements (premises) followed by several suggested conclusions. For the purposes of this test, consider the statements in each exercise as true without exception. Read the first conclusion beneath the statements. If you think it necessarily follows from the statements given, make a heavy black mark under "CONCLUSION FOLLOWS" in the proper place on the answer sheet. If you think it is not a necessary conclusion from the statements given, put a heavy black mark under "CONCLUSION DOES NOT FOLLOW," even though you may believe it to be true from your general knowledge.

Likewise, read and judge each of the other conclusions. Try not to let your prejudices influence your judgment — just stick to the given statements (premises) and judge each conclusion as to whether it necessarily follows from them.

The word "some" in any of these statements means an indefinite part or quantity of a class of things. "Some" means at least a portion, and perhaps all of the class. Thus, "Some holidays are rainy" means at least one, possibly more than one, and perhaps even all holidays are rainy.

Study the example carefully before starting the test.

EXAMPLE

Some holidays are rainy. All rainy days are boring. Therefore —

1. No clear days are boring. (The conclusion does not follow. You cannot tell from the statements whether or not clear days are boring. Some may be)
2. Some holidays are boring. (The conclusion necessarily follows from the statements given. According to them, the rainy holidays must be boring.)
3. Some holidays are not boring. (The conclusion does not follow, even though you may know that some holidays are very pleasant.)

EXERCISES

16. People who lack confidence in horoscopes think scientifically.
17. Many people do not think scientifically.

All members of symphony orchestras enjoy playing classical music. All members of symphony orchestras spend long hours practicing. Therefore —

18. Musicians who play classical music do not mind spending long hours practicing.
19. Some musicians who spend long hours practicing enjoy playing classical music.

Rice and celery must have a good deal of moisture in order to grow well, but rye and cotton grow best where it is relatively dry. Rice and cotton grow where it is hot and celery and rye where it is cool. In Timbuktu, it is very hot and damp. Therefore —

20. Neither the temperature nor the moisture conditions in Timbuktu are favorable for growing a celery crop.
21. The temperature and moisture conditions in Timbuktu are more favorable for growing rice than for growing celery, cotton, or rye.
22. Conditions in Timbuktu are not altogether favorable for growing a cotton or a rye crop.

Most persons who attempt to break their smoking habit find that it is something that they can accomplish only with difficulty, or cannot accomplish at all. Nevertheless, there is a growing number of individuals whose strong desire to stop smoking has enabled them to break the habit permanently. Therefore —

23. Only smokers who strongly desire to stop smoking will succeed in doing so.
24. A strong desire to stop smoking helps some people to permanently break the habit.

Go on to the next page
TEST 4: INTERPRETATION

DIRECTIONS

Each exercise below consists of a short paragraph followed by several suggested conclusions. For the purpose of this test, assume that everything in the short paragraph is true. The problem is to judge whether or not each of the proposed conclusions logically follows beyond a reasonable doubt from the information given in the paragraph.

If you think that the proposed conclusion follows beyond a reasonable doubt (even though it may not follow absolutely and necessarily), then make a heavy black mark under "CONCLUSION FOLLOWS" in the proper place on the answer sheet. If you think that the conclusion does not follow beyond a reasonable doubt from the facts given, then blacken the space under "CONCLUSION DOES NOT FOLLOW." Remember to judge each conclusion independently.

Look at the example below; the block at the right shows how the answers should be marked on the answer sheet.

EXAMPL E

A study of vocabulary growth in children from eight months to six years old shows that the size of spoken vocabulary increases from zero words at age eight months to 2500 words at age six years.

1. None of the children in this study had learned to talk by the age of six months. (The conclusion follows beyond a reasonable doubt since, according to the statements, the size of the spoken vocabulary at eight months was zero words.)

2. Vocabulary growth is slowest during the period when children are learning to walk. (The conclusion does not follow since there is no information given that relates growth of vocabulary to walking.)

EXERCISES

When the United States Steel Corporation was created in 1902, it was the largest corporation America had known up to that time. It produced twice as much steel as all of its domestic competitors put together. Today, the United States Steel Corporation produces about 20 percent of the steel that is made in this country.

