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OBSERVER MULTIDIMENSIONAL EMPATHY
AND ANXIETY
IN RESPONSE TO EXPRESSER ANXIETY

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by

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Abstract

Empathy was investigated as a multidimensional construct, including affective, cognitive, and communication processes. Observer subjects, who were administered the Interpersonal Reactivity Index (Davis, 1980), the State-Trait Anxiety Inventory (Spielberger, 1983), and the Social Skills Inventory (Riggio, 1989), rated the level of Expresser nervousness in anxious and comfortable videotapes. Those Observers reporting high affective empathy and high cognitive empathy also reported higher skill in nonverbal communication decoding and interpretation. However, highly empathic Observers did not report higher verbal communication decoding and interpretation skills. Contrary to previous research, those Observers low in affective empathy and high in trait anxiety showed significant increases in their state anxiety level after watching the anxious Expressers' videotape. The Observers, regardless of their reported level of cognitive empathy and trait anxiety, were able to differentiate anxious versus comfortable Expresser videotapes. The results are discussed in terms of their implications for empathy theory.

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CHAPTER 1

Introduction

Overview

Despite its recognized importance as a human characteristic, the definition of empathy remains unclear (Deutsch & Madle, 1975; Gladstein, 1977, 1984; Hickson, 1985; Wlspe, 1986). As Wlspe (1986) has observed: "The crux of the problem is that although empathy is a word in common usage--which probably makes matters worse--there is little agreement among psychologists about the construct, or the process, of empathy" (p. 317).

There are currently three types of empathy theories: cognitive, affective, and multidimensional (Davis, 1980; Gladstein, 1987). Cognitive theories of empathy describe it as a way of knowing what another person is thinking or feeling. Affective conceptualizations view empathy as an emotional response to another's feelings. Multidimensional views of empathy propose that it is both a cognitive process and an affective response to another's expression.

According to Wertz (1979c), the natural mode of human communication is through multiple channels. She explained: "What we are confronted with is an alive, reacting person giving off all sorts of messages simultaneously in complementary and sometimes competing channels of both nonverbal and verbal communication" (p. 347). In addition to affective and cognitive processes, five multidimensional empathy theories have emphasized the importance

of accurate perception of both verbal and nonverbal communication. In receptive empathy (e.g., Feshbach, 1978; Goldstein & Michaels, 1985; Hoffman, 1984; Keefe, 1976, 1979; Smither, 1977).

Several researchers have reported a positive relationship between the perception of emotional expression or communication decoding and empathy (Bernstein & Davis, 1982; Daly, Vangelisti, & Daughton, 1987; Funder & Harris, 1986; Lanzetta & Englis, 1989; Rigglo, Tucker, & Coffaro, 1989; Vaughan & Lanzetta, 1980, 1981), while other researchers have concluded that no relationship exists between empathy and communication decoding skill (Gurtman, Martin, & Hintzman, 1990; Hall, 1979; Koestner, Franz, & Weinberger, 1990). Due to contradictory research results, the relationship between decoding of channels of communication and multidimensional empathy warrants further study.

Kreiser (1987) suggested that differential relationships may exist between and among the multifaceted concepts of empathy and anxiety, as "high levels of state and high levels of trait anxiety may not affect cognitive and affective empathy levels in the same way" (p. 61). Studies of affective empathy have shown that emotionally empathic individuals are prone to feeling aroused and anxious (e.g., Archer, Diaz-Loving, Gollwitzer, Davis, & Foushee, 1981; Chlopan, McCain, Carbone, & Hagen, 1985; Davis, 1983c), while investigations of cognitive empathy have found individuals high in cognitive empathy to be less anxious (e.g., Deardorff, Kendall, Finch, & Sitarz, 1977; Hogan, 1969). Kendall, Finch, and Montgomery (1978) reported that subjects high in cognitive empathy

and low in trait anxiety showed an increase in state anxiety after observing an anxious confederate. Davis, Hull, Young, and Warren (1987), in a study of emotional reactions to dramatic film stimuli, demonstrated differences in the influence of cognitive and emotional empathy on anxiety reactions. Positive emotional reactions (e.g., friendliness, happiness, and tranquility) were found to be primarily influenced by cognitive empathy, defined as perspective-taking. However, negative emotional reactions (e.g., hostility, anxiety, and depression) were affected by emotional empathy. Subjects who were high in empathic concern (emotional empathy) reported feeling more anxious after viewing dramatic film stimuli. Bailyn, Harrigan, and Foreman (1989) found subjects high in affective empathy and low in trait anxiety to show an increase in state anxiety after viewing videotapes of anxious expressers. However, Gurtman, Martin, and Hintzman (1990) report that neither anxious nor depressed videotaped actors evoked empathic reactions in observers.

The purposes of this experiment were to investigate empathy as a multidimensional process and to further differentiate the relationships between empathy and anxiety. As suggested by Kreiser (1987) and the aforementioned studies, differential relationships may exist between the processes of empathy and anxiety. It was further hypothesized in this study that these differential relationships exist not only between anxiety and affective and cognitive empathy, but also between anxiety and the perception of communication within empathy. The multidimensional

view of empathy presented here emphasizes the interaction of multichannel communication perception, cognitive processes, and affective responses.

Cognitive Empathy Theories

Cognitive definitions of empathy arose from the idea that person perception and empathy are related (Wiske, 1986). Person perception has been defined as "the process by which man comes to know and think about other persons, their characteristics, qualities, and inner states" (Tagiuri, 1969, p. 395). Cognitive definitions of empathy, that is the ability to understand another's thinking or feeling, have been proposed by Bender and Hastorf (1953), Borke (1971), Danish and Kagan (1971), Dymond (1950), Galper (1976), Greif and Hogan (1973), Gribble and Oliver (1973), Remmers (1950), and Smith (1973), among others. For example, Hogan (1969) defined empathy as "the intellectual or imaginative apprehension of another's condition or state of mind without actually experiencing that person's feelings" (p. 308). Wiske (1986) believed the purpose of empathy is to comprehend, to understand the experiences of another. Empathy, he believed, "is a way of 'knowing'; the self does not lose its sense of identity while seeking to have an accurate sense of feelings in another person (p. 318). Similar to Wiske, Natsoulas (1988) defined empathizing as "a form of 'indirect perceiving' in which the empathizer 'reads' the other individual for 'meaning'" (p. 172).

Deutsch and Madle (1975) proposed that empathy be conceptualized as a cognitive phenomenon. They recommended use of a developmental approach for assessment of empathy over the lifespan, believing it to be governed by the maturation of cognitive processes, as described by Piaget (1950, Piaget & Inhelder, 1969).

Strayer (1987) criticized cognitive definitions of empathy because she believed they are indistinguishable from descriptions of general social cognition. She observed: "As the cognition involved in understanding others' feelings presumably involved the same processes as did understanding their thoughts, intentions, or perspectives, empathy got lost among its brethren, variously defined as perspective taking, role taking, social sensitivity, and person perception" (p. 219). However, Goldstein and Michaels (1985) believed that further research is warranted in order to understand the nature of social cognitive processes involved in empathic understanding.

Researchers who have pursued the cognitive definition of empathy have studied predictive or rating accuracy and trait measures of cognitive social empathy. Remmers (1950) recommended that empathy be measured by "having the subject or subjects predict the ordinal or cardinal position of another individual or group on one or more scales of defined psychological dimensions" (p. 162). Two examples of rating accuracy studies are studies by Bender and Hastorf (1953) and Mills and Hogan (1978). Bender and Hastorf (1953) studied empathy by measuring the disparity between

a subject's predictions of a friend's responses to a series of personality statements and the actual responses the friend made. They concluded from their results that empathic ability may be related to the way individuals choose uniformly similar or dissimilar friends. Mills and Hogan also asked subjects to predict associates' self-ratings on personality characteristics. They found individual differences in empathy to be associated with congruence between self and peer ratings, concluding that "empathy appears to be related to individual differences in rating skill" (p. 783).

The most widely used self-report measure of cognitive empathic ability is the Hogan Empathy Scale (Hogan, 1969). Hogan chose items for his empathy scale that reflect "insight, perceptiveness, and social acuity" (1969, p. 309). The 64 items of the scale were primarily drawn from the California Personality Inventory (CPI; Gough, 1964) and the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1943). Reviewers have noted that the Hogan empathy scale measures role-taking ability and perhaps adequate social functioning (Chlopan, McCain, Carbonell, and Hagen, 1985). However, both Chlopan et al. (1985) and Davis (1980) acknowledged that the scale also contains items concerned with affective response. Johnson, Cheek, and Smither (1983) factor analyzed Hogan's scale, finding four factors: social self-confidence, even temperedness, sensitivity, and nonconformity. They recommended scoring the scale for those four unique factors. Cross and Sharpley (1982)

reported less than satisfactory alpha reliability for Hogan's scale. Johnson et al. (1983) observed that this problem can be solved either by reverse-scoring nine specific items or by eliminating them.

According to Hogan (1969), women score one or two points higher on the Hogan scale than men. He suggested, therefore, that women are "slightly more empathic" than men. Hogan (1969) also suggested that low scorers on his empathy scale are only marginally adjusted and prone to antisocial behavior, while high scorers are interpersonally at ease.

Affective Empathy Theories

Affective definitions of empathy describe it as an observer's affective reaction to another's emotional state (e.g., Adelman & Berkowitz, 1970; Adelman & Unterberger, 1977; Batson et al., 1991; Batson et al., 1989; Batson, Fultz, Schoenrade, 1987a, 1987b; Batson, O'Quin, Fultz, Vanderplas, & Isen, 1983; Cialdini et al., 1987; Clark, 1980; Eisenberg, 1986; Eisenberg & Lennon, 1983; Eisenberg & Miller, 1987a, 1987b; Eisenberg et al., 1988; Eisenberg & Strayer, 1987; Feshbach & Roe, 1968; Fiske, Taylor, Etcoff, & Laufer, 1979; Gruen & Mendelsohn, 1986; Hoffman, 1975, 1977a, 1978, 1981; Krebs, 1975; Miller & Eisenberg, 1988; Plutchik, 1987; Robinson, Herman, Kaplan, 1982; Roe, 1980; Smith, Keating, & Stotland, 1989; Stotland, 1969; Stotland, Mathews, Sherman, Hansson, & Richardson, 1978; Strayer, 1987; Toi & Batson, 1982; Wiesenfeld, Whitman, & Malatesta, 1984). For example,

Stotland, Sherman, and Shaver (1971) defined empathy as "an observer's reacting emotionally because he perceives that another is experiencing or is about to experience an emotion" (p. 2). Similarly, Aronfreed (1969) stated: "Empathy may be used to refer to the child's affective experience when it is elicited by cues of a corresponding affective state in the expressive behavior of another person" (p. 292).

The affective empathic response has typically been described in two different ways by empathy investigators. Some have asserted that empathy is a vicarious matching of emotional responses, as the observer feels the same emotion as the expresser. For example, Feshbach (1975) defined empathy as "a match between affective response of a perceiver and that of a stimulus person" (p. 26). Lanzetta and Englis (1989) maintained that the empathizer's vicarious emotional response will be congruent or parallel to that displayed by the other. Zillmann and Cantor (1977) suggested the empathizer will experience a concordant emotional state with another whom the empathizer likes or has positive sentiment toward. But other investigators have not insisted that the same emotion be expressed in affective empathy, believing that different or even opposite emotions may be expressed. For example, Hoffman (1977a) stated:

I suggest empathy be defined simply in terms of arousal of affect in the observer that is not a reaction to his or her own situation but a vicarious response to another person.

The focus of the definition then is on the "process" of vicarious affect arousal. (p. 175)

Stotland et al. (1971) have distinguished between "simple empathy" where the emotions of the model and the observer are both either positive (e.g., joy, elation) or negative (e.g., anxiety, depression) in tone, and "contrast empathy" when the emotions of the model and observer are opposite in tone. By contrast, Batson et al. (1987a, 1987b) proposed that empathy is an emotional reaction of sympathy, compassion, tenderness, and the like to another's expression of personal distress.

Eisenberg (1986) and Lennon and Eisenberg (1987) distinguished among different types of emotional empathy. They identified three types of emotional reactions to the emotions or situation of another: personal distress, emotional contagion, and sympathy. Personal distress is a vicarious sense of self-concern which is unlikely to result in concern for another or altruistic behavior. Emotional contagion is a vicarious matching of another's emotion. And sympathy is real concern for another without a focus on the self or matching of emotion. Eisenberg (1986) emphasized: "Clearly, it is premature to assume that empathy is unidimensional and that empathizing with one emotion is similar to and associated with empathizing with another emotion" (p. 39).

Affective definitions of empathy have been criticized by both theorists and researchers alike. For example, Macarov (1978, p.88) questioned the utility of purely affective definitions of

empathy by quoting Skinner (1964): "two people cannot suffer each other's toothaches, recall each other's memories, or share each other's happiness." In other words, the mind of another is private, and one shall never completely know the thought processes, imagery, memories, and imagination that can be occurring on different levels simultaneously. Conceptually then, purely affective views of empathy can be viewed as flawed because one can never fully experience another's experience or feelings.

Polivy's (1981) research on the induction of emotion also raises questions regarding vicarious matching of affective arousal. She found that manipulations for producing specific emotions gave rise to several simultaneous emotions. Polivy suggested that emotions occur in clusters rather than singly.

Finally, in a review of the literature on observational learning theory, Green and Osborne (1985) questioned whether vicarious instigation has any empirical support. Vicarious instigation is said to occur when an observer has an unconditioned emotional response due to inference or perception of the unconditioned emotional response of an expresser. Vicarious instigation plays a central role not only in social learning theory (e.g., Bandura, 1965, 1977), but also in theories emphasizing affective empathy (e.g., Aronfreed, 1969). After reviewing the literature on vicarious instigation, Green and Osborne (1985) concluded: "No single theory of vicarious instigation is supported unequivocally by the available data" (p.

15). This conclusion included Aronfreed's (1969) theory of emotional empathy.

Affective empathy has been measured several ways. Hoffman (1977a) posited: "An ideal empathy index would include evidence that (a) affect has been aroused in the observer and (b) the quality and direction of the affect correspond sufficiently to that experienced by the model to warrant calling it a vicarious response" (p. 190). Research on empathy as an emotional response has involved several measures including asking children how they feel in response to a picture or story (e.g., FASTE, Feshbach & Roe's [1968] Affective Situations Test for Empathy), measurement of observer facial and gestural responses (reviewed in Goldstein & Michaels, 1985, Eisenberg & Miller, 1987b, and in Miller & Eisenberg, 1988), trait measures of empathic arousal (e.g., Mehrabian & Epstein, 1972), self-report measures of emotional state (e.g., Kendall, Fiske, & Montgomery, 1978), and physiological indicators (e.g., Bandura & Rosenthal, 1966; Lanzetta & Englis, 1989; Stotland, 1969). Physiological measures do not appear promising because they do not distinguish empathic reactions from personal distress or other emotional reactions (Batson, 1987; Eisenberg & Miller, 1987a; Goldstein & Michaels, 1985; Strayer, 1987). The FASTE also appears to be a less valid measure of emotional empathy (see Miller & Eisenberg, 1988 for a review). Eisenberg et al. (1988) recommended the use of a multimethod approaches to studying vicarious emotional responding.

The Questionnaire Measure of Emotional Empathy (QMEE; Mehrabian & Epstein, 1972) is a popular self-report measure of adult affective empathic tendency. It consists of 33 items. An example of a statement indicating high affective empathy on the scale is "Seeing people cry upsets me." A test of affective empathy in children modeled after the QMEE has been developed by Bryant (1982). Following a review of the literature on the QMEE, Chlopan et al. (1985) concluded that it is a measure of vicarious emotional arousal and may also indicate a general tendency towards arousability. Davis (1980) observed that Mehrabian and Epstein's emotional empathy scale contains some items he regarded as cognitive responses (e.g., "I rarely become involved when I watch a movie"). Eisenberg and Miller (1987a) believed the QMEE measures not only emotional empathy, but also sympathy, susceptibility to affective arousal, perspective taking, personal distress, and other characteristics of emotional responsiveness. Recently, Dillard and Hunter (1989) examined the validity of the QMEE using first- and second-order confirmatory factor analyses to assess its psychometric adequacy. They concluded that the QMEE is construct invalid because it was found to be multidimensional at both factor levels, arguing that the subscales of the QMEE may be useful, but the composite score is "meaningless". They proposed Davis' (1980) IRI as a more valid measure of empathy.

Gender differences have been reported in affective empathy. In a review of empathy research, Hoffman (1977b) found females to be more empathic than males and suggested that differential

socialization accounts for this gender difference. In an investigation of Hoffman's hypothesis, Foushee, Davis, and Archer (1979) examined the relationship between the Personal Attributes Questionnaire (Spence, Helmreich, & Stapp, 1974), a measure of psychological masculinity and femininity, and Mehrabian and Epstein's (1972) emotional empathy scale. Significant positive correlations were found between emotional empathy and the feminine attributes of "communal" and "expressive" tendencies. In addition, a stronger relationship was found between empathy and "emotional vulnerability" than concern and social responsibility. Based on these results, Foushee et al. (1979) suggested the traditional view of the empathic individual as concerned and socially responsible may be flawed. Instead, persons with high levels of emotional empathy may be inclined to suggestibility, excitability, and uncertainty in many emotional situations. These tendencies may cause maladaptive or dysfunctional behaviors. Foushee et al. (1979) concluded "the concept of emotional empathy is in need of some revision" (p. 8).

Eisenberg and Lennon (1983) concluded from their review of the literature that sex differences in empathy were a function of the ways empathy was assessed. Sex differences were most evident in self-report measures. After repeating their analyses, Lennon and Eisenberg (1987) concluded the gender differences found in emotional empathy may be due to the assessment of different emotional reactions (personal distress, emotional contagion, and sympathy) and the use of particular instruments. Lennon and

Eisenberg (1987) also suggested the demand characteristics of some self-report measures may account for the observed gender differences because of different patterns of socialization. Sex differences are less pronounced or not found when subjects have little or no control over their response (e.g., physiological and somatic indices).