25. In 1902, the United States Steel Corporation produced not less than 66 percent of the total domestic output of steel.

26. Today, domestic competitors produce more than three times as much steel as does the United States Steel Corporation.

27. The United States Steel Corporation produces less steel today than it did in 1902.

28. Without Dr. Baldwin's treatment, Pat would not have improved.

29. Without a friend's advice, Pat would not have heard of Dr. Baldwin.

When I go to bed at night, I usually fall asleep quite promptly. But about twice a month I drink coffee during the evening, and whenever I do, I lie awake and toss for hours.

30. My problem is mostly psychological; I expect that the coffee will keep me awake and therefore it does.

31. On nights when I want to fall asleep promptly, I'd better not drink coffee in the evening.

Go on to the next page >
TEST 5: EVALUATION OF ARGUMENTS

DIRECTIONS.

In making decisions about important questions, it is desirable to be able to distinguish between arguments that are strong and arguments that are weak, as far as the question at issue is concerned. For an argument to be strong, it must be both important and directly related to the question.

An argument is weak if it is not directly related to the question (even though it may be of great general importance), or if it is of minor importance, or if it is related only to trivial aspects of the question.

Below is a series of questions. Each question is followed by several arguments. For the purpose of this test, you are to regard each argument as true. The problem then is to decide whether it is a strong or a weak argument. Make a heavy black mark on the answer sheet under "ARGUMENT STRONG" if you think the argument is strong or under "ARGUMENT WEAK" if you think the argument is weak, and then judge each argument separately on its own merit. Try not to let your personal attitude toward the question influence your evaluation of the argument, since each argument is to be regarded as true.

In the example, note that the argument is evaluated as to how well it supports the side of the question indicated.

EXERCISES

Should groups in this country who are opposed to some of our government's policies be permitted unrestricted freedom of press and speech?

32. Yes; a democratic state thrives on free and unrestricted discussion, including criticism.
33. No; the countries opposed to our form of government do not permit the free expression of our points of view in their territories.

Should the United States Department of Defense keep the public informed of its anticipated scientific research programs by publicizing ahead of time the needs that would be served by each program?

34. No; some become critical of the government when widely publicized projects turn out unsuccessfully.
35. Yes; only a public so informed will support vital research and development activities with its tax dollars.

Do jurors decide court cases fairly when one of the opposing parties is rich and the other is poor?

36. No; because rich people are more likely to settle their cases out of court.
37. No; most jurors are more sympathetic to poor people than to the rich, and the jurors' sympathies affect their findings.
38. No; because rich people can afford to hire better lawyers than poor people, and jurors are influenced by the skill of the opposing lawyers.

Should pupils be excused from public schools to receive religious instruction in their own churches during school hours?

39. No; having public school children go off to their separate churches during school hours would seriously interfere with the educational process and create friction among children of different religions.
40. No; religious instruction during school hours would violate our constitutional separation of church and state; those who desire such instruction are free to get it after school hours.

STOP.

You may go back and check your work.

EXAMPLE

Should all young men in the United States go to college?

1. Yes; college provides an opportunity for them to learn school songs and cheer. (This would be a silly reason for spending years in college.)
2. No; a large percent of young men do not have enough ability or interest to derive any benefit from college training. (If this is true, as the directions require us to assume, it is a weak argument against all young men going to college.)
3. No; excessive studying permanently warps an individual's personality. (This argument, although of great general importance when accepted as true, is not directly related to the question, because attendance at college does not necessarily require excessive studying.)

When the word "should" is used as the first word in any of the following questions, its meaning is, "Would the proposed action promote the general welfare of the people in the United States?"
## Critical Thinking Exercise: Answer Sheet

### Test 1

<table>
<thead>
<tr>
<th></th>
<th>T</th>
<th>PT</th>
<th>ID</th>
<th>PF</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Test 2

<table>
<thead>
<tr>
<th>Test 2</th>
<th>Assumption Made</th>
<th>Assumption Not Made</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Test 3

<table>
<thead>
<tr>
<th>Test 3</th>
<th>Follows</th>
<th>Does Not Follow</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

116
<table>
<thead>
<tr>
<th>Test 4</th>
<th>Follows</th>
<th>Does Not Follow</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 5</td>
<td>Strong Argument</td>
<td>Weak Argument</td>
</tr>
<tr>
<td>31.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

117
APPENDIX F

WRITTEN SOLICITATION FOR PARTICIPATION

1) Primary Participants (two versions)

2) Primary Participant’s Supervisor/Direct Report
To Potential Study Participants:

You have been selected as a possible participant in a research study. I am a doctoral candidate studying industrial psychology at Ohio State, and I work part-time in the Human Resources department of Limited Service Corp. I am working with Dr. Robert Billings, an associate professor of psychology at Ohio State. What follows is a brief description of my study and your potential part in it.

The purpose of this study is to learn about different factors that contribute to people’s success in the workplace. The time investment from you will be approximately 40 minutes, requiring only that you fill out the three measures described below:

- Questionnaire about your reactions to others
- Questionnaire about your communication as a manager
- Critical thinking measure

The first two measures should only require about five minutes each to complete, and the third measure takes about 30 minutes. Your boss and one randomly-selected direct report (subordinate) will also be asked to complete the first two measures (with regard to you), plus one short additional measure that describes your working relationship. I will also use information that already exists in a leadership review database (OLR), including performance ratings, promotion and compensation histories.

All participants’ responses will be held in STRICT CONFIDENCE — I will be the only person who sees any individual data. Other people within The Limited will have access only to my overall conclusions, which are to be presented in my dissertation. Your participation in this project is completely voluntary. Your return to me of the enclosed measures will indicate your consent to include you as a participant, to contact your boss and one direct report, and to use the performance information contained in the OLR database.

There is no penalty whatsoever if you choose not to participate. Except for your boss and the randomly-selected direct report (who will be cautioned not to divulge any information to any other parties), I am the only person who will know who does and does not participate. However, if you do wish to be part of this study, I will be happy to share your results with you. Specifically, I can tell you how you compare with national norms and other Limited employees (as a group) with regard to certain personality traits and critical thinking. I will also fully explain the research questions and results to any participant who is interested.

If you have decided to participate, please complete the measures included in this packet, enclose them in the pre-addressed, stamped envelope, and mail the packet to me. In order to complete my data analyses on time, I must receive these as soon as possible. Please return the packet to me by Wednesday, May 1. If you have any questions, you can reach me at the numbers listed below.

Thank you very much for your time!

Andres Thomas
Doctoral Candidate, Psychology
479-7143 or 799-1262

Dr. Robert S. Billings
Associate Professor,
Psychology
292-8115
To Potential Study Participants (Supervisors and Direct Reports (i.e., subordinates) of Primary Participants):

Your (supervisor, direct report) has agreed to be a participant in a research study. However, in order for his/her data to be used, I am requesting that you complete the brief survey that is enclosed. I am a doctoral candidate studying industrial psychology at Ohio State, and I work part-time in the Human Resources department of Limited Service Corp. I am working with Dr. Robert Billings, an associate professor of psychology at Ohio State. What follows is a brief description of my study and your potential part in it.

The purpose of this study is to learn about different factors that contribute to people's success in the workplace. The time investment from you will be minimal, requiring only that you fill out a questionnaire that concerns the following areas:

- Your (supervisor's, direct report's) reactions to others
- Your (supervisor's, direct report's) communication as a manager
- Your direct report's general likability (supervisors only)

This questionnaire should only require about ten to fifteen minutes to complete. I will also use information that already exists in a leadership review database (OLR).

All participants' responses will be held in STRICT CONFIDENCE —I will be the only person who sees any individual data. Your supervisor/direct report will not see your responses to any of these measures. I also ask that you not discuss your participation and/or your responses to the questionnaire with others. Other people within The Limited will have access only to my overall conclusions, which are to be presented in my dissertation.

Your participation in this project is completely voluntary. There is no penalty whatsoever if you choose not to participate. In fact, except for the participants themselves, I am the only person who will know who does and does not participate. However, if you do wish to be part of this study, I will be happy to share my research questions and overall results with you.