Multidimensional Theories of Empathy

Not all investigators have regarded cognitive and affective definitions of empathy as mutually exclusive. As Chlopan, McCain, Carbonell, and Hagen (1985) have observed:

Although this variety of formal definitions of empathy might seem an imposing barrier to its measurement, their underlying meanings are not as divergent as they might at first appear. Each of these definitions involves a sensitivity to the affective experiences of others, and there is an element of sharing and of gaining understanding through some form of intimate relationship between the participants. (p. 635)

Indeed, as Feshbach (1978) has observed, "it is possible to conceptualize empathy as a cognitive product mediated by emotional factors or as an affective response mediated by cognitive processes" (p. 8). For example, Gruen and Mendelsohn (1986) have suggested that the strength of an emotional empathic reaction would in part depend on the observer's cognitive evaluation of the expresser's behavior. Hoffman (1977a, 1978, 1984) believed that a number of "social-cognitive processes" contribute to vicarious

emotional empathy. These cognitive processes vary in sophistication and complexity depending on the individual's level of development, personality, and situational factors. According to Hoffman (1977a), the ability to respond with vicarious affective arousal (empathy) may depend on some ability to "cognitively infer another's affective state" (p. 169).

A multitude of multidimensional theoretical definitions of empathy have been proposed, describing the process as a complex interplay of cognitive and emotional factors (e.g., Archer, Diaz-Loving, Gollwitzer, Davis, & Foushee, 1981; Barrett-Lennard, 1981; Brems, 1989; Brothers, 1989; Coke, Batson, & McDavis, 1978; Davis, 1980, 1983b; Davis, Hull, Young, & Warren 1987; Gladstein, 1983, 1987a, 1987b; Goldstein & Michaels, 1985; Harman, 1986; Houston, 1990; Hughes, Tingle, & Sawin, 1981; Jackson, 1986; Keefe 1976, 1979; Smither, 1977; Staub, 1987; Stiff, Dillard, Somera, Kim, and Sleight, 1988; Sweet & Johnson, 1990; Thompson, 1987; Underwood & Moore, 1982). For example, Feshbach (1978) suggested a three-component model of empathy, involving both cognitive and affective elements. She explained:

Two of these components are cognitive in nature: the ability to discriminate and label affective states in others, and the ability to assume the perspective and role of another person, the latter reflecting a more advanced level of cognitive competence. Emotional capacity and responsiveness constitute the third component. In terms of this schema,

all three elements are necessary in order for the empathic response to occur. (p. 9)

Feshbach (1978) suggested that further research is needed to examine variation in the different components of empathy and to analyze those changes which mediate cognitive and affective processes. Mediating processes include "affective discrimination and sensitivity to affective cues, communication skills, social perspective attitudes, role-taking behaviors, and emotional responsiveness" (p. 41).

Davis (1980, 1983a, 1983b, 1983c) also took a multidimensional approach, describing empathy as a set of constructs including both cognitive and affective reactions. Davis (1980) suggested that cognitive capabilities and emotional reactivity should be assessed separately. He observed:

Personality measures which do not differentiate between these two types of individual differences can present considerable problems in interpreting the effects of "empathy" on human behavior. One's perspective-taking capabilities and emotional reactivity may both affect reactions to and behavior toward others, but without separate estimates of these qualities the independent and interactive contributions of each cannot be estimated. (p. 2).

The Interpersonal Reactivity Index (IRI) was developed by Davis (1980) as an individual difference measure of empathy. It is a 28-item questionnaire consisting of four scales thought to

measure four different aspects of the empathy concept. The perspective-taking scale measures the tendency to adopt others' points of view. An example of this scale is "I sometimes try to understand my friends better by imagining how things look from their perspective." The fantasy scale measures the tendency to put oneself into the feelings and actions of fictitious characters. Three items in the fantasy scale were drawn from Stotland's Fantasy-Empathy scale (Stotland et al., 1978). An example positive statement Davis' fantasy scale is "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." The third scale, empathic concern, assesses feelings of warmth, compassion, and concern for others. An example statement of empathic concern is "I often have tender, concerned feelings for people less fortunate than me." The fourth scale, personal distress, measures subjective feelings of personal anxiety, fear, and discomfort. An example of a positive personal distress statement is "When I see someone who badly needs help in an emergency, I go to pieces." There are no statements on Davis' empathy questionnaire which discuss communication decoding or encoding skills. Carey, Fox, and Spraggins (1988) confirmed the dimensionality and subscale item composition of the IRI through factor analysis.

Davis (1980, 1983b) found a significant correlation between the perspective-taking and empathic concern scales, and a significant negative correlation between the perspective-taking and personal distress scales. Davis (1980) believed this pattern

makes sense if one considers that greater perspective-taking tendencies would likely lead to concern for others rather than to personal distress. The fantasy and perspective-taking scales appear to be unrelated. There was a moderate correlation between fantasy and empathic concern scales, but not between the fantasy and personal distress scales. Davis (1980) concluded "that although some association exists between what appear to be cognitive and emotional empathic dispositions, the relationships are not so strong as to imply that the scales are measuring the same construct" (p. 12). In addition, significant gender differences were found for all four scales, with women obtaining higher scores than men in each case (Davis, 1980).

Davis (1983b) reported that higher perspective-taking scale scores are associated with better social functioning and higher self-esteem. Conversely, higher fantasy scale scores are unrelated to both social functioning and self-esteem, but are modestly related with measures of verbal intelligence and an inclination toward emotional reactivity. Fantasizers also demonstrated a tendency to be more sensitive to others. Further, Davis found that persons high in empathic concern reported elevated anxiety and unease around others. Individuals who score high on the personal distress scale have lower self-esteem and interpersonal functioning and tend to be more emotionally vulnerable and fearful.

Finally, Davis (1983b) examined the relationships between his IRI scales and Mehrabian and Epstein's (1972) and Hogan's (1969)

empathy scales. Hogan's cognitive scale was highly correlated with the IRI's perspective-taking scale, while it was significantly and negatively associated with the IRI's personal distress scale. Conversely, the IRI's fantasy and empathic concern scales were substantially associated with Mehrabian and Epstein's emotional measure of empathy. Reviewing his research Davis (1983b) concluded: "These results support a multidimensional view of empathy because they provide evidence that the four qualities tapped by the IRI are indeed separate constructs, each related in specific and specifiable ways with other psychological measures" (p. 123).

Batson et al. (1987a) believed Davis' scales suffer from the same problem many other self-report measures do: self-presentation. They commented: "It seems that these scales may tell us more about how respondents want to see themselves and to be seen by others than about how respondents actually react perceptually and emotionally when confronted with someone in distress" (p. 174). Batson et al. (1987a) also believed self-presentation may account for the sex differences reported on Davis' scales. Sex-role norms may make it more appropriate for women to report feelings of distress or compassion.

In another multidimensional empathy theory, Gladstein (1983) proposed "that empathy be viewed as a multistage, interpersonal process that can involve emotional contagion, identification, and role taking" (p. 475). Because empathy may consist of multiple elements and multiple stages, Gladstein (1987b) believed it is not

legitimate to be concerned with the "nature of empathy." Rather, investigators should be concerned with identifying and measuring a variety of different kinds of empathy processes.

Gladstein (1987b) identified three domains of empathy: affective, cognitive, and affective-cognitive. He also believed empathy exists as a trait (capable of being activated) and as a state (the activated condition evident in feelings, thoughts, or behaviors). And Gladstein observed that empathy can be measured from three perspectives: the empathizer, the empathizee, and the outsider. Therefore, Gladstein (1987b) proposed there are at least 18 ($3 \times 2 \times 3$) dimensions of empathy! In addition, Gladstein (1983, 1987a) suggested developmental differences in cognitive abilities would account for age differences in empathy and also for differences between adults. He suggested some adults would exhibit more "childlike" empathic skills, for example egocentrism, because of lower cognitive development or skill. Because of these developmental differences, empathy in childhood is likely to be different from that in adolescence and adulthood, and so more than 18 types of empathy may exist.

Some theorists and researchers believe empathy is a multidimensional process consisting of more than cognitive and affective processes. The perception of another through multiple communicative processes may precede or occur simultaneously with the cognitive and affective processes of empathy. The next section will discuss these multidimensional empathy theories.

Multidimensional Empathy and Multichannels of Communication

The idea that empathy and communication are related processes is not a new one and persists in contemporary theories. For example, Stewart (1956) suggested: "The process of empathy is thought to be a technique necessary to the understanding of persons and of interpersonal communication" (p. 20). Gompertz (1960), a journalist, emphasized that knowledge of the psychological concept of empathy is essential for understanding the communication process and for developing effective techniques of mass communication. Campbell, Kagan, and Krathwohl (1971) defined empathy as affective sensitivity, which includes the ability to perceive verbal, nonverbal, and other types of cues associated with specific emotional states. More recently, Plutchik (1987) posited an evolutionary basis for empathy, suggesting display signals are triggers of empathy in both animals and humans. Similarly, Brothers (1989) presented a biological view of empathy, suggesting "empathy (a subjective experience between people), social-communication (in animals) and social signal processing (by neurons) can be understood as aspects of a single phenomenon" (p. 17). Brothers believed empathic processes are analyzable through the study of neuronal response to social emotional signals, such as facial expression. Condon (1984) also viewed communication and empathy to be essential natural processes. He observed: "Communication and empathy are fundamental to human life. As an aspect of existence, they are prior to individual interactions" (p. 35). The following is a

comprehensive review of the more specific theories which posit a role for perceiving communication in the empathy process.

Keefe (1979) proposed a five phase model of empathy, influenced by its applications in social work. The five phases he described are:

(1) perception of verbal and nonverbal messages from the other person, (2) accurate understanding of the meanings of the other person's messages with notation of conflicting messages, (3) experience of one's somatic responses to the messages of the other person while holding complex cognitive elaboration--such as diagnosis--in temporary abeyance, (4) separation of feelings shared with the other person from those held alone, and (5) accurate communication of reactive feelings back to the other person in harmonious understandable verbal and nonverbal messages including natural and appropriate tone, facial expression, posture, and timing. (pp. 30-31).

Thus, Keefe presented empathy as a sequential process, beginning with stimulus perception, both nonverbal cues and the verbal message, followed by a feeling response, then cognitive mediation, and ending in communication. Keefe also suggested these behaviors are learned throughout life and can occur between two or more people.

Keefe (1979) investigated his theory of empathic skill and its trainability. Two training experiences were used, an experiential-didactic course on therapeutic communication and a

structured meditation experience. Keefe hypothesized that training in zen meditation would allow the subjects to increase their skill in perception, attention and sensation behaviors without cognitive interference. The two training groups were compared to each other, to a control group, and to a group given both types of training using a repeated measures, pre- and posttest design. Empathic skill was measured using the Kagan Affective Sensitivity Scale (Campbell et al., 1971). This scale consists of a 66-item, fixed-alternative response sheet presented with an audio-visual tape of 33 brief scenes of counseling and psychotherapy interviews. The scenes portray both verbal and nonverbal expressions of a client's feeling. Subjects identify the feeling state of the client from three alternatives on the response sheet. Thus, the Affective Sensitivity Scale is believed to be a measure of accuracy in perception of the affective states of others from verbal, nonverbal and other cues of emotion. Keefe's results indicated both the meditation training group and the therapeutic communications group did not demonstrate a significant increase in affective sensitivity following training. The third group, who were exposed to both training methods, exhibited a final mean affect sensitivity score that was higher than the average score of mental health professionals reported by Campbell et al. (1971). However, Keefe (1979) acknowledged that this higher mean affective sensitivity score was possibly due to practice affects, as the subjects were tested before training, and again after both training methods, for a total of three times.

In addition to not achieving hypothesized results, Keefe's (1979) study as an examination of his multidimensional empathy process theory was conceptually flawed. The Affective Sensitivity Scale is hypothesized to be a measure of ability to perceive affective states (Campbell et al., 1971). As such, it does not differentiate the empathic processes described in Keefe's (1976) theory with the exception of labeling the client's affect. No measure was made of the empathizer's own affect, cognitive processes, or the empathic response, all of which Keefe posited are essential to the full empathy process. Keefe partially acknowledged this flaw when he suggested further research should involve criterion measures of nonverbal skill, which would isolate its effect from other components of empathy. It is suggested here that a model of the empathy process such as Keefe's (1976) would be best examined by using several criterion measures that would both isolate and show the interactive effects of the different empathic components hypothesized, including perceptual, cognitive, and affective processes.

Smither (1977) also emphasized the role of nonverbal and verbal communication in the empathy process, suggesting empathy research and theory should be based on a multidimensional "family" of skills and processes. She believed empathy can generally occur through two distinct processes: involuntary contagion and deliberate role-taking. Smither also argued that in any instance of empathy, the characteristics of the processes and skills involved depend on: "(a) the situational context, (b) the nature

of the empathic's feeling-state, including certain appraisals about that context, and (c) the manner in which those feelings are expressed" (p. 267). Based on these conditions, three specific socio-cognitive processes were posited by Smither to occur. The first is inferring the characteristics of the other's feelings. The second socio-cognitive process involves perceiving and understanding the motivational context of the other's feelings. And the third socio-cognitive process consists of affective responsiveness to the other's feelings. Smither observed:

Given that there are many ways we can come to empathize with another--observing reactions, listening to verbal descriptions of another's experiences and feelings, imagining another's position--and given that emotion will accordingly be variously expressed, the developmental study of empathy should be conceived in terms of the multitude of skills and processes that the concept embraces. (p. 264)

Expression and perception of emotional cues are both important in the empathic conditions and processes Smither identified. Smither described these as occurring in both the contagion and role-taking forms of empathy through both behavioral and verbal expression and also situational cues. If the expressor is unfamiliar, the "nature of the emotions may be such that they are 'indicated' by a complex set of behavioral, verbal, and situational cues" or by verbal depictions" (p. 268). The contagious form of empathy involves a recognition of the other's "natural expressions." In role-taking empathy, selective

integration and interpretation of verbal and behavior sequences occurs. Therefore, different task characteristics and conditions determine the socio-cognitive processes used by the empathizer.

For Smither, communication plays an important role in inferring another's feeling. With regard to the contagious form of empathy, three processes are involved: (a) recognition of emotional expressions, (b) association between basic emotions and known situations, and (c) perception of behavioral cues. In the role-taking form, the other's emotion is inferred through "selective integration and interpretation of verbal and action sequences; or of verbal depictions of situations and feelings" (p. 269). Therefore, perception of different emotional cues and channels of their expression is necessary in inferring the other's feelings.

Smither offered no original empirical work in support of her multidimensional empathy theory. Instead, she reviewed empathy theories and specific research findings pertinent to her theory. As to the use of kinesic cues to recognize, understand, or be affected by the other's feeling state, Smither suggested that the research is limited (remember this was written in 1977) and referred the reader to the work of Birdwhistell and Scheflen on nonverbal communication, among others.

Feshbach (1978) maintained "an integrative approach" to her study of children's empathic behavior. She conceptualized empathy as a complex interaction of social understanding and an affective response, offering a three-component model of empathy. Two of

these components were described as cognitive in nature: the ability to differentiate and label another's affective state, and the ability to take the perspective and role of another. The third component is emotional capacity and responsiveness. According to Feshbach, all three of these elements are essential in order for an empathic response to occur and all are subject to developmental advances and modification through learning experiences.

It is the first component of Feshbach's model, the ability to discriminate and label affective states, that is of interest in an examination of expressive communication perception and empathy. This component involves the ability to distinguish and identify the affective implications of "expressive cues" (Feshbach, 1978, p. 9). Unfortunately, Feshbach did not describe these "expressive cues" in any detail. She did not specify if they are verbal expressions, vocal characteristics, facial expressions, or other displayed behaviors. Similarly, Feshbach's research using the FASTE and a second measure, the Feshbach and Powell Audiovisual Test for Empathy (Feshbach, 1982) did not distinguish among the three components of the empathy process she described. The two tests she employed measure only affective response empathy.

Hoffman (1984) presented a developmental theory of empathy which described the development of empathic distress (affective empathy) through the interactions between affect and cognition. Although Hoffman defines empathy as an affective response, he describes it as having "cognitive as well as affective components"

(p. 103). An empathic response will vary developmentally depending on the processing of "visual or auditory cues", and the semantic meanings and representations. Information about another's affective state can be determined through verbal and nonverbal communication, situational cues, and previous knowledge of the other's affective traits. According to Hoffman, this information may be processed differently:

Empathy aroused by nonverbal and situational cues is expected to be mediated by the largely involuntary, cognitively "shallow" processing modes. Empathy aroused by verbal messages from the victim, on the other hand, or by one's knowledge about the victim requires more complex processes such as semantic interpretation and imagining oneself in the victim's place. What may be defined as an empathic response for a very young child may thus involve relatively simple levels of processing of visual or auditory cues in the immediate situation, whereas mature empathizers may, in addition, respond in terms of semantic meanings of stimuli and representations of events beyond the situation.

(p. 114)

Hoffman concludes that two processes account for empathic arousal: a verbal, cognitive process, and a nonverbal, perceptual process.

Goldstein and Michaels (1985) suggested that empathy is a "perceptual-affective-cognitive-communicative process". In their text on empathy, Goldstein and Michaels advocated Keefe's (1976, 1979) model of empathy. Basing their theory on Keefe's (1976)

work, Goldstein and Michaels described three components of the empathy process: affective, cognitive, and communicative. The process of reading nonverbal communication is important to the cognitive analysis component. According to Goldstein and Michaels, cognitive analysis involves three activities on the part of the empathizer: (a) perception of cues indicative of the other's feeling state, (b) a "trying on" of the other's affect, using perceptual and reverberatory information, and (c) endeavoring to comprehend, analyze and label the other's feeling.

Goldstein and Michaels believed accurate cognitive analysis to be largely accomplished through judgement of facial expression. They presented no empirical or experimental data of their own in support of this argument, but instead primarily reviewed the work of Ekman, Friesen, and their associates (e.g., Ekman & Friesen, 1975; Ekman, Friesen, & Ellsworth, 1982). For example, Ekman et al. (1982) argued that there is "consistent evidence of accurate judgements of emotion from facial behavior" (p. 86). Goldstein and Michaels also acknowledged Argyle (1972), Duncan (1969) and Mehrabian's (1969) early work on multiple communication channels. However, Goldstein and Michaels (1985) concluded:

Although it may appear reasonable to propose that each of the nonverbal communication channels in the preceding listings is a likely route for the transmission of affective messages, in no instance has this conclusion been demonstrated with anything approaching the comprehensiveness

of research done on facial expressiveness of emotion. (p. 128).

Past and recent research does not support this conclusion as it pertains to facial expression. For example, Ekman and Friesen's work has recently been shown to be of questionable value when spontaneous facial expression is studied. Unlike Ekman and Friesen's (1975) use of posed facial expressions, Motley and Camden (1988) used spontaneous facial expressions. Spontaneous facial expressions were found to be ambiguous, so much so "that for most emotions the accuracy of identification cannot be expected to exceed the accuracy of simple blind guessing" (Motley & Camden, 1988, p. 14). Similarly, Wagner, MacDonald, and Manstead (1986) also studied spontaneous facial expressions, finding that only happy, angry, and disgusted facial expressions were recognized at above-chance rates. One could conclude from these recent facial expression studies that empathy primarily based on the perception of spontaneous facial expression would likely be inaccurate!

With regard to multiple channels of communication, Waxer (1978), in his book Nonverbal Aspects of Psychotherapy, took a comprehensive view, emphasizing the importance of accurate interpretation of both verbal and nonverbal communication channels. In the examination of communication channels, Waxer cautioned: "There is, of course, no absolute necessity to choose one information channel over the other; to be forced to do so has been shown to lead to error or at least an incomplete information

picture" (p. 74). This suggestion is supported by the recent work of Wallbott and Scherer (1986). In a study of cues and channels in emotion recognition, Wallbott and Scherer's results indicated various emotions are portrayed by different nonverbal cues, and decoding accuracy is greatly affected by differences between channels and between expressers. In another multichannel communication study which included the verbal channel in addition to nonverbal ones, Krauss, Apple, Morency, Wenzel, and Winton (1981) concluded that written verbal content, in comparison to vocal or visual nonverbal information, is the best predictor in evaluative judgements of another's affect.

Empathy Theory Discussion

In summary, despite its frequent use as a psychological concept, the definition of empathy remains an enigma. It has been described as a cognitive process in which an observer comes to know another's thinking or feeling. This process has been measured by predictive or rating accuracy and by trait measures. Empathy also has been described as an affective reaction to another's expressed affect. This emotional reaction may or may not involve a matching of the expresser's affect. Affective empathy has been investigated through self-report inventories of emotion, physiological indicators, and trait measures. Empathy also has been described as a multidimensional psychological process with both cognitive and affective processes. Five of these multidimensional theories posit a role for the perception of

communication in empathy. However, the principal multidimensional measure of empathy, Davis' (1980) Interpersonal Reactivity Index, does not contain a method of measuring receptive communication skill.

It is the position of this paper that a complete theory of the empathy process and an adequate measure of its skill should contain not only affective and cognitive components, but also the perception of multiple channels of communication, both verbal and nonverbal. In empathy, both feeling states and cognitive processes would arise following the perception of a communication from another. Otherwise, empathy would be an affective and cognitive process which could occur in the absence of another, an egoistic process devoid of altruistic or therapeutic value.

Hoffman (1977a) suggested that types of eliciting cues are variables to be studied rather than central to the definition of empathy. It is suggested here that proper identification of communicative eliciting cues and their intent are central in distinguishing an empathic response from a self-based or egotistic response to another's emotion.

It is proposed that empathy be viewed as a multidimensional process consisting of perception of multiple channels of communication, an emotional response, and cognitive processes. It is further suggested, in agreement with Feshbach (1978) and Foushee et al. (1979), that these parts are not mutually exclusive, as each influences the other. An empathic communication by the empathizer to the other may or may not occur,

and it is not essential to the empathy process. As suggested by other multidimensional theorists (e.g., Barrett-Lennard, 1981; Davis, 1980; Gladstein, 1987a, 1987b) separate measures of these processes are needed to assess independent and interactive qualities. A variety of types of measures would provide a range of information, including communication skills measures, affective responses, and cognitive processes. There has been an over reliance on self-report measures, and the relationships between self-report measures, physiological measures, and skill assessments warrant further examination.

A nonverbal component of empathy has been suggested by empathy theorists (Feshbach, 1978; Goldstein and Michaels, 1985; Keefe, 1976, 1979; Smither, 1977), but, as will be shown in the next sections, it has been neglected in empathy research and assessment. A multichannel view of communication in empathy appears warranted. According to Bowers, Metts, and Duncanson (1985), an "ideal interpreter" would observe and analyze the "emotionally laden physiological, paralinguistic, kinesic, lexical, and pragmatic behavior of another" (p. 520).

In agreement with Hoffman (1977a), and in avoidance of the vicarious instigation question (Green & Osborne, 1985), the affective response posited for this model need not match or even be similar to the expresser's affect. It is only necessary that an affective response occur. The nature of the response is related to the ongoing interpersonal communication and cognitions.

The emotional response may be congruent or opposite, positive or negative. It may be personal distress or distress for the other.

The affective and cognitive responses are not mutually exclusive, but instead may mediate each other (Feshbach, 1978). The cognitive response proposed here is a knowledge of the other's emotion and communication, and a knowledge of one's own emotion and experiences.

The interrelations between cognition and emotion has long been a "chicken and egg" problem for psychologists (Bowers, Metts, Duncanson, 1985; Eisenberg, 1986; Evans, 1989; Leventhal & Tomarken, 1986; Plutchik, 1985). Recent theorists have proposed integrative approaches for conceptualizing the complex interactions between emotion and cognition (e.g., Bowers et al., 1985; Greenberg & Safran, 1989; Kleinginna & Kleinginna, 1981; Plutchik, 1985; Royce & Diamond, 1980). Sypher, Sypher, and Haas (1988) concluded: "Indeed, the link between affect and cognitive processing appears reasonably well substantiated in the psychological literature" (p. 378).

The model presented here maintains such an integrative approach. But it goes one step further. The model of empathy presented here maintains that empathy involves the mutual influence of cognition, affect, and communication. As Sypher et al. (1988) have observed: "Emotion, communication, and cognition are interwoven in such a way that ignoring one of the aspects gives one a strange tapestry indeed" (p. 381). The following section will provide a brief review of theory and research

regarding channels of communication in the expression and decoding of emotion.

Channels of Communication

It has long been observed that communication of personal disposition occurs across multiple channels (e.g., Archer & Akert, 1977; Argyle, 1972, 1975; Birdwhistell, 1968; Buck, 1983; Burgoon 1985a, 1985b; Burns & Beier, 1973; Duncan, 1969; Friedman, 1979; Gallols & Callan, 1986; McArthur & Baron, 1983; Mehrabian, 1969, 1971b; Mehrabian & Ferris, 1967; Weitz, 1979c; Zuckerman, Lipets, Koivumaki, & Rosenthal, 1975). Communication may occur through physiological, paralinguistic, kinesic, lexical, and pragmatic behaviors (Bowers, Metts, & Duncanson, 1985). Communication may occur across just one channel at a time, but is more likely to occur across several channels at once (Argyle, 1975; Burgoon, 1985a; Constanzo & Archer, 1989; Hodgins & Zuckerman, 1990; Zuckerman & Larrance, 1979). Ekman, Friesen, O'Sullivan, and Scherer (1980) recommended against the assumption that any one channel is predominantly used in the judgement of others. Instead, Ekman et al. (1980) observed: "Which channel predominates depends on what characteristic is being judged as well as on the interpersonal situation in which the judged behavior occurs" (p. 276). Burgoon (1985a) provided an excellent summary of the research on multichannels of communication:

1. As a general pattern, adults place more reliance on nonverbal than verbal cues in determining social meaning. . . .
2. Children rely more heavily on verbal than nonverbal cues. . . .
3. Adult reliance on nonverbal cues is greatest when the verbal and nonverbal messages conflict; verbal cues become increasingly important as the messages become more congruent. . . .
4. The function of communication mediates channel reliance: Verbal cues are more important for factual, abstract, and persuasive communications, whereas nonverbal cues are more important for relational, attributional, affective, and attitudinal messages. . . .
5. Individuals have consistent biases in channel reliance: Some consistently depend on verbal information; some consistently depend on nonverbal information; and some are situationally adaptable. (p. 347)

Emotions are typically recognized from a pattern of verbal and nonverbal signals (Argyle, 1975). However, sometimes verbal and nonverbal signals are in conflict. This may occur in cases of deception, emotional control, or if more than one emotion is being experienced (Bugental, Kaswan, & Love, 1970; Shennum & Bugental, 1982; Snyder, 1974; Zuckerman, DePaulo, & Rosenthal, 1981). However, "leakage" will occur, in which efforts to control, deceive, or limit emotional expression will be betrayed by clues

from nonmonitored channels (Ekman & Friesen, 1969a, 1974; Ekman, Friesen, & Scherer, 1976; Mehrabian, 1971a; Rigglo & Friedman, 1983). DePaulo and Rosenthal (1979) observed that decoders will vary in their ability to interpret multiple cue messages. They suggested skilled discrepancy decoders may have certain interpersonal advantages, including being "more truly empathic" (p. 242).

Buck (1983) provided a comprehensive review of measures of nonverbal receiving ability. The most widely studied test of nonverbal decoding skill is the Profile of Nonverbal Sensitivity, or PONS test (Rosenthal, Hall, DiMatteo, Rogers, & Archer 1979). The PONS test consists of 220 two-second acted segments of a female encoder's nonverbal behavior, including visual and auditory channels, and paired combinations of visual and auditory channels. The PONS test has been criticized by several researchers. For example, Constanzo and Archer (1989) observe:

The PONS includes reliance on a single encoder, the possibility that subjects might recall cues from one scene to another, presentation of communication channels in isolation, use of posed emotions and situations, and use of a problematic criterion of accuracy--the affective intent of the encoder. (p. 227)

Other standardized measures of social perception or nonverbal decoding ability include the Brief Affect Recognition Test (BART; Ekman & Friesen, 1974), the Communication of Affect Receiving Ability Test (CARAT; Buck, 1976), the Affective Sensitivity Scale

(Kagan, 1977), the Social Interpretations Task (SIT; Archer & Akert, 1977), and the Interpersonal Perception Task (Constanzo & Archer, 1989). These measures all present prerecorded samples of behavior and ask the respondent about a variety of characteristics or emotional states of the encoders. Two self-report measures of decoding ability include the Perceived Decoding Ability Scale (PDA; Zuckerman & Larrance, 1979), a self-report measure of nonverbal decoding skill, and the Social Skills Inventory (Riggio, 1986, 1989), which contains self-report scales of both verbal and nonverbal decoding skills.

Several researchers have recently investigated the ability of strangers to predict self-ratings of personality by targets. Albright, Kenny, and Malloy (1988), Berry (1991), Funder and Colvin (1988), Gangestad, Simpson, DiGeronimo, and Biek (1992), and Watson (1989) have all reported that predictions of ratings by strangers of self-ratings by targets are remarkably accurate, although validity will differ across various traits. In a meta-analysis of some of these and similar studies, Ambady and Rosenthal (1992) found that predictions of personality self-ratings based on observations of less than 30 seconds did not differ significantly from those based on 4 to 5 minute observations. Longer exposures do not increase accuracy significantly. Ambady and Rosenthal also reported that the channel of communication on which the predictive ratings were based did not appear to be a factor in predictive rating accuracy. They also observed that accuracy in ratings was not affected by

natural versus laboratory simulated behavior. Ambady and Rosenthal concluded:

certain affective, interpersonally oriented dimensions of personality can be judged quite rapidly, efficiently, and accurately. It is certainly possible that judgements of these dimensions that are based on thin slices of behavior are accurate because recognition of these dimensions may be more important for survival and adaptation to the environment. Furthermore, these dimensions seem to be revealed through various channels of expressive behavior. (pp. 267-268)

In another study of the consensus between self-ratings and stranger ratings of personality traits, Borkenau and Liebler (1992) reported ratings by strangers to be more valid for some personality traits than others. Strangers were found to rate extraversion and conscientiousness most accurately and emotional stability least accurately across various levels of information (sound film, silent film, still photograph, and audiotape). Borkenau and Liebler also found stranger ratings of target personality traits were most valid in the sound-film condition. Information across multiple channels apparently contributed to the accuracy in interpersonal perception.

Interpersonal rating accuracy studies such as those described above are similar in conceptualization to Remmers (1950) recommendation that cognitive empathy skill be measured by predicting the position of another on one or more psychological

scales. However, no effort is made in the above stranger trait rating accuracy studies to distinguish within the subjects the characteristics of the particularly accurate trait predictors.

Similar to empathy, sex differences have been observed in nonverbal decoding and expression (Hall, 1978). For example, women score higher than men in general on the PONS (Rosenthal et al., 1979). Research has indicated that these sex differences may be attributed to the societal sex role expectations and behavior (Hall & Halberstadt, 1981; Snodgrass, 1985; Vrugt & Kerkstra, 1984; Weitz, 1976). Hall (1987) observed that gender differences in nonverbal communication are difficult to interpret because nonverbal behavior is hard to interpret. She hypothesized: "One important matter to study, in order to resolve whether female nonverbal behavior is 'bad' or 'good,' is the effect of male versus female nonverbal behavior on others' impressions and on real-life outcomes" (p. 197). Similarly, it is the position of this paper that empathy behavior is difficult to interpret. Research on the effect of empathic behavior on others' impressions and on its consequences in the real world is greatly needed.

Empathy and Communication Research

While empathy and communication individually have long research histories, experimental investigations of their relationship appear to be few in number. As will be shown, the relationship between empathy and communication remains unclear due to inconsistent results reported in these studies.

Three studies have examined the effect of expressive displays on vicarious emotional arousal. Affective definitions of empathy include vicarious emotional arousal. Vaughan and Lanzetta (1980) reported that a model's facial expression of pain instigated autonomic arousal and facial activation in observers. Vaughan and Lanzetta (1981) reported similar findings and suggested that "the response to a conspecific's pain display is simple empathy" (p. 27). In a third study of vicarious emotional responses, Lanzetta and Englis (1989) concluded that cooperative expectancy and experience enhances vicarious empathic responding.

Funder and Harris (1986) found a significant correlation between the PONS (Rosenthal et al., 1979) and two factors of the Hogan Empathy Scale (Hogan, 1969; Johnson et al., 1983): sensitivity and social self-confidence. Funder and Harris (1986) also reported a significant relationship between the whole Hogan scale and the Self-Monitoring Scale (Snyder, 1974, 1979). The Self-Monitoring Scale is a self-report measure of degree of sensitivity to the social behavior of others and the use of social cues as a guide for regulating self-presentation. Funder and Harris (1986) suggested "both the Self-Monitoring and Empathy seem to be relevant to a common attribute of social effectiveness" (p. 543). However, recently researchers have questioned the validity of the self-monitoring construct and scale (Briggs & Cheek, 1988; Dillard & Hunter, 1989).

It is interesting to note that Johnson et al. (1983) have reported significant correlations between the sensitivity factor

of the Hogan (1969) empathy scale and the perspective-taking, fantasy, and empathic concern subscales of the IRI, Davis' (1980) multidimensional measure of empathy. One could speculate that significant relationships may be found between subscales of the IRI and the PONS. However, this has yet to be investigated. Curiously, Evans, Stanley, Burrows, and Sweet (1987) administered both the PONS and the IRI to Australian medical students, but they did not investigate any possible relationships between the scales and their subscales. Instead, they simply compared their subjects to the original normative groups of the measures in order to evaluate the students' "consulting skills."

Bernstein and Davis (1982) have reported relationship between accuracy in person perception and perspective-taking in multidimensional empathy. Subject observers scoring high in perspective-taking on the IRI (Davis, 1980) scored significantly higher in accuracy in matching expressers with self-descriptions. The observers' scores on the three other IRI scales were found to be unrelated to accuracy in person perception. Bernstein and Davis conclude from their study that "a very specific kind of cognitive capability--the tendency to see things from another's 'psychological point of view'--was associated with a measure of accuracy that results solely from the judge's skill in utilizing behavioral clues and self-descriptions of other people" (p. 17).

Daly, Vangelisti, and Daughton (1987) developed a measure of conversational sensitivity, and examined the relationship between conversational sensitivity and empathy as measured by the IRI.

According to Daly et al. (1987), "conversational sensitivity is the propensity of people to attend to and interpret what occurs during conversations" (p. 168). This definition is based on Daly et al.'s (1987) observation that individuals vary in how sensitive they are to what occurs in social interactions, observed differences occurring in nonverbal sensitivity, active listening, and predisposition to attend to conversation. Hypothesizing that conversational sensitivity is a precursor of empathy, Daly et al. (1987) found a positive relationship between empathy and conversational sensitivity. All four scales of the IRI were positively correlated with the conversational sensitivity measure.

While investigating gender differences in nonverbal decoding skills, Hall (1979) hypothesized that women's superior decoding skill is due to their greater empathy. She defined empathy as the vicarious sharing of mood. To test her hypothesis, Hall conducted two studies. In the first study, no relationship was found between vocal decoding skill and affective empathy as measured by Mehrabian and Epstein's (1972) affective empathy scale. Subsequently, Hall (1979) conducted a more extensive second study. She administered three decoding tests: a vocal decoding test, an audio only version of the PONS test (Rosenthal et al., 1979), and a visual only version of the PONS test. The subjects were also administered three tests of empathy: Mehrabian and Epstein's (1972) affective empathy scale, the Hogan (1969) cognitive empathy scale, and Jackson's (1976) interpersonal affect scale. No

correlation was found between any of the empathy and decoding measures. Based on these results, Hall (1979) concluded:

The two studies together suggest rather convincingly that empathy and nonverbal decoding (or encoding) are not synonymous skills. A person who responds vicariously to others' moods, at least according to self-report, is not necessarily a good decoder of nonverbal cues. (pp. 48-49)

However, Hall did suggest that even though trait empathy appears unrelated to decoding skill, the state of empathy may be.

Decoding skill may be more accurate during active empathizing.

It is also interesting to note that Hall's (1979) results using the whole Hogan scale are similar to Funder and Harris' (1986) results, in which no significant relationship was found between the whole Hogan empathy scale and the PONS. However, Funder and Harris did find significant relationships between two factors of the Hogan scale, sensitivity and social self-confidence, and the entire PONS. Perhaps Hall's results would have been different if she had used the entire PONS test and correlated the results to the factors of the Hogan empathy scale.

Riggio, Tucker, and Coffaro (1989) examined the relationship between three empathy measures and an empathy measure derived from the Social Skills Inventory (SSI; Riggio, 1986, 1989). The SSI is a paper-and-pencil self-report measure which assesses six dimensions of social skills: emotional expressivity, emotional sensitivity, emotional control, social expressivity, social sensitivity, and social control. Emotional expressivity refers to

skill in nonverbal sending, including emotional expressivity. Emotional sensitivity refers to the ability to receive and decode the nonverbal communication of others. Riggio (1986) suggests that individuals high in emotional sensitivity "are more susceptible to becoming emotionally aroused by others" (p. 651). Emotional control refers to the ability to control and regulate nonverbal displays. Social expressivity involves verbal speaking ability and skill in engaging others in social interaction. Social sensitivity is the ability to decode and understand verbal communication and knowledge of social norms. Riggio (1986) theorizes that persons high in social sensitivity may be overconcerned with the appropriateness of behavior and be prone to self-consciousness and social anxiety. The sixth social skill, social control, refers to skill in self-presentation, including tact and self-confidence.

Riggio et al. (1989) derived two empathy indexes from the subscales of the SSI. The researchers sought to measure not only empathic sensitivity, but also successful empathic communication. An emotional empathy measure was created by summing the emotional sensitivity and emotional expressivity scales of the SSI. Riggio et al. theorized that "an individual who is emotionally empathic needs to be sensitive to another's emotional state, but he or she must also be able to reflect the emotion back to the individual--indicating that they vicariously feel the same emotion" (p. 94). Similarly, a measure of cognitive empathy was created by combining the social sensitivity, social expressivity, and social control

scales of the SSI. Riggio et al. wrote: "In order to successfully take another's perspective, and communicate a cognitive understanding of the individual's position, the empathic person must be a skilled verbal communicator and a controlled and polished social actor (role playing ability is central to the basic social skill of social control)" (p. 94). Note that the measure used by Riggio et al. is intended to assess not only cognitive and affective receptive empathy, but also cognitive and affective expressive empathy.

Subjects in the Riggio et al. (1989) study also completed the Hogan Empathy Scale (Hogan, 1969), a measure of role-taking ability, the QMEE (Mehrabian & Epstein, 1972), a measure of vicarious emotional arousal, and the IRI (Davis, 1980), a multidimensional of receptive empathy. Note that of these empathy measures, only that of Riggio et al. assesses empathic communication. Riggio et al. reported several positive correlations between their SSI empathy indexes and the empathy measures. The SSI emotional empathy measure strongly correlated with the QMEE, the IRI empathic concern scale, and to a lesser extent with the IRI fantasy scale, all measures of emotional empathy. The SSI social empathy index positively correlated with the Hogan Empathy Scale and the IRI perspective-taking scale, both measures of cognitive empathy. All of the measures strongly correlated with both the Hogan Empathy scale and the total SSI score. Riggio et al. did not report correlations between the empathy measures and the individual SSI scales with the exception

that the IRI personal distress scale positively correlated with the SSI social sensitivity scale.

The above subjects were also given an emotion recognition task, using pictures selected from Ekman and Friesen's (1975) Pictures of Facial Affect, a test of "empathy-related behavior that would involve purely emotional skills. In other words, subjects viewed only the facial expressions of actors without the presence of any verbal cues, social cues or situational context" (p. 95). This would seem to be a limited test of emotion recognition because the emotions are posed and only portrayed through one nonverbal channel, facial expression. Riggio et al. found that both the SSI emotional empathy index and the QMEE positively correlated with ability to recognize facial expressions, but only for the female subjects. None of the IRI scales was positively correlated with the picture recognition task for either males or females. Perhaps a more valid measure of emotion recognition would involve spontaneous expression over multiple channels of communication.

A second task in the Riggio et al. (1989) study involved comparing subjects' ratings of emotions expressed in written essays to the ratings made by the authors of the essays. The researchers explained this task "was selected in order to present subjects with a purely verbal/cognitive empathy task-one that would be devoid of any nonverbal cues of emotion" (p. 95). As predicted, males who scored high on the cognitive measures of empathy, the SSI social empathy index and the Hogan Empathy scale,

did well on the essay task. But, contrary to their predictions, females who scored high on SSI emotional empathy index and the QMEE also scored high on this task. Again, a more valid measure of empathic emotional cognition would include expression over multiple channels of communication.

The most recent investigation of the relationship between empathy and nonverbal sensitivity was reported within a brief comment in Koestner, Franz, and Weinberger's (1990) report about a study of longitudinal empathic concern. Koestner et al. used a self-report adjective checklist of empathic concern devised by Matthews, Batson, Horn, and Rosenman (1981) consisting of 13 items from the Adjective Checklist (Gough & Heilbrun, 1965).

Matthews et al. (1981) developed their measure of empathic concern by using three judges (two were authors of the study) to select adjectives "reflective of empathic concern." Empathic concern was defined by Matthews et al. (1981) as evidence for prosocial behavior, such as helping and kindness, and empathic emotion, such as empathy and compassion (as reported by Coke, Batson, & McDavis, 1978). Eight adjectives were chosen from the adjective checklist as being positively indicative of empathic concern: emotional, generous, helpful, kind, sensitive, softhearted, sympathetic, and warm. Another five adjectives were chosen to be negatively scored for empathic concern: cold, hardhearted, self-centered, selfish, and unemotional. Note that the adjectives employed in this measure do not constitute a multidimensional conceptualization of empathy, because there are

no terms descriptive of cognition or sensitivity to communication in the selected adjective checklist. Also, adjective checklist measures are especially subject to idiosyncratic trait definitions and self-serving assessments of ability by subjects (Dunning, Meyerowitz, & Holzberg, 1989). Therefore, the Matthews et al. (1981) measure of empathy is of questionable validity and reliability.

Returning to Koestner et al. (1990), they reported in a footnote a nonsignificant correlation between the audio version of the Profile of Nonverbal Sensitivity (PONS; Rosenthal et al., 1979) and the Matthews et al. (1981) measure of empathic concern, and concluded:

The lack of correlation between self-reported empathic concern and nonverbal decoding skill is not surprising. Rosenthal et al. (1979) reported an r of only .08 between self-ratings of interpersonal sensitivity and performance on the PONS. Furthermore, reviews of the construct validity of empathy measures have failed to note any consistent relation between questionnaire measures of empathy and performance measures of nonverbal sensitivity. (p. 713)

However, Koestner et al. (1990) did not give references for the previous empathy reviews they refer to. Nor did they explain why they used an audio only version of the PONS rather than the complete multichannel version. Furthermore, Rosenthal et al. (1979) never investigated the relationship between the PONS and any empathy measure. In addition, the interpersonal sensitivity

ratings compared by Rosenthal et al. (1979) to the PONS were Judges' ratings of 16 broad interpersonal variables suggestive of "interpersonal success", not of empathy (see Rosenthal et al., 1979, pp. 263-266 and pp. 270-274).

In summary, seven studies have been reported which indicate a positive relationship between emotional expression or communication decoding and empathy (Berstein & Davis, 1982; Daly et al., 1987; Funder & Harris, 1986; Lanzetta & Englis, 1989; Riggio et al., 1989; Vaughan & Lanzetta, 1980, 1981), while two studies concluded that no relationship exists between empathy and nonverbal decoding skill (Hall, 1979; Koestner et al., 1990). It has also been suggested here that positive relationships may exist between subscales of the IRI empathy measure (Davis, 1980) and the PONS (Rosenthal et al., 1979).

Due to contradictory research results, the relationship between decoding of channels of communication and multidimensional empathy warrants further study. Such research would not only be of interest to social psychologists, but would be of benefit to mental health professionals as well, because perception of multiple channels of communication and empathy have both been described as important components of the therapy process (e.g., Rogers, 1975; Waxer, 1978).

In summary, Smither (1977), Keefe (1976), Feshbach (1978), Hoffman (1984) and Goldstein and Michaels (1985) all posit a role for the decoding of communication in the process of multidimensional empathy. This is understandable, as it has long

been believed that interpersonal interaction and the communication of emotion typically occur across multiple channels (Burgoon, 1985a). As Bowers et al. (1985) observe: "The array of verbal and nonverbal behaviors available to interactants to express emotional states is extensive" (p. 532). However, a review of the research on the relationship between empathy and decoding of communication shows the results to be inconsistent. It is suggested here that the relationship between multidimensional empathy and multichannels of communication has yet to be fully investigated. Several researchers have theorized and studied the relationship between empathy and anxiety, and the ways in which anxiety is communicated across channels. An experiment exploring the relationship between empathy and communication perception with regards to anxiety should be helpful in investigating these multidimensional processes.

State and Trait Anxiety

Spielberger (1966, 1972, 1983) characterizes personality state and personality trait as related but different concepts. A personality state varies temporally in its level of intensity. Although transitory, it can be evoked and maintained by appropriate stimuli. A personality state may be expressed by an emotional reaction. Conversely, personality traits are comparatively enduring and specific individual differences in perceiving the world or in tendencies to react or behave in a regular and predictable manner. The stronger a personality trait,

the more likely and with greater intensity the associated emotional state will occur in the presence of appropriate evoking stimuli (Spielberger, 1972).

Spielberger uses this trait-state personality theory in distinguishing between what he believes are two related yet distinct constructs of anxiety. Accordingly, he explains:

Trait anxiety (T-Anxiety) refers to relatively stable individual differences in anxiety-proneness, that is to differences between people in the tendency to perceive stressful situations as dangerous or threatening and to respond to such situations with elevations in the intensity of their state anxiety (S-anxiety) reactions. (Spielberg, 1983, p. 1)

State anxiety is described as the personal, conscious perception of tense, apprehensive, and nervous emotions occurring with or corresponding to activation of the autonomic nervous system (Spielberger, 1966, 1972, 1975, 1979, 1983, 1985). It can be aroused by both external stressors or internal stimuli such as thoughts, memories or feelings. State anxiety reactions are evoked by the subjective perception or appraisal of a threatening stimulus or situation; intensity and duration are proportional to the amount and persistence of the threat. As compared to those low in trait anxiety, individuals who are high in trait anxiety are more likely to perceive situations involving evaluations of personal and social adequacy as more threatening (Spielberger, 1977, 1985). They will experience higher increases in their state

anxiety under such circumstances because of their generally lower self-esteem and confidence (Spielberger, 1985).

The State-Trait Anxiety Inventory (Spielberger, 1983) consists of separate self-report scales for measuring state and trait anxiety. The state anxiety scale evaluates how the individual feels at the present time, while the trait anxiety scale assess how the individual generally feels. Trait anxiety scores are not affected by stress. State anxiety scores for a group will be nearly the same as the mean trait anxiety score when the state anxiety scale is administered under neutral conditions. But state anxiety scores are higher under stressful conditions and lower when measured in relaxed circumstances (Spielberger, 1983).

Recognition of Anxious Affect

Although abundant research exists on anxiety, relatively few researchers have compared individuals' self-reported anxiety to anxiety ratings made by observers of the individuals (Borkovec, Stone, O'Brien, and Kaloupek, 1974; Farrell, Mariotto, Conger, Curran, Wallander, 1979). Many of these researchers have compared social anxiety and heterosexual social performance (Borkovec et al., 1974; Clark and Arkowitz, 1975; Edelmann, 1985; Farrell et al., 1979; McEwan and Devins, 1983), which is not the concern of the study presented here.

Nonverbal cues have been found to be diagnostic of emotional states, including anxiety and its intensity (Cook, 1969; Fairbanks, McGuire, & Harris, 1982; Waxer, 1977, 1978, 1981). For

example, Kasl and Mahl (1965) identified several speech disturbances related to anxiety. Murray (1971) found a relationship between anxiety and verbal productivity. Boice and Monti (1982) reported three nonverbal behaviors which are indicative of anxiety: extremity movements, self manipulations, and gestures.

Waxer's (1981) studied channel contribution in emotional communication of anxiety. Raters were asked to evaluate the anxiety levels of 20 videotaped psychiatric patients selected to present a range of state anxiety. The raters were able to make anxiety estimates which correlated significantly with the patients' actual anxiety scores, with raters under the full audio-video condition achieving the highest correlation.

As previously mentioned earlier in this paper, several studies have reported that the ratings of strangers converge surprisingly well with self-ratings of personality by targets (Albright, Kenny, & Malloy, 1988; Ambady & Rosenthal, 1992; Borkenau & Liebler, 1992; Funder & Colvin, 1988; Gangestad, Simpson, Digeronimo, & Biek, 1992; Watson, 1989). Two of these studies, Watson's (1989) and Borkenau and Liebler's (1992), included stranger ratings of target anxiety. Watson's subjects rated personality traits on 20 bipolar scales. The subjects made the ratings in each other's presence in small groups. The scales were grouped by four factors: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Culture. Two bipolar scales within the Emotional Stability factor included nervous,

tense versus poised, and anxious versus calm. Watson reported that among the Emotional Stability items, significant self-peer convergence was only found for the nervous, tense versus poised scale. No significant convergence was found for anxious versus calm trait.

Borkenau and Liebler (1992) used the same 20 bipolar scales used by Watson (1989) in their study of correlations between self-ratings and stranger ratings for personality traits. But unlike Watson, Borkenau and Liebler presented the targets on four different formats: sound film, silent film, still photograph, and audiotape. In the sound film condition, only male subject ratings of targets were found to significantly correlate with self-ratings on the poised versus nervous scale. No significant correlations were reported for the female subjects in the sound film condition, and for all subjects across the other three target conditions on the poised versus nervous scale. However, unlike Watson's subjects, all of Borkenau and Liebler's subjects' ratings of targets on the calm versus anxious scale were significantly correlated, but on the sound film condition only. Thus, Borkenau and Liebler's subjects were able to distinguish self-reported calm versus anxious personality trait in the most multichannel condition.

Two studies have indicated that observer anxiety can affect decoding skill. Gard, Gard, Dossett, and Turone (1982) report that high trait anxious subjects were better in interpreting nonverbal facial expressions in nonstressful situations than low

trait anxious subjects, but low trait anxious subjects were more accurate in stressful situations. Hornblow, Kidson, and Ironsides (1988), who found that anxious medical students over rated patient anxiety, propose that clinicians' ratings of their patients' affect may be influenced by their own emotional states.

Empathy and Anxiety

The relationship between empathy and anxiety has been studied using both cognitive and affective measures of empathy as well as multidimensional approaches. Kreiser (1987) has pointed out the relationship between anxiety and cognitive empathy may be different from that between anxiety and affective empathy. Indeed, this difference becomes salient as one reviews such studies.

For example, there appears to be a negative relationship between cognitive empathy and anxiety. Several personality researchers have studied the relationship between anxiety and cognitive empathy using the Hogan Empathy Scale (Hogan, 1969). The Hogan Empathy Scale is a measure of role-taking ability, empathy being "the act of constructing for oneself another person's mental state" (Hogan, 1969, p. 308). Hogan (1969) claimed that highly empathic persons are low in trait anxiety. This belief appears to be supported by Andrews, Wormith, Daigle-Zinn, Kennedy, and Nelson's (1980) finding that less anxious prison inmates scored significantly higher on the Hogan Empathy Scale than highly anxious prisoners. Similar results were

found by Deardorff, Kendall, Finch, and Sitarz (1977) in their study of personality styles in medical students, and by Kupfer, Drew, Curtis, and Rubinstein (1978) in their investigation of empathy, locus of control, and anxiety in college students.

Kendall, Finch, and Montgomery (1978) also investigated the relationship between cognitive empathy and anxiety in their study of vicarious anxiety. First, a group of introductory psychology students were administered both the Hogan Empathy Scale (Hogan, 1969) and the State-Trait Anxiety Inventory (Form X; Spielberger, Gorsuch, and Lushene, 1970). During a later class period, the students were exposed to an anxious guest speaker who was actually a confederate. After the fumbling speaker excused himself, the students were again asked to complete the State-Trait Anxiety Inventory. In two identical studies, high empathic and low trait anxious subjects reported elevations in their state anxiety. Those subjects who were low in empathy and high in trait anxiety experienced a decrease in state anxiety after the manipulation. This finding was noted by Kendall et al. (1978) to be contradictory to Spielberger's (1972) belief that high trait anxious individuals would experience an increase in state anxiety when exposed to a vicarious threat to self-esteem.

Contrary to the previously mentioned investigations, which used a measure of cognitive empathy, studies of affective empathy yield a positive relationship between empathy and anxiety. For example, researchers using the Questionnaire Measure of Emotional Empathy (Mehrabian and Epstein, 1972), a trait measure of

affective empathy, have found that subjects who are highly empathic on this measure tend to become aroused by others in distress (Mehrabian, 1977; Chlopan et al., 1985). Indeed, Rim (1974) has commented "as emotional individuals we would expect subjects high on emotional empathy . . . to also score high on other measures of emotionality" (p. 197).

Archer, Diaz-Loving, Gollwitzer, Davis, and Foushee (1981) and Davis (1983b) report similar evidence for the influence of emotional empathy on self-reported feelings of distress. In an investigation of the empathic mediation of helping, Archer et al. (1981) found that subjects with high scores on the Mehrabian and Epstein Empathy Scale offered greater help when they were given false galvanic skin response feedback indicating they were highly aroused. Davis (1983b) found those subjects who scored high on the Empathic Concern subscale of the Interpersonal Reactivity Index to be prone to feeling anxious. Subjects scoring high in Empathic Concern were also high on measures of shyness, social anxiety, audience anxiety, and emotionality.

In a study of emotional reactions to dramatic film stimuli, Davis et al. (1987) demonstrated differences in the influence of cognitive and emotional empathy on anxiety reactions. Positive emotional reactions (e.g., friendliness, happiness, and tranquillity) were found to be primarily influenced by cognitive empathy, defined as perspective taking. By contrast, negative emotional reactions (e.g., hostility, anxiety, and depression) were affected by emotional empathy. Subjects who were high in

empathic concern (emotional empathy) reported feeling more anxious after viewing dramatic film stimuli.

Dissimilar findings regarding emotional empathy and anxiety are reported by Gurtman, Martin, and Hintzman (1990), who examined interpersonal reactions to videotaped simulated displays of depression and anxiety using symptom checklist questionnaires. Empathy and distress were measured using Batson, O'Quin, Fultz, Vanderplas, and Isen's (1983) measure of vicarious emotional response. Gurtman et al. reported that neither the anxiety nor depression displays elicited an empathic response in their subjects, but both displays elicited distress.

Bailyn, Harrigan, and Foreman (1989) also studied observer affective empathy and anxiety in response to videotape presentation of expresser anxiety. Their subjects were administered the STAI (Spielberger, 1983) and the QMEE (Mehrabian & Epstein, 1972) and then asked to rate both anxious and comfortable expressers' level of comfort, nervousness, and apprehension. Repeated administration of the state anxiety measure was used to assess changes in observers' state anxiety after both the anxious and comfortable expresser scenes. As Bailyn et al. reported, high empathy observers who viewed the anxious expressers' scenes first had higher state anxiety scores than those high empathy observers who viewed the expressers' comfortable scenes first. Low empathy observers who viewed the anxious scenes first had lower state anxiety scores than those low empathy observers who viewed the comfortable scenes first. Those

observers who were low in trait anxiety and high in empathy showed a significantly greater increase in their state anxiety scores from their preliminary scores after viewing the anxious scenes than all of the other observers. But those observers who were high in both trait anxiety and empathy showed a decrease in their state anxiety scores from their preliminary scores after viewing the anxious scenes. The state anxiety scores of all the observers measured after viewing the comfortable expresser scenes were lower than their scores after the anxious scenes.

Bailyn et al. (1989) also found their observers, regardless of trait anxiety or empathy level, were able to distinguish between the expressers' anxious and comfortable scenes. The observers as a group were also able to distinguish between low, medium, and high trait anxious expressers.

The Present Study

In summary, despite its frequent use as a psychological concept, the definition of empathy remains an enigma. It has been described as a cognitive process in which an observer comes to know another's thinking or feeling. This process has been measured by predictive or rating accuracy and by trait measures. Empathy also has been described as an affective reaction to another's expressed affect. This emotional reaction may or may not involve a matching of the expresser's affect. Affective empathy has been investigated through self-report inventories of emotion, physiological indicators, and trait measures. Empathy

also has been described as a multidimensional psychological process having both cognitive and affective components, and dependent on multichannel communication perception. The role of multichannel communication perception in the empathic response remains unclear.

Anxiety is a psychological construct with both state and trait manifestations. Trait anxiety refers to anxiety proneness. State anxiety refers to the immediate experience of tense, apprehensive, and nervous emotions. Although abundant research exists on both anxiety and empathy, the relationships which exist between the different concepts of empathy, that is communication perception, affective response, and cognitive processes, with state and trait anxiety have not been clarified. For example, while studies of affective empathy have found that emotionally empathic individuals are prone to feeling aroused and anxious, investigations of cognitive empathy have found individuals high in cognitive empathy to be low in anxiety. The purpose of the present study was to further clarify the nature of empathy as a perceptive, affective, and cognitive process and to investigate its relationship to state and trait anxiety.

The subjects in this study viewed videotaped recordings of two different Expresser self-reported affective experiences: anxiety and comfort. Cognitive empathy, or perspective taking was measured through the use of the IRI (Davis, 1980) perspective-taking subscale and accurate use of rating scales of affective expression. As recommended by Remmers (1950) and

Cronbach (1955), the subjects (Observers) in the present study used three of the same emotion items to evaluate their accuracy in person perception while viewing the videotape that the expressers used to describe their own feelings at the time of videotaping. Affective empathy was measured through the empathic concern subscale of the IRI. Following Hoffman's (1978) suggestion that the ideal measure of affective empathy should involve evidence of a change in affect from baseline measure, the subjects' affective empathic response was measured by changes in anxiety level following exposure to anxious and comfortable Expresser models. Skill in verbal and nonverbal communication decoding was measured through the emotional sensitivity and the social sensitivity scales of the SSI (Riggio, 1986, 1989).

The hypotheses of the present study were as follows:

1. Individuals high in empathic concern (affective empathy) as measured by the IRI will also be high in emotional sensitivity (nonverbal decoding) and social sensitivity (verbal decoding) as measured by the SSI.
2. Individuals high in perspective-taking (cognitive empathy) as measured by the IRI will also be high in emotional sensitivity and social sensitivity as measured by the SSI.
3. Individuals high in empathic concern (affective empathy) and low in trait anxiety as measured by the STAI will show an increase in state anxiety when exposed to anxious

expressers. No such increase in state anxiety is expected for high trait anxious or low empathic subjects.

4. Individuals with high perspective-taking (cognitive) empathy and low trait anxiety, compared with low empathic and high trait anxious individuals, will be better at recognizing the emotional state reported by another individual.

CHAPTER II

Method

Overview

In this experiment 187 subjects viewed and rated 12 previously videotaped students' self-reported most anxious and comfortable moments during a description of a life event; the anxious and comfortable segments were on separate videotapes. The subjects of this experiment who viewed the two videotapes will be labeled here as "Observers", while the previously videotaped stimulus persons will be called the "Expressers". Prior to watching and rating the videotapes, the Observers' levels of trait and state anxiety, multidimensional empathy, and verbal and nonverbal social skills were measured through self-report instruments. The Observers' state anxiety was measured both initially and again after watching each videotape. Verbatim instructions to subjects, informed consent forms, and original copies of all of the questionnaires used may be found in the Appendixes of this document.

Subjects

One hundred and eighty-seven undergraduate students, 89 females and 98 males, were recruited from introductory psychology classes at the University of Cincinnati on a voluntary basis (see Appendix A for Informed Consent form). All students received partial course credit and were treated in accordance with the "Ethical Principles of Psychologists" (American Psychological

Association, 1981). Each participant was requested to complete a brief demographic questionnaire (see Appendix B). The Observers ranged in age from 18 to 52 years ($M = 20.94$ years). All questionnaires were completed anonymously on precoded test forms and opscan answer sheets. The Observers were debriefed at the end of each administration group.

Materials

Measures

Anxiety The State-Trait Anxiety Inventory, Form Y (STAI; Spielberger, 1983) consists of separate self-report scales for measuring state anxiety and trait anxiety (see Appendix C). The State Anxiety scale (STAI Form Y-1) consists of twenty statements requiring respondents to describe how they feel "right now, at this moment." In responding to the items, the Observers indicated the intensity of their feelings on the following four-point scale: (1) not at all; (2) somewhat; (3) moderately so; or (4) very much so. The Trait Anxiety scale (STAI Form Y-2) consists of twenty items requiring respondents to describe how they "generally feel." In responding to the items the Observers reported which best describes the frequency of their feelings on the following four-point scale: (1) almost never; (2) sometimes; (3) often; or (4) almost always. Each item on the STAI is given a weighted score. A scoring key is provided on which the scoring weights are reversed for those items on the S-anxiety and T-anxiety scales which indicate the absence of anxiety. The weighted scores for

the twenty items that make up each scale are added to obtain the score for that scale. A higher score indicates a higher level of anxiety on that scale.

Empathy The Interpersonal Reactivity Index (IRI; Davis, 1980) is a 28-item self-report measure consisting of four 7-item subscales which measure four different aspects of empathy (see Appendix D). Respondents indicate for each statement how well the item describes them on a five-point scale anchored by 0 (Does not describe me well) and 4 (describes me very well). The Perspective-Taking scale measures the tendency to adopt the point of view of other people in everyday life. The Fantasy scale taps a person's tendency to transpose themselves into the affect and actions of fictitious characters. The other two scales, Empathic Concern and Personal Distress, are concerned with emotional responses to the observed affect in others. The Empathic Concern scale consists of items assessing extent to which the respondent experiences feelings of warmth, compassion, and concern for another. The Personal Distress scale measures the respondent's own feelings of fear, apprehension, and discomfort at witnessing the negative experiences of others.

Social Skills The Social Skills Inventory (SSI; Riggio, 1986, 1989) consists of 90 self-report items, 15 items in each of six social skill subscales: 1. the Emotional Expressivity scale is a measure of skill in nonverbal sending; 2. the Emotional Sensitivity scale measures skill in receiving and decoding nonverbal communication; 3. the Emotional Control scale measures

ability to control and regulate emotional and nonverbal displays; 4. the Social Expressivity scale refers to general verbal speaking ability and ability to engage others in social interaction; 5. the Social Sensitivity scale measures the ability to decode and understand verbal communication and general knowledge of norms governing appropriate social behavior; and 6. the Social Control scale refers to a general skill in social self-presentation. The respondent uses a nine-point scale, with numbers ranging from -4 (not at all true of me) to +4 (very true of me) to indicate the extent to which each statement is true or false as it applies to the respondent (see Appendixes E and F for copies of both the SSI test booklet and answer sheet).

Rating scales Five, nine-point unipolar adjective rating scales were administered to the Observer subjects during the 30 second intervals between Expresser scenes on the videotape (see Appendixes G and H for a copy of the Rating Scales and the opscan form on which they were completed). Three adjectives were the same as those completed by the Expressers during their videotaping. The Observers were asked to rate the exhibited Expresser's feelings of comfort, nervousness, and apprehension. In addition, two more ratings were included to serve as buffer items, asking the Observer to rate the warmth and likability of the Expresser shown. The buffer items were included such that Observers' attention would not be focused solely on the Expressers' anxious feelings. Rating scales of this type have been used by Harrigan, Kues, Steffen, and Rosenthal (1987),

Bailyn, Harrigan, and Foreman (1989), and Larsen and Ketelaar (1991), among others.

Videotapes

The Observer subjects viewed each of two videotapes of Expressers describing emotional topics from their past. Both videotapes consisted of 12 scenes that were 30 seconds in length, with a pause between scenes. These scenes had been selectively edited from previously videotaped sessions of 72 undergraduate research participants recruited on a voluntary basis from the introductory psychology classes at the University of Cincinnati by Harrigan, Lucic, and Rosenthal (1988). The videotaped individuals provided written consent for their videotapes to be viewed by others.

Prior to the videotaping, all of the Expresser participants completed the Trait Anxiety Scale of the State-Trait Anxiety Inventory, Form Y (STAI; Spielberger, 1983). They also listed four "very anxiety producing" and four "very happy" events from their past, and were asked to rank the events in each list from most (1) to least (4) anxious or happy. In the videotapes the participants described for five minutes each their second most anxiety-producing and their second most happy life events and their feelings about these events. During the taping the participants were also asked to rate their feelings of comfort, nervousness, apprehension, and familiarity with what was expected of them in the task using nine-point unipolar adjectives. These ratings were made at several time intervals: after one minute of

preparation for the description of the event, at the end of the first 2-1/2 minutes of the event's description, and at the end of the second 2-1/2 minutes of the total description. The Expressers were videotaped sitting alone in a room, facing the camera.

The 12 videotaped Expressers chosen for the present study were selected from the 72 videotaped subjects based on the following criteria: 1) the largest difference in the Expresser's anxious and comfortable self-ratings on a 9-point Likert scale (M difference = 4.89), 2) an equal number of males and females, and 3) an equal number of low (4), medium (4), and high (4) trait-anxious Expressers based on their scores on the State-Trait Anxiety Inventory. The three trait groups were determined by the distribution of their scores (female M = 40.92, male M = 41.42). The same six male and six female Expressers are shown on both the anxious and comfortable videotapes.

Two videotapes were created from the Expressers' 12 original videotaped descriptions. One tape contains 12 randomly ordered excerpts from the 30 seconds immediately before or after the Expresser's most anxious ratings on the adjective scales. The other videotape contains the 12 excerpts in the same random order from the 30 seconds immediately before or after the same Expresser's rating of greatest comfort on the adjective scales. Thus, one tape contains 12 excerpts of the self-reported most anxious moments, while the other contains the most comfortable moments. Each tape begins with two practice segments, one male and one female, to familiarize the Observers with the rating

procedure (see Appendix I for the order of the Expressers on both videotapes).

Because the Expresser videotape excerpts were chosen based on the Expressers' level of anxiety or comfort as reported on their self-rating scales, and not by happy or anxious topic, the anxious moments tape contained a few excerpts from descriptions of happy experiences and the comfortable moments tape contained a few descriptions of anxious topics. The videotaped participants reported considerably more anxiety in the early and middle phases of the videotaping (from where the anxious moments were taken) than later (from where the comfortable moments were taken); effect sizes for differences in Expressers' anxious feelings between topic (anxious and happy) and among time intervals (preparation, middle, and end) ranged between .31 to .53 (Harrigan et al., 1988).

Procedure

To insure standard procedures for conducting the study, all instructions were read to the Observers by the same experimenter (see Appendix J for verbatim instructions). Observers were run over the course of 30 group sessions during different days and times. Data were recorded by the Observers on prenumbered test forms to ensure anonymity. The Observers received prenumbered subject envelopes containing an informed consent form, demographic questionnaire, the IRI, the STAI, and the SSI in random order.

After completing these initial measures, the Observers then viewed and rated the Expressers' videotaped behavior. The videotaped scenes were shown on two television monitors in the front of a room with a forty-seat capacity. Observers' ratings were completed on opscan sheets while viewing the videotapes. There were two sequences of the Expressers' videotapes: anxious moments followed by the comfortable moments (sequence 1: anxious--comfortable) and vice versa (sequence 2: comfortable--anxious). The sequence order was alternated across sessions; 87 Observers were shown sequence 1 and 100 Observers watched sequence 2. The Observers first viewed the two practice scenes to familiarize themselves with the videotapes and completed the rating scales on the opscan forms. After each scene on the videotape, there was a 30 second pause during which the Observers were asked to complete the rating scales for the Expresser just viewed. In previous research a 30 second rating period has been shown to be both adequate for rating time and appropriate to reduce the Observers' boredom (Ambady & Rosenthal, 1992; Harrigan, Weber, & Kues, 1986).

After watching and completing the rating scales for the 12 scenes on the first tape, the Observers again completed the State Anxiety scale, and then viewed and rated the 12 scenes on the second tape. Upon completion of the second tape and rating scales the Observers completed the State Anxiety scale for a third time. The Observers' packets were then collected and the subjects were debriefed.

CHAPTER III

Results

Overview

While there are several interesting findings contained in all of the completed analyses, for the sake of clarity and brevity the reporting of the results is limited to the hypotheses set forth at the outset. The chapter sections are organized with respect to the hypotheses and the preliminary analyses in which data groups were determined. In order to distinguish the individuals for whom various data will be reported, the subjects will continue to be called Observers, while the individuals depicted on videotapes are called the Expressers.

Preliminary Analyses

Preliminary analyses involved the investigation of sex differences and the division of scores into high, medium, and low groups for the purpose of further analyses. Descriptive statistics are reported in Table 1 for those scales relevant to the hypotheses: the Empathic Concern (EC) and Perspective-taking (PT) scales from the Interpersonal Reactivity Index (IRI); the Emotional Sensitivity (ES) and Social Sensitivity (SS) scales from the Social Skills Inventory (SSI); and the Trait Anxiety (TA) scale from the State-Trait Anxiety Inventory (STAI).

Differences between female and male Observers' scores were investigated through t tests performed on the mean scores of each

Table 1

Descriptive Statistics for Grouped Variables

Scale	Female	Male
IRI Empathic Concern (EC)		
<u>n</u>	89	97
<u>M</u>	20.49	17.92
<u>SD</u>	3.44	4.03
IRI Perspective-Taking (PT)		
<u>n</u>	89	97
<u>M</u>	17.01	16.45
<u>SD</u>	4.25	4.04
SSI Emotional Sensitivity (ES)		
<u>n</u>	88	96
<u>M</u>	51.34	45.69
<u>SD</u>	6.76	8.76
SSI Social Sensitivity (SS)		
<u>n</u>	88	96
<u>M</u>	53.65	45.92
<u>SD</u>	9.80	8.74
STAI Trait Anxiety (TA)		
<u>n</u>	89	97
<u>M</u>	43.47	39.97
<u>SD</u>	10.50	10.18

sex on those scales relevant to the hypotheses. These results are summarized in Table 2. In multidimensional empathy as measured by the IRI, significant sex differences were found for the EC scale but not for the PT scale. Female Observers scored significantly higher than males on the EC scale. With regard to social communication skills, significant sex differences were found for both the ES and SS scales on the SSI, as female Observers' mean scores were higher on both scales. For Observer trait anxiety, the female Observers' TA scores were also significantly higher than the males'.

The hypotheses of this study called for group comparisons. In order to compare the characteristics of those Observers who had high scores in empathic concern, perspective-taking, trait anxiety, and emotional and social sensitivity, three groups were formed for each of the scales: high, medium, and low. Group divisions of high, medium, and low were determined for the EC and PT scales of the IRI, the ES and SS scales of the SSI, and the TA scale of the STAI by using standard deviation divisions. In their text on the design of behavioral research, Drew and Hardman (1985) recommended such use of standard deviations for group score comparisons. Because significant sex differences were found for the EC, ES, SS, and TA scales, group divisions were made by sex on all scales (including PT for consistency) in order to account for such differences. The means and standard deviations used can be found in Table 1. The medium group consists of those Observers who scored within one standard deviation above and one standard

Table 2

Sex Differences in Grouped Variables

Scale	t	df
Interpersonal Reactivity Index (IRI)		
Empathic Concern (EC)	4.67**	184 ^a
Perspective-Taking (PT)	.92	184
Social Skills Inventory (SSI)		
Emotional Sensitivity (ES)	4.87**	182 ^b
Social Sensitivity (SS)	5.66**	182
State-Trait Anxiety Inventory (STAI)		
Trait Anxiety (TA)	2.31*	184 ^a

* $p < .05$, two-tailed. ** $p < .001$, two-tailed.

^aFemale $n = 89$, male $n = 97$.

^bFemale $n = 88$, male $n = 96$.

deviation below the mean on each scale, while the high group scored greater than one standard deviation above the mean and the low group scored less than one standard deviation below the mean.

Hypothesis 1: Affective Empathy and Skill in Verbal and Nonverbal Decoding

It was predicted that Observers high in empathic concern (affective empathy) as measured by the EC scale of the IRI will also be high in emotional sensitivity (nonverbal decoding) and social sensitivity (verbal decoding) as measured by the ES and SS scales of the SSI. An analysis of variance was performed on the Observers' ES score by EC group (high, medium, and low). Consistent with the hypothesis, a significant interaction did occur between EC group and ES score ($F(2, 180) = 9.12, p < .001$). As expected, high empathic concern Observers had higher emotional sensitivity scores than both medium and low empathic concern Observers (see Table 3). In other words, Observers who reported high affective empathy also reported greater skill in nonverbal decoding.

However, those Observers who were high in empathic concern did not report greater social sensitivity. An analysis of variance performed on the Observers' SS score by EC group (high, medium, and low) was not significant ($F(2, 180) = .0449, p > .10$). Contrary to the hypothesis, there appears to be no relationship between reported levels of affective empathy and verbal decoding skill.

Table 3

Mean Scores of Emotional Sensitivity by Empathic Concern Group

Empathic Group	n	M	SD
High	34	53.12	8.43
Medium	124	47.94	7.89
Low	25	44.48	7.91
Total	183	48.43	8.35

Hypothesis 2: Cognitive Empathy and Skill in Verbal and Nonverbal Decoding

It was predicted that Observers high in perspective-taking (cognitive empathy) as measured by the PT scale of the IRI will also be high in emotional sensitivity (nonverbal decoding) and social sensitivity (verbal decoding) as measured by the ES and SS scales of the SSI. An analysis of variance was performed for ES score by PT group (high, medium, and low). As expected, a significant relationship was found between ES scores and PT group ($F(2, 180) = 5.74, p < .004$). Those Observers high in perspective-taking empathy also reported higher emotional sensitivity than those Observers who were medium or low perspective-takers (see Table 4). In other words, those subjects who reported high cognitive empathy also reported higher skill in nonverbal decoding.

However, contrary to the hypothesis, no significant relationship was found between perspective-taking and social sensitivity. An analysis of variance of SS by PT group was nonsignificant ($F(2, 180) = 1.87, p > .10$). Those Observers who reported high cognitive empathy did not report higher skill in verbal decoding.

Hypothesis 3: State Anxiety Response

It was predicted that Observers high in empathic concern (affective empathy) and low in trait anxiety would show a notable increase in state anxiety when exposed to anxious Expressers. No

Table 4

Mean Scores of Emotional Sensitivity by Perspective-taking Group

Perspective-taking			
Group	<u>n</u>	<u>M</u>	<u>SD</u>
High	26	52.96	6.30
Medium	131	48.10	8.35
Low	26	45.58	8.64
Total	183	48.43	8.35

such increase in state anxiety was expected for high trait anxious or low empathic subjects.

A multivariate analysis of variance with repeated measures was performed on the Observers' three state anxiety scores: 1. preliminary score, 2. score after viewing the Expressers' anxious scenes (post-anxious), and, 3. the score after viewing the Expressers' comfortable scenes (post-comfortable). This was a 3 between (empathic concern group, trait anxiety group, and sequence of scenes--i.e. anxious-comfortable and vice versa), 3 within (preliminary, post-anxious scenes, and post-comfortable scenes state anxiety scores) analysis of variance, with a resulting 3 X 3 X 2 X 3 design. A summary of the results of this analysis is presented in Table 5.

No significant effects were found for Observer empathic concern group, Observer trait anxiety group, or sequence of Expresser videotapes (anxious-comfortable or comfortable-anxious). There appears to be no relationship between the Observers' level of affective empathy and their state anxiety scores, or between the Observers' state anxiety and order of exposure to anxious and comfortable Expressers. Observers high in trait anxiety did not have higher state anxiety scores.

A significant interaction did occur between empathic concern group and trait anxiety group ($F(4, 161) = 2.41, p < .052$). As can be seen in Table 6, those Observers in the medium empathy-high trait anxiety group had higher overall state anxiety scores than the other Observers ($M = 47.02$). Observers in the low

Table 5

MANOVA with Repeated Measures for Observer State Anxiety Score

Source	df ^a	MS	F	p
<u>Between Subjects</u>				
Mean	1	96592.62		
Empathic Concern (EC)	2	428.25	1.45	ns
Trait Anxiety (TA)	2	265.89	.90	ns
Sequence (S)	1	21.72	.07	ns
EC X TA	4	711.69	2.41	.051
EC X S	2	121.41	.41	ns
TA X S	2	398.30	1.35	ns
EC X TA X S	3	456.37	1.55	ns
Error	161	294.96		
<u>Within Subjects</u>				
State Anxiety (SA)	2	55.60	2.03	ns
EC X SA	4	46.22	1.69	ns
TA X SA	4	28.25	1.03	ns
S X SA	2	60.61	2.21	ns
EC X TA X SA	8	65.60	2.40	.016
EC X S X SA	4	40.46	1.48	ns
TA X S X SA	4	50.74	1.85	ns
EC X TA X S X SA	6	38.50	1.41	ns
Error	322	27.36		

^an = 178, 9 cases rejected for missing data

Table 6

Mean State Anxiety Scores for Empathy Group by Trait Anxiety Group

Group	n	M	SD
High Empathy + High Trait	3	38.89	14.35
High Empathy + Medium Trait	22	40.74	11.15
High Empathy + Low Trait	11	28.18	9.90
Medium Empathy + High Trait	27	47.02	13.28
Medium Empathy + Medium Trait	81	35.69	8.95
Medium Empathy + Low Trait	15	29.60	10.87
Low Empathy + High Trait	7	43.52	11.19
Low Empathy + Medium Trait	16	35.81	7.82
Low Empathy + Low Trait	2	31.50	14.85

empathy-high trait anxiety group and the high empathy-medium trait anxiety group also had higher overall state anxiety scores compared to other Observers. Those Observers low in trait anxiety, regardless of empathy group, had the lowest overall state anxiety scores.

No significant effects were found for the other between subjects interactions, including Observer empathy group by sequence of Expresser videotapes, Observer trait anxiety group by sequence of Expresser videotapes, and Observer empathy group by Observer trait anxiety group by sequence of Expresser videotapes. Overall, sequence, the order of presentation of anxious and comfortable Expresser videotapes, did not effect Observer state anxiety scores.

With regard to within subjects variables, no significant differences were found between the Observers' three state anxiety scores (preliminary, post-anxious videotape, post-comfortable videotape). In addition, no significant effects were found for the Observers' three state anxiety scores by empathy group, for the Observers' three state anxiety scores by trait anxiety group, and for the Observers' three state anxiety scores by sequence of videotapes.

As predicted, a significant interaction effect ($F(8, 322) = 2.40, p < .05$) was found for the interaction of empathy group, trait anxiety group, and state anxiety scores, but not with the hypothesized results (see Table 7). Those Observers in the low empathy--high trait anxiety group showed significant increases in

Table 7

Mean State Anxiety Scores for Empathy Group by Trait Anxiety Group
by State Anxiety (Preliminary, Post-Anxious, Post-Comfortable)

Group	n	Pre		PostAnx		PostComf	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
High Empathy							
High Trait	2	34.50	16.26	28.50	6.36	31.50	4.95
Medium Trait	21	40.00	12.20	41.90	11.41	40.24	12.74
Low Trait	11	27.36	8.52	28.00	10.93	29.18	10.71
Medium Empathy							
High Trait	25	46.60	13.76	45.60	13.71	45.76	12.79
Medium Trait	81	34.06	9.30	36.41	10.14	36.60	10.08
Low Trait	15	28.67	11.34	30.67	12.81	29.47	11.04
Low Empathy							
High Trait	7	40.14	9.17	47.00	16.89	43.43	8.83
Medium Trait	14	35.79	7.90	34.14	7.27	34.29	8.41
Low Trait	2	27.50	6.36	38.50	26.16	28.50	12.02

their state anxiety level from their preliminary score after watching the anxious Expressers' videotape (mean difference 6.86), with lower state anxiety scores after watching the comfortable Expressers videotape (mean difference 3.29). Those Observers who were in the high empathy--low trait anxiety group, for which the hypothesis was made, showed only a small increase in their state anxiety after watching the anxious Expressers (mean difference 0.64), and had a slightly higher score after watching the videotape showing the comfortable Expressers (mean difference 1.82).

No other significant effects were found for the within factor of state anxiety scores, including empathy group by sequence by state anxiety, trait anxiety group by sequence by state anxiety group, and empathy group by trait anxiety group by sequence by state anxiety. The sequence of the videotapes did not effect the state anxiety scores.

Hypothesis 4: Cognitive Empathy, Trait Anxiety, and Recognition of Affect

It was predicted that Observers high in perspective-taking (cognitive) empathy and low in trait anxiety, compared with low empathic and high trait anxious Observers, would be better at recognizing the emotional state reported by the Expressers.

A correlation matrix was computed among the five adjective rating scales used by the Observers to rate the Expressers. As can be seen in Table 8, significant correlations were found among

the Apprehensive, Uncomfortable, and Nervous scales, and between the Warm and Likeable scales. A principle-axis factor analysis of the Rating Scales was conducted to determine its factor structure (see Table 9). The first two factors, Nervous and Warm, both had eigenvalues greater than 1.0 and accounted for 84.1 percent of the total variance. The remaining three factors, Uncomfortable, Likeable, and Apprehensive had eigenvalues well below 1.0 and accounted for only 15.9 percent of the total variance. Thus, a model with two factors was determined to be likely to represent the rating data. This was further confirmed by a plot of the total variance (eigenvalues) associated with each factor. The resulting scree plot showed a distinct break between the steep slope of the two large factors and the three other factors far below. This again suggested a two-factor model would be sufficient. A factor matrix (Table 10) was determined, containing the coefficients, or factor loadings, that relate the five rating variables to the two factors. Factor 1 was shown to be closely related to Nervous, Uncomfortable, and Apprehensive, while Factor 2 was closely related to Warm and Likeable. The communalities and factor statistics after two factors were extracted are shown in Table 11. Here the communalities are different from those in Table 9 because all of the variances of the variables were not explained when only two factors were retained, but all five communalities were still greater than .70.

The two-factor solution was rotated to a varimax criterion to further differentiate the two factors (see Table 12). The

Table 8

Correlations Between Rating Scales

Scale	2	3	4	5
1. Apprehensive	.0091	.6822**	.0736	.6016**
2. Likeable	--	.0127	.7929**	-.0785
3. Uncomfortable		--	.1251	.8143**
4. Warm			--	.0828
5. Nervous				--

Note. N = 164, 23 Observers were omitted due to missing data.

**p < .001.

Table 9

Factor Extraction

Variable	Communality	Factor	Eigenvalue	% of Var	Cum %
Nervous	1.00000	1	2.42477	48.5	48.5
Warm	1.00000	2	1.78224	35.6	84.1
Uncomfortable	1.00000	3	.42868	8.6	92.7
Likeable	1.00000	4	.20256	4.1	96.8
Apprehensive	1.00000	5	.16174	3.2	100.0

Table 10

Factor Matrix

Variable	Factor 1	Factor 2
Nervous	.89353	-.15628
Warm	.22755	.92032
Uncomfortable	.93163	-.08256
Likeable	.09105	.94608
Apprehensive	.83568	-.09453

Table 11

Communality of Variables and Percentage of Variance Accounted for
by Retained Factors

Variable	Communality	Factor	Eigenvalue	% of Var	Cum %
Nervous	.82282	1	2.42477	48.5	48.5
Warm	.89877	2	1.78224	35.6	84.1
Uncomfortable	.87476				
Likeable	.90336				
Apprehensive	.70730				

Table 12

Rotated Factor Matrix

Variable	Factor 1	Factor 2
Nervous	.90678	-.02400
Warm	.09059	.94370
Uncomfortable	.93370	.05449
Likeable	-.04821	.94923
Apprehensive	.84052	.02863

variables Nervous, Uncomfortable, and Apprehensive were shown to have strong positive correlations with Factor 1, while Warm and Likeable were again shown to have strong correlations with Factor 2. Table 13 shows the factor transformation matrix which resulted after varimax rotation. The two-factor solution was determined to be optimal for further analyses, reducing the number of rating scales while attaining a highly reliable index of the Observers' impressions of the Expressers' nervousness (Factor 1). Please note that none of the hypotheses stated in this study involved Factor 2 (warmth); the warm and likeable ratings were included as buffer items such that the Observers would not be focused on the Expressers' levels of anxiety.

A four between (Observers' perspective-taking empathy group, Observers' trait anxiety group, Observers' sex, sequence of videotapes [anxious then comfortable or vice versa]), four within (Expressers' affect [anxious or comfortable videotape], Expressers' trait anxiety group, Expressers' sex, and Expressers' scene [two examples of each trait group for each sex]) analysis of variance was performed on the Nervous factor, resulting in a $3 \times 3 \times 2 \times 2 \times 2 \times 3 \times 2 \times 2$ design. This large ANOVA is shown in its entirety in Appendix K. For the sake of clarity, the hypothesized interaction will be discussed first, followed by the other interesting between and within subjects results. No interactions beyond the three-way size will be discussed due to the difficulty of explaining such complex interactions and also

Table 13

Factor Transformation Matrix

	Factor 1	Factor 2
Factor 1	.98926	.14616
Factor 2	-.14616	.98926

the questionable reliability caused by likely very small subject cell sizes.

Hypothesis It was hypothesized that a significant interaction would be found for Observer empathy group by Observer trait anxiety group by Expresser affect. However, contrary to the hypothesis, this interaction was not significant ($F(4, 133) = 1.59, p > .10$). There appears to be no relationship between Observer perspective-taking empathy and trait anxiety and ratings of Expresser affect.

Between-Subjects Effects The mean rating of Expressers' nervous affect by all Observers was 5.01. A significant effect was found for Observer sex ($F(1,133) = 10.81, p < .001$). The male Observers rated the Expressers as more nervous ($M = 5.13$) than the female Observers did ($M = 4.87$). No significant effects were found for Observer trait anxiety group, Observer perspective-taking empathy group, or sequence of videotapes.

A significant effect was found for Observer trait anxiety group by Observer sex ($F(2, 133) = 3.66, p < .05$). As can be seen in Table 14, high trait anxious male Observers rated the Expressers as more nervous ($M = 5.37$) than the other Observers did, while the high trait anxious females made the lowest ratings of Expressers' nervousness ($M = 4.67$). A significant interaction was also found for Observer perspective-taking empathy group by Observer Sex ($F(2, 133) = 3.66, p < .05$). As seen in Table 15, high empathic male Observers rated the Expressers as more nervous ($M = 5.56$) than did the other Observers, while the low empathic

Table 14

Mean Ratings of Expressers for Observer Trait Anxiety Group by
Observer Sex

Group	n	M	SD
High Trait			
Female	15	4.67	1.02
Male	17	5.37	.63
Medium Trait			
Female	49	4.90	.83
Male	59	5.01	.83
Low Trait			
Female	11	5.03	1.18
Male	15	5.31	.68

female Observers gave the lowest ratings of Expresser nervousness ($M = 4.64$). A significant interaction was also found for Observer trait anxiety group by Observer perspective-taking empathy group by sequence of the videotapes ($F(3, 133) = 2.74, p < .05$).

However, this interaction cannot be reliably interpreted because five cells of this 18 cell interaction contained two or fewer subjects.

Within-Subjects Effects Involving Observer Empathy A significant effect was found for Observer perspective-taking empathy by Expresser trait anxiety group by Expresser affect ($F(4, 266) = 2.55, p < .05$). As shown in table 16, all three Observer empathy groups rated the low trait anxious Expressers in their anxious affect segments to be the most nervous Expressers. The high empathy Observers rated the anxious scenes of the low trait anxious Expressers the most nervous ($M = 6.19$), while the low empathy Observers gave the lowest nervous rating ($M = 4.28$) to the comfortable segments of the high trait anxious Expressers.

Although the hypothesized interaction for Observer empathy group by Observer trait anxiety group by Expresser affect did not occur, a trend effect was suggested for Observer empathy group by Expresser affect ($F(1, 133) = 2.57, p < .08$). The high perspective-taking empathy Observers rated the Expressers' anxious moments as more nervous than did the medium and low empathy Observers (see table 17). In addition, the high empathy Observers rated the Expressers' comfortable segments as more nervous than the other Observers did. In fact, the high empathy Observer group

Table 15

Mean Ratings of Expressers for Observer Perspective-taking Empathy
Group by Observer Sex

Group	<u>n</u>	<u>M</u>	<u>SD</u>
High Empathy			
Female	11	5.20	.55
Male	12	5.56	.84
Medium Empathy			
Female	53	4.85	.95
Male	66	5.07	.76
Low Empathy			
Female	11	4.64	1.05
Male	13	5.09	.76

Mean Ratings of Expressers for Observer Empathy Group by Expresser
Trait Anxiety Group by Expresser Affect

Group	n	M	SD
High Empathy	23		
High Trait: Anxious		5.54	1.45
Comfortable		5.19	1.71
Medium Trait: Anxious		4.89	1.56
Comfortable		4.95	1.49
Low Trait: Anxious		6.19	1.51
Comfortable		5.71	1.69
Medium Empathy	119		
High Trait: Anxious		4.91	1.58
Comfortable		4.45	1.56
Medium Trait: Anxious		4.61	1.67
Comfortable		4.77	1.55
Low Trait: Anxious		5.84	1.56
Comfortable		5.36	1.63
Low Empathy	24		
High Trait: Anxious		4.92	1.49
Comfortable		4.28	1.56
Medium Trait: Anxious		4.45	1.65
Comfortable		4.51	1.58
Low Trait: Anxious		5.82	1.58
Comfortable		5.09	1.71

Table 17

Mean Ratings of Expressers for Observer Empathy Group by Expresser Affect

Group	<u>n</u>	<u>M</u>	<u>SD</u>
High Empathy	23		
Anxious		5.54	1.51
Comfortable		5.28	1.60
Medium Empathy	119		
Anxious		5.12	1.60
Comfortable		4.85	1.58
Low Empathy	24		
Anxious		5.06	1.57
Comfortable		4.63	1.61

rated the Expressers' comfortable scenes as more nervous than the medium and low empathy Observers rated the Expressers' anxious segments.

Another trend effect was suggested for Observer perspective-taking empathy group by Expresser trait anxiety group by Expresser sex ($F(4, 266) = 2.16, p < .08$). As can be seen in table 18, the high empathy Observers rated the low trait anxious male Expressers to be the most nervous ($M = 5.96$). The low empathy Observers rated the high trait anxious male Expressers to be the least nervous ($M = 4.21$).

A third trend effect was observed for Observer perspective-taking empathy group by videotape sequence by Expresser trait anxiety group ($F(4, 266) = 2.20, p < .07$). As shown in table 19, the high empathy Observers rated the low trait anxious Expressers to be the most nervous ($M = 6.04$) in sequence two (comfortable then anxious videotapes). Conversely, the low empathic Observers rated the medium trait anxious Expressers in sequence one (anxious then comfortable) to be the least nervous ($M = 4.34$).

Within-Subjects Effects Involving Expresser Affect A significant effect was found for Expresser affect, anxious or comfortable ($F(1, 133) = 5.32, p < .05$). The Observers rated the anxious affect Expresser segments as more nervous ($M = 5.17$) than the comfortable affect segments ($M = 4.88$). Therefore, the Observers, regardless of their trait anxiety or empathy group, were able to

Mean Ratings of Expressers for Observer Empathy Group by Expresser
Trait Anxiety Group by Expresser Sex

Group	Anxiety	Sex	M	SD
High Empathy:	High Trait:	Female	5.66	1.49
		Male	5.08	1.67
	Medium Trait:	Female	5.00	1.62
		Male	4.83	1.43
	Low Trait:	Female	5.94	1.54
		Male	5.96	1.57
Medium Empathy:	High Trait:	Female	5.09	1.63
		Male	4.26	1.51
	Medium Trait:	Female	4.78	1.69
		Male	4.60	1.53
	Low Trait:	Female	5.60	1.68
		Male	5.60	1.51
Low Empathy:	High Trait:	Female	5.00	1.63
		Male	4.21	1.42
	Medium Trait:	Female	4.67	1.72
		Male	4.28	1.51
	Low Trait:	Female	5.41	1.72
		Male	5.50	1.57

Mean Ratings of Expressers for Observer Empathy Group by Sequence
by Expresser Trait Anxiety Group

Group	Anxiety	Sequence	n	M	SD
High Empathy:	High Trait:	1	14	5.27	1.68
		2	12	5.48	1.44
	Medium Trait:	1		4.83	1.70
		2		5.02	1.31
	Low Trait:	1		5.87	1.72
		2		6.04	1.31
Medium Empathy:	High Trait:	1	60	4.58	1.48
		2	69	4.76	1.62
	Medium Trait:	1		4.61	1.52
		2		4.76	1.66
	Low Trait:	1		5.64	1.46
		2		5.56	1.69
Low Empathy:	High Trait:	1	11	4.46	1.70
		2	14	4.71	1.38
	Medium Trait:	1		4.34	1.69
		2		4.59	1.51
	Low Trait:	1		5.26	1.67
		2		5.61	1.61

distinguish between the Expressers' anxious and comfortable moments.

A significant effect was also observed for Expresser affect by Expresser trait anxiety group ($F(2, 266) = 4.45, p < .02$). As can be seen in table 20, the Observers rated the low trait anxious Expressers' anxious moments to be the most nervous ($M = 5.88$). The comfortable segments of the high trait anxious Expressers were rated the least nervous ($M = 4.53$).

A significant effect was found for Expresser affect by Expresser scene ($F(1, 133) = 4.23, p < .05$). The Observers were able to distinguish each Expressers' anxious and comfortable segments. Table 21 shows the Observers' nervous ratings for all of the Expresser scenes. For the most part, the Expressers' anxious segments were rated as more nervous than the comfortable segments for each Expresser.

Finally, a trend effect was found for Expresser affect by sequence ($F(1, 133) = 3.77, p < .06$). Table 22 suggests the Observers were better able to distinguish between the anxious and comfortable Expresser affects in sequence one when the anxious scenes were shown first.

Within-Subjects Effects for Expresser Trait Anxiety Group A significant effect was found for the nervous ratings of the Expresser trait anxiety groups ($F(2, 266) = 15.24, p < .001$). The Observers rated the low trait anxious Expressers to be more nervous ($M = 5.63$) than the high and medium trait anxious Expressers (M 's = 4.77 and 4.69, respectively).

Table 20

Mean Ratings of Expressers for Expresser Trait Group by Expresser Affect

Trait Group	Affect	<u>M</u>	<u>SD</u>
High	Anxious	5.00	1.56
	Comfortable	4.53	1.61
Medium	Anxious	4.62	1.64
	Comfortable	4.75	1.54
Low	Anxious	5.88	1.56
	Comfortable	5.37	1.64

Table 21

Mean Ratings of Expressers for Expresser Scene

Scene	Sex	<u>Trait</u>	<u>Anxious Affect</u>		<u>Comfortable Affect</u>	
		Anxiety	M	SD	M	SD
1	female	medium	4.44	1.63	4.05	1.65
2	female	high	4.97	1.68	3.85	1.60
3	female	low	4.82	1.84	4.25	1.78
4	male	high	4.92	1.55	4.50	1.77
5	male	medium	3.83	1.67	2.96	1.36
6	female	high	6.00	1.59	5.80	1.60
7	female	low	7.03	1.42	6.35	1.66
8	male	high	4.14	1.42	3.96	1.49
9	female	medium	4.64	1.72	6.03	1.70
10	male	low	4.35	1.59	4.06	1.57
11	male	medium	5.58	1.55	5.98	1.47
12	male	low	7.34	1.40	6.81	1.56

Table 22

Mean Ratings of Expressers for Sequence by Expresser Affect

Sequence	Affect	n	M	SD
1		80		
	Anxious		5.19	1.56
	Comfortable		4.75	1.54
2		87		
	Anxious		5.15	1.60
	Comfortable		5.01	1.62

A significant trend was observed for Expresser trait anxiety group by Expresser sex ($F(2, 266) = 2.52, p < .09$). As shown in table 23, the low trait anxious male Expressers were rated the most nervous ($M = 6.05$), followed by the low trait anxious female Expressers ($M = 5.69$). The high trait anxious males were rated the least nervous ($M = 4.38$).

Another significant effect was found for sequence by Expresser trait anxiety group by Expresser sex ($F(2, 266) = 3.25, p < .05$). Table 24 shows the means from this interaction. The female Expressers of all three trait groups received higher nervous ratings in sequence two. The medium trait female Expressers in sequence one received the lowest female nervousness rating. The high trait anxious male Expressers in sequence one received the lowest overall nervous rating ($M = 4.26$), while the low trait anxious male Expressers in sequence one received the highest overall nervous rating ($M = 5.77$).

Within-Subjects Effects for Expresser Scene Several significant effects were found for Expresser scene. This is not surprising as there were 12 different Expressers, two of each sex for the three different trait groups, shown in two different conditions for a total of 24 scenes. Because there are so many different scene ratings to compare, interpreting Expresser scene results is especially difficult.

A significant effect was found for Expresser scene ($F(1, 133) = 48.62, p < .001$). The Observers, as shown in table 21, were able to differentiate the 12 Expressers. As mentioned previously,

Table 23

Mean Ratings of Expressers for Expresser Trait Anxiety Group by Expresser Sex

Sex	Trait	M	<u>SD</u>
Female	High	5.15	1.62
	Medium	4.91	1.85
	Low	5.69	1.60
Male	High	4.38	1.56
	Medium	4.59	1.51
	Low	6.05	1.83

Table 24

Mean Ratings of Expressers for Sequence by Expresser Trait Anxiety
Group by Expresser Sex

Group	M	SD
High Trait		
Sequence 1: Female	5.10	1.56
Male	4.26	1.55
Sequence 2: Female	5.21	1.65
Male	4.48	1.54
Medium Trait		
Sequence 1: Female	4.68	1.65
Male	4.54	1.46
Sequence 2: Female	4.89	1.64
Male	4.64	1.56
Low Trait		
Sequence 1: Female	5.48	1.56
Male	5.77	1.52
Sequence 2: Female	5.74	1.76
Male	5.53	1.53

Note: sequence 1 $n = 80$; sequence 2 $n = 87$.

the Observers also distinguished between the two affects depicted in the 24 scenes (anxious versus comfortable). Additional significant effects found include Expresser trait anxiety group by scene ($F(2, 266) = 15.60, p < .001$), Expresser trait anxiety group by Expresser sex by Expresser scene ($F(2, 266) = 12.53, p < .001$), and sequence by Expresser sex by Expresser scene ($F(1, 133) = 6.30, p < .02$). A trend was also found for sequence by Expresser scene ($F(1, 133) = 3.72, p < .06$). In summary, the Observers differentiated between the Expresser scenes in their nervous ratings, and the Observers' nervous ratings of the Expressers' were effected by several different interacting variables, including Expresser sex and trait anxiety group, and the sequence of the videotapes.

Summary:

Significant sex differences were found for the empathic concern scale of the IRI, and the social sensitivity and emotional sensitivity scales of the SSI. No sex differences were found for the perspective-taking scale of the IRI. As first hypothesized, Observers with high empathic concern (affective empathy) also had higher emotional sensitivity scores (nonverbal sensitivity). However, contrary to the hypothesis, Observers high in empathic concern were not high in social sensitivity (verbal sensitivity). As predicted by the second hypothesis, Observers high in perspective-taking (cognitive empathy) were also high in emotional

sensitivity, but, contrary to the hypothesis, they were not high in social sensitivity.

In opposition to the third hypothesis, those Observers in the low empathic concern--high trait anxiety group showed a significant increase in their state anxiety from their preliminary score after watching the videotape of anxious Expresser moments. Significant differences were also observed in overall state anxiety scores for those Observers in the medium empathy--high trait anxiety group, the low empathy--high trait group, and the high empathy--medium trait group. Those Observers low in trait anxiety had the lowest overall state anxiety scores.

Hypothesis four was not substantiated, as no significant interaction was found for Observer perspective-taking empathy group by Observer trait group by Expresser affect. However, several other interesting findings were made regarding the Observers' ratings of the Expressers' nervousness. The male Observers rated the Expressers as more nervous than the female Observers did. Significant differences were also found for Observer sex by Observer trait groups, and for Observer empathy groups by Observer sex. The Observers rated the low trait anxious Expressers' anxious segments to be the most nervous overall. This was true for all three Observer empathy groups. The high trait anxious Expressers in their comfortable segments were judged to be overall the least nervous. The Observers, regardless of their trait anxiety or empathy level, were able to distinguish between the Expressers' anxious and comfortable moments. For the most

part, the Expressers' anxious segments were judged to be more nervous than their comfortable segments. In general, the Observers were able to differentiate between the Expresser scenes in their nervous ratings, their ratings effected by interactions of sequence and the Expressers' trait anxiety, sex, and affect.

CHAPTER IV

Discussion

Overview

The purpose of this study was to examine empathy as a multidimensional process, including affective, cognitive, and communication decoding operations. Four hypotheses were proposed regarding empathy, including its relationship to verbal and nonverbal decoding skills, as an affective reaction to an emotional state (anxiety), and as a cognitive process involving decoding of target reported emotional states (anxiety and comfort). In this chapter the results of the preliminary data analyses and the four hypotheses will be discussed. This will be followed by a discussion of the implications of the results in defining empathy, as well as the limitations of the current study. Suggestions for future research will also be offered.

Comments Regarding the Preliminary Data Analyses

The preliminary data analyses involved examining for significant sex differences the perspective-taking (PT) and empathic concern (EC) scales of the Interpersonal Reactivity Index (IRI), the emotional sensitivity (ES) and social sensitivity (SS) scales of the Social Skills Inventory (SSI), and the trait anxiety (TA) scale of the State-Trait Anxiety Inventory (STAI) scale. Standard deviation cut-offs were also determined for high, medium, and low score designations.

Consistent with the results of Davis (1980), female Observers scored significantly higher than males on the EC scale of the IRI. Conversely, the nonsignificant difference found for PT scale is inconsistent with the significant sex difference reported by Davis for that scale. However, there appears to be little difference between the mean PT scores of the Observers (female $M = 17.01$, male $M = 16.45$) and Davis' normative group (female $M = 17.96$, male $M = 16.78$). In their study of social skills and empathy, Riggio et al. (1989) also found no significant sex differences on the PT scale of the IRI. In addition, Riggio et al. found no significant sex differences in other measures of cognitive empathy and social skills, including the Hogan empathy scale (Hogan, 1969) and the social control scale of the SSI. They concluded that significant sex differences may not exist in cognitive empathy. The results of this study seem to support their conclusion. However, these conclusions regarding no sex differences only pertain to self-report measures of cognitive empathy with college students. Different findings may occur when measuring self-reported cognitive empathy skills of other populations and actual empathy skills under a variety of circumstances.

The sex differences found for the ES and SS scales of the SSI were consistent with those reported by Riggio (1989). Women score higher on these self-report measures of ability to decode and interpret verbal and nonverbal communication. These results are also consistent with previous reports of women scoring higher on

measures of nonverbal decoding skills (e.g., Hall, 1978, 1987; Rosenthal et al., 1979).

On the STAI, the female Observers' TA scores were significantly higher than the males'. This result is consistent with Spielberger's (1983) finding that female college students report higher trait anxiety than males.

The Observers' empathy, trait anxiety, and social skills scores were identified as being high, medium, or low based on standard deviation dispersion. Note that although Riggio (1989) suggests group cutoffs for the SSI based on the standard deviation dispersion of his normative sample, these cutoffs were not used in the present study for three reasons. First, the Observers' scores on the SSI were lower than those of Riggio's normative group, causing very few Observers to fall into his high category. The Observers' mean scores on the ES scale (female $M = 51.34$, male $M = 45.69$) were much lower than those of Riggio's subjects (female $M = 61.6$, male $M = 55.3$). Similarly, Observers' mean SS scores (female $M = 53.65$, male $M = 45.92$) were also lower than Riggio's normative sample (female $M = 57.3$, male $M = 53.6$). Second, the original version of the SSI (Riggio, 1986) used a 9-point scale rather than the current 5-point scale. Much of the descriptive data, including scale means, reported in the SSI manual (Riggio, 1989) were based on a conversion of the original 9-point scale to the current 5-point scale. Curiously, the means Riggio reported for all of the scales using the 5-point scale are lower than those reported for the converted 9-point scale, yet he uses the

converted 9-point scale means and standard deviations to set his suggested group cutoffs. Additionally, in the development of the 5-point scale of the SSI some of the original 9-point scale items were edited for language, potentially changing the comparability of the two versions. Riggio (1989) reported "overall, there appear to be no significant differences in the accuracy of measurement between the two versions", but he provided no data in support of this conclusion (p. 7). Third, Riggio's (1989) normative sample ($n = 199$) using the current form of the 5-point SSI was small. Therefore, it was decided not to use Riggio's suggested group cutoff scores for the analyses in this study. Further, it is suggested that the SSI be renormed using a larger sample and the 5-point scale version.

Self-report of Empathy and Communication Skills

The first two hypotheses concerned similarities between high-scorers on the empathic concern (EC) and perspective-taking (PT) scales of the Interpersonal Reactivity Index (IRI) and high-scorers on the emotional sensitivity (ES) and social sensitivity (SS) scales of the Social Skills Inventory (SSI). Davis' (1980) IRI is a self-report measure of multidimensional empathy skill. The EC scale of the IRI is a self-report measure of affective empathy, specifically intended to measure the respondent's feelings of warmth, compassion and concern for another, while the PT scale is a measure of cognitive empathy concerned with the tendency to adopt the psychological point of

view of another. Riggio's (1989) SSI seeks to measure self-reported basic social communication skills. The ES scale of the SSI assesses skill in receiving and interpreting nonverbal communications from another, while the SS scale measures the ability to interpret the verbal communication of others.

Hypothesis one stated that Observers high in empathic concern (affective empathy) will also be high in emotional sensitivity (nonverbal decoding) and social sensitivity (verbal decoding). As expected, Observers high in EC had higher ES scores than both medium and low empathic Observers. However, the Observers high in EC did not have greater SS skills. Therefore, Observers who reported high empathic concern also reported high nonverbal decoding and interpretation skills, but no significant relationship was found between high empathic concern and verbal decoding and interpretation skills.

Similarly, hypothesis two proposed that Observers high in perspective-taking empathy (cognitive empathy) would be high in emotional sensitivity (nonverbal decoding) and social sensitivity (verbal decoding). As expected, Observers high in PT were high in ES. However, like the results of hypothesis one, Observers high in PT did not report high skill in SS. Observers who reported high skills in cognitive empathy also reported high skills in nonverbal decoding and interpretation, but not in verbal decoding and interpretation.

The highly empathic Observers emphasized their skills in nonverbal decoding. These results are consistent with Burgoon's

(1985a, b) assertions that nonverbal cues are the primary vehicles of emotive messages, that nonverbal cues are generally superior to verbal cues for information value, and that adults place more reliance on nonverbal than verbal cues. Further, Burgoon stated that nonverbal communications are especially important for relational, attributional, affective, and attitudinal messages. Burns and Beier (1973) also emphasized that nonverbal communication is the primary vehicle for emotive messages. In addition, Burgoon (1985b), DePaulo and Rosenthal (1979) and Hoffman (1984) have suggested that skill in nonverbal communication is important in that it may reduce error in decoding in instances of deception or discrepancies between another's verbal communication and actual feelings. Therefore, it would seem important for highly empathic individuals to key into nonverbal communications to be accurately aware of another's affect. The high empathic Observers, both high affective and high cognitive empathizers, seem to be cognizant of the importance of, or believe in the usefulness of, nonverbal communications.

In their multidimensional empathy theories, Feshbach (1978) and Goldstein and Michaels (1985) theorized that the ability to discriminate and identify the emotional states of others is an important part of cognitive empathy. Here the Observers seem to suggest it is an important component of affective empathy as well.

These results do not necessarily imply that verbal communication is unimportant in empathic processes. Several empathy theorists have posited that both nonverbal and verbal

decoding skills are essential in the empathy process (Hoffman, 1984; Keefe, 1976; Smither, 1977). In addition, verbal communication may help to clarify ambiguous nonverbal communications (Hoffman, 1984). Strayer (1987) observed that empathic Observers are likely to utilize whatever cues seem to them "most salient or reliable in inferring others' emotions" (p. 231). In addition, some individuals will have preferences in channel reliance, being dependent on either the verbal or the nonverbal channels, while others may be situationally adaptable (Burgoon, 1985b). Communication channel biases are likely to be dependent upon individual differences in channel accuracy. Burgoon (1985a) emphasized that "verbal and nonverbal channels are inextricably intertwined in the communication of the total meaning of an interpersonal exchange" (p. 347). Therefore, while the highly empathic Observers may have reported their skills to be high in nonverbal decoding, they are likely to be utilizing some skills in verbal decoding at the same time.

Also note that all of the measures of empathy and social skills examined in hypotheses one and two are self-report scales. Self-report measures can be biased by self-presentation concerns (Batson, 1987) and also simply be inaccurate because some communication skills may be beyond an individual's awareness (Friedman, 1979). The results of hypotheses three and four may help to further clarify the nature of empathic concern and perspective-taking in empathy and the role of communication in these processes.

Affective Empathy and Anxiety

Hypothesis three suggested that individuals high in empathic concern (affective empathy) and low in trait anxiety as measured by the STAI would show an increase in state anxiety when exposed to anxious expressers. No such increase in state anxiety was expected for high trait anxious or low empathic subjects. However, while an interaction did occur between empathy, trait anxiety and state anxiety, it was not as hypothesized. Those Observers low in affective empathy and high in trait anxiety showed significant increases in their state anxiety level from their preliminary score after watching the anxious Expressers' videotape and lower state anxiety scores after watching the comfortable Expressers' videotape. The Observers in the high empathy and low trait anxiety group, for which the hypothesis was made, showed only a small increase in their state anxiety after watching the anxious Expressers and actually had a slightly higher anxiety score after watching the comfortable Expressers' videotape.

These results run counter not only to the hypothesis, but also to previous research. For example, Davis (1983b) reported that individuals high in empathic concern in general tend to feel more anxious, and Davis et al. (1987) reported subjects high in empathic concern reported feeling more anxious after watching a dramatic film. Using another measure of affective empathy, Mehrabian and Epstein's (1972) QMEE, Bailly et al. (1989) found that subjects high in empathy and low in trait anxiety reported an

Increase in state anxiety after watching anxious expressers. Many of the expressers shown in the Bailyn et al. videotapes were the same ones used in this experiment. Bailyn et al. also found a videotape sequence effect, as those observers high in affective empathy showed an increase in state anxiety when they watched the anxious expressers first. No sequence effects were found in this study. Chlopan et al. (1985) also reported those subjects high in affective empathy, as measured by the QMEE, to show increases in their state anxiety after being exposed to an anxious target. Kendall et al. (1978) reported similar results using Hogan's (1969) cognitive empathy scale. Subjects high in empathy and low in trait anxiety showed an increase in state anxiety after exposure to a vicarious threat.

Hoffman (1977a) recommended that an ideal index of affective empathy would show affect arousal in the observer, with the nature of this affective arousal being similar to that of the expresser. In this experiment no significant effects were found for state anxiety by empathic concern group. Therefore, the current results suggest the empathic concern scale of the IRI may not measure affective empathy, that is, an arousal of affect.

Neither was a significant interaction found for state anxiety by trait anxiety group. This result is contrary to Spielberger's (1983) assertion that individuals high in trait anxiety are prone to elevations in state anxiety. Instead, a significant interaction was found for state anxiety by empathy group and trait anxiety group. Those Observers who were both low in empathic

concern and high in trait anxiety showed significant increases in state anxiety after watching the anxious Expressers. Those Observers who were medium in empathy and high in trait anxiety generally had the highest state anxiety scores, while those subjects high in empathy and low in trait anxiety generally had the lowest state anxiety scores. Spielberger (1972) posited that the stronger a personality trait, the more likely and with greater intensity the associated emotional state will occur in the presence of appropriate evoking stimuli. The results of this experiment imply that an emotional state's intensity may be dependent on the interaction of two or more personality traits, or at least, that the intensity of state anxiety may be determined by both empathy and trait anxiety levels.

Spielberger (1977, 1985) also indicated that state anxiety occurs with or corresponds to activation of the autonomic nervous system, the individual being aroused by external stressors or internal stimuli. State anxiety is evoked by the perception or appraisal of a threatening stimulus or situation, the intensity and duration of the anxiety being proportional to the threat. High trait anxious individuals will generally perceive greater threat. Apparently this did not occur while the high trait anxious Observers watched the anxious videotape. Perhaps the level of anxiety depicted in the anxious videotape was not sufficient to evoke anxiety in this Observer group, or the degree of difference between the anxious and comfortable videotapes was too ambiguous to cause clear differences.

Another possible reason for the high trait anxious Observers' failure to demonstrate an overall higher state anxiety in this experiment has to do with the cross-situational nature of the STAI trait anxiety scale. The scale asks respondents how they generally feel, not their level of anxiety under specific situations. Kendall (1978) observed: "Anxiety traits are predictive of anxiety states when the trait measure is congruent with the evocative situation" (p. 286). Perhaps the STAI trait anxiety measure is not congruent with the evocative situation of viewing anxious Expressers.

Finally, the empathic concern scale of the IRI may have been the wrong measure of affective empathy to use as a basis for predicting emotional responsiveness. Alternatives would be the personal distress scale of the IRI (Davis, 1980) or Mehrabian and Epstein's (1972) Questionnaire Measure of Emotional Empathy (QMEE). The personal distress scale of the IRI assesses the individual's own feelings of anxiety, fear, apprehension, and discomfort in observing the negative experiences of another, while the QMEE is a measure of affective empathy. The use of more than one empathy measure to assess Observer emotional reactions and cognitions would be consistent with Kreiser's (1987) recommendation that different measures of cognitive and affective empathy be used in order to examine the differential relationships between the multifaceted processes of empathy and anxiety.

Cognitive Empathy and Recognition of Anxious Affect

Hypothesis four predicted that Observers high in perspective-taking (cognitive) empathy and low in trait anxiety, compared with low empathic and high trait anxious Observers, would be better at recognizing the emotional state reported by Expressers. However, contrary to the hypothesis, no significant relationship was observed between Observer perspective-taking empathy and trait anxiety and ratings of Expresser affect. It appears that Observer perspective-taking empathy and trait anxiety levels had no effect on the Observers' ratings of the Expressers. In fact, there were no significant between-subjects effects based on Observer perspective-taking empathy group, trait anxiety group, or videotape sequence.

The most interesting result of the analyses for hypothesis four was that the Observers, regardless of perspective-taking empathy group, trait anxiety group, or sex were able to distinguish Expresser anxious versus comfortable affect. Overall, the Observers rated the anxious affect Expresser segments to be more nervous than the comfortable segments. In addition, the Observers were generally able to distinguish each Expresser's anxious and comfortable segments. These results are consistent with Ambady and Rosenthal's (1992) observation that ratings of brief observations of behavior can be quite accurate, and Borkenau and Liebler's (1992) finding that subjects can distinguish calm from anxious affect when viewing sound film. The results are also consistent with those of Bailyn et al. (1989), Harrigan and Lucic

(1989), and Zarnowiecki, Harrigan, and Lundgren (1989), all of whom used similar expresser videotapes, that observers are able to distinguish videotaped anxious expresser affect. If cognitive empathy skills are to be defined based on accuracy in rating target affect (e.g., Bowers et al., 1985; Remmers, 1950), then the Observers as a group were highly empathic. These results suggest that traits such as perspective-taking empathy skills and trait anxiety levels may have no bearing on the ability to distinguish anxious affect.

McArthur and Baron (1983) have suggested certain attributes may be quickly and easily recognized, being more essential for survival and adaptive action. The recognition of anxiety may be such an adaptive skill. Gangestad et al. (1992) observed in their study of differential accuracy in person perception:

Although strangers can assess certain traits of unacquainted others with moderate validity, overall validity is low.

Differential validity across traits may be due to (a) the extent to which targets display valid cues or (b) the extent to which perceivers validly use the cues. A functionalist perspective suggests that valid cue utilization should vary with how important the consequences of accurate trait assessment are. (page 215)

It is likely the Observers adaptively utilized cues of nervous affect available in the Expresser's nervous segments. However, the rating judgements made by the Observers in this study were not spontaneous. It cannot be assumed the Observers would have made

similar judgements regarding Expresser nervous affect if not instructed to do so. In addition, it is not known if the Observers would have made comparable evaluations of Expresser nervousness in face-to-face interactions. Ambady and Rosenthal (1992) have suggested that ratings based on brief exposure to videotapes may be more accurate because they are snap judgements made in the absence of distracting stimuli.

Another group of interesting findings from the analyses of hypothesis four were those related to Expresser trait anxiety group. The Observers rated the low trait anxious Expressers' anxious moments to be the most nervous, while the comfortable segments of the high trait anxious Expressers were rated the least nervous. All three Observer empathy groups rated the low trait anxious Expressers in their anxious affect segments to be the most nervous Expressers. The low trait anxious male Expressers were rated the most nervous. The anxious segment of a low trait anxious male was rated the most nervous Expresser overall, with a low trait anxious female running a close second. The least nervous Expresser was a medium trait anxious male in his comfortable segment.

These results regarding the nervous ratings of low trait anxious Expressers are surprising, as one might have expected the low trait anxious Expressers to be rated among the least nervous because of their reported low propensity for anxiety. Perhaps the trait anxiety measure is inaccurate. However, this result more likely speaks to the idiosyncrasies and self-report accuracy of

the low trait anxious Expressers on the videotape. Previous anxiety research has suggested that some individuals may be "repressors" of anxiety, that is, they may report lower levels of anxiety than they actually experience or display (Asendorpf & Scherer, 1983; Weinberger, Schwartz, & Davidson, 1979). In addition, the low trait anxious Expressers may actually appear more nervous and may not be representative of typical low trait anxious individuals. In particular, the low trait anxious male Expresser who received the highest nervous rating stood out to this observer on the videotape as being particularly ill at ease during his anxious moment, and several reactions were observed while the Observers watched him, including snickers and giggles. On the videotape this Expresser made a few pregnant conversational pauses, and shifted about in his chair. Similarly, the low trait anxious Expresser female who received the second most nervous rating overall was crying a little during her anxious segment.

It is noteworthy that the high trait anxious Expressers were rated the least nervous overall during their comfortable videotape. Self-presentation may be a factor here, as the highly trait anxious subjects may have strived to convey the best possible impression. Schlenker and Leary (1982) suggested that socially anxious people consciously attempt to make the best impression on others. But it is also important to remember that anxiety "has a wide range of occurrence across different situations and individuals" (Waxer, 1981, p. 55). Again, perhaps the results simply reflect the idiosyncrasies of the Expressers' trait anxiety

reports. Also, the Expressers' reports of anxiety at the time of the videotaping were not counter intuitive. That is, the high trait anxious Expressers reported feeling more anxious than the moderate trait anxious Expressers, and the moderate trait anxious Expressers were more anxious than the low trait anxious Expressers (Harrigan, Lucic, and Rosenthal, 1988).

Finally, several between-subjects effects were observed for Observer sex. These results seem to be consistent with previously observed sex differences in both empathy (Lennon & Eisenberg, 1987) and communication decoding skills (Hall, 1978, 1987). The male Observers rated the Expressers overall as being more nervous than the female Observers did. Additionally, significant effects were found for Observer trait anxiety group by Observer sex, and Observer perspective-taking empathy group by Observer sex. The high trait anxious male Observers gave the highest ratings of Expresser nervousness, while the high trait anxious females made the lowest ratings of Expressers' nervousness. The high empathic male Observers also rated the Expressers as more nervous than the other Observers, while the low empathic female Observers gave the lowest ratings of Expresser nervousness. These results suggest that observers' sex and personality traits differentially affect nervous ratings of targets.

Empathy Discussion

The introduction to this study posited that a complete theory of the empathy process and an adequate measure of its skill should

contain not only affective and cognitive components, but also the perception of multiple channels of communication, both verbal and nonverbal. In empathy, both feeling states and cognitive processes were suggested to arise following the perception of a communication from another. It was proposed that empathy be viewed as a multidimensional process consisting of perception of multiple channels of communication, an emotional response, and cognitive processes.

The results showed that those Observers reporting high affective empathy and high cognitive empathy also reported higher skill in nonverbal communication decoding and interpretation. However, highly empathic Observers did not report higher verbal decoding and interpretation skills. Contrary to previous research, those Observers who reported high affective empathy did not report an increase in state anxiety after observing anxious Expressers. The Observers, regardless of their reported level of cognitive empathy and trait anxiety, were able to differentiate *anxious versus comfortable Expresser videotape segments*.

Despite the lack of support for the majority of the hypotheses, the results of this study do have implications for the multidimensional approach to empathy. The results of previous empathy research may become questionable when strict statistical criteria are used to define high, medium, and low levels of empathy skills. In addition, the value of a multidimensional approach to empathy research is demonstrated by the greater information provided about those psychological processes which may

occur simultaneously, including affective, cognitive, and social communication skills.

The empathy construct lacks theoretical and experimental coherence due to the variety of processes that have been labelled as empathic, including affect, cognition, and communication. As Batson et al. (1987b) observed: "Psychologists are noted for using terms loosely, but in our use of empathy we have outdone ourselves" (p. 19). Researchers will need to be more precise in their conceptualization and measurement of empathy if the concept is to be of any real value in psychology. It is currently not entirely clear how empathy is different from, similar to, or involves the processes of social cognition, affect instigation, vicarious affect, sympathy, projection, identification, distress, the ability to receive and decode emotional communication, and other psychological processes. Adding to the confusion, Davis (1980) has suggested that individuals may exhibit strength in some empathic skills and not in others, and because empathy skills may be independent, it may be possible to identify a variety of "empathy constellations" (p. 13).

Meehl (1978) observed that interest in theories in "soft" areas of psychology tends to fade. He wrote:

There is a period of enthusiasm about a new theory, a period of attempted application to several fact domains, a period of disillusionment as the negative data come in, a growing bafflement about inconsistent and unreplicable empirical results, multiple resort to ad hoc excuses, and then finally

people just sort of lose interest in the thing and pursue other endeavors. (p. 807).

There is a very real possibility of these events occurring in empathy research due to the conflicting theories and vast variety of research methods and results.

Limitations and Suggestions for Future Research

A possible variable limiting the generalizability of results of the current study is the Expresser videotapes. First, because the classifications of the Expressers' affects and trait anxiety depended on self-report measures, the characteristics reported may not be what was actually shown on the videotapes. Self-report measures are subject to deception, social desirability, and false self-knowledge.

Second, the Expresser videotapes were not professionally produced, and the videotapes used in this experiment were third-time copies. These videotapes contain several flaws which may have distracted the Observers or affected their ratings of the Expressers. The professional videotape editors employed for this experiment commented that the original videotapes had poor and variable subject positioning, unbalanced lighting, poor focus, and distracting settings including extraneous furniture and noises. Also a likely distraction, a time counter was visible on each scene of the videotapes. In addition, each time a copy of a videotape is made, there is some decrement in the quality. The videotapes used are copies of a copy of the original videotapes.

Professional editing equipment and videotapes were used here in an effort to maintain copy quality.

Because the results of hypotheses three and four contained findings that were contrary to previous research and also several trend effects, it may be useful to replicate this study to verify or further clarify the results. Such replication would likely be more useful and reliable by using a larger sample size and different Expresser videotapes. Future researchers may also wish to study further the interactions of different empathy measures (e.g., Davis' IRI, Hogan's Empathy Scale, Mehrabian and Epstein's QMEE) with various communication decoding measures (e.g., Riggio's SSI, Rosenthal et al.'s PONS) to explore the relationships among affective and cognitive empathy and communication decoding skills. The importance of empathy and channels of communication in psychotherapy also warrants further study (see Wiener, Budney, Wood, & Russell, 1989 for research suggestions).

Future researchers might consider including other measures of affect besides, or in addition to, the State-Trait Anxiety Inventory. For example, Stotland (1969) has suggested that emotions opposite to those portrayed by models may be experienced by observers. Polivy (1981) also has suggested that "investigations of 'an emotion' are most probably investigations of several simultaneous emotions" (p. 816). Perhaps other emotions besides anxiety are aroused in the Observers which could be measured, such as depression or comfort. The possibility of other emotions would have implications for the definition of

affective empathy, indicating whether same, different or even opposite emotions are expressed. Also, additional rating scales could be developed, including a wider variety of adjectives. This would enable the measuring of a wide variety of possible observer perceptions.

In terms of the stimuli, this study used videotapes of