If you have decided to participate, please complete the questionnaire included in this packet, enclose it in the pre-addressed, stamped envelope, and mail the packet to me. In order to complete my data analyses on time, I must receive these as soon as possible. Please return the packet to me by ___________. If you have any questions, you can reach me at the numbers listed below.

Thank you very much for your time!

Andrea Thomas  
Doctoral Candidate, Psychology  
479-7143 or 799-1262

Dr. Robert S. Billings  
Associate Professor, Psychology  
292-8115
APPENDIX G

DEBRIEFING STATEMENT
To Research Study Participants:

You have participated in a study investigating the effects of a person's tendency to experience empathy on his/her occupational success. Empathy is broken down into two components:

1) *role-taking*, or the tendency to see things from others' point of view, and
2) *empathic concern*, or the tendency to feel sympathy in response to another's misfortune.

It was hypothesized that people who are more empathetic will be better communicators and more liked by others. This, in turn, leads to higher performance ratings and other measures of success (e.g., rate of promotion). Further, it was hypothesized that empathy (considered to be a form of "social intelligence") is not related to traditional measures of intelligence (such as the critical thinking instrument you completed).

If you are interested in your empathetic tendencies and/or your critical thinking skills as they compare to others, please contact me at 479-7143 or 481-9441. I will be happy to share your results with you and answer any questions you may have.

Thank you very much for your participation in this project!
APPENDIX H

COMPETENCIES INCLUDED IN

PERFORMANCE RATINGS
Performance Competencies Defined

Business Results-Oriented Skills (Factor 1)

1. **Analysis and Decision Making** - Gathers relevant information and identifies key issues and trends; evaluates costs and benefits of plans and their effects throughout the organization; makes effective short- and long-term decisions under ambiguous circumstances.

2. **Visionary Thinking** - Creates a compelling vision of the future and recognizes its implications for strategy and tactics of business; stays abreast of fashion, market, or competitor trends and gauges their effect on broad organization.

3. **Ensuring Alignment with Strategy** -- Aligns priorities, strategies, and tactics with the mission and vision of the organization; implements systems to attain broad organizational goals.

4. **Driving Execution** -- Establishes clearly specified plans and action steps; makes necessary adjustments based on progress and performance; assigns clear authority and accountability; integrates efforts across multiple projects and functions.

5. **Leadership Courage** -- Communicates openly and directly; tackles tough problems head on; takes responsibility and champions ideas in the face of challenges.

6. **Leading Change and Innovation** -- Encourages innovation and creativity; champions change and continuous learning; fosters risk-taking in others.

7. **Drive for Results** -- Overcomes challenges to make business succeed; makes sacrifices necessary for success; conveys sense of urgency; displays enthusiasm and passion for business; gets results.

8. **Self-Development** -- Actively pursues growth and developmental opportunities; seeks out feedback and reacts without defensiveness; continuously finds ways to improve.

9. **Customer Intimacy** -- Maintains a clear focus on customer needs; uses knowledge of customer to build business strategies and plans; strives to exceed customer expectations; establishes a climate for service; focuses plans and actions on increasing customer satisfaction.

10. **Financial Acumen** -- Understands the meaning and implications of key financial indicators; uses financial data to evaluate business opportunities and risks.

Interpersonal Skills (Factor 2)

1. **Attracting and Developing Talent** -- Accurately appraises staffs' strengths and weaknesses and provides constructive feedback; develops staff through growth opportunities and coaching'; rewards and encourages efforts to improve.

2. **Challenging and Inspiring Others** -- Communicates and reinforces the vision of the organization; sets high performance standards; projects and instills confidence and commitment to exceed performance standards.
3. **Teamwork Skills** -- Builds effective teams across functional/divisional lines; promotes teamwork and collaboration; solicits input from group and encourages ownership of performance; works well on highly diverse teams.

4. **Building Relationships** - Develops strong relationships with coworkers and customers; establishes rapport; relates to others with diverse backgrounds in a friendly and respectful manner.

5. **Communication** - Speaks clearly and expresses self well even when relating complex information; establishes a free flow of information through the organization; listens actively; tailors message to audience.

6. **Integrity and Trust** - Builds a fair and consistent working environment; delivers on commitments; protects confidential information.
LIST OF REFERENCES


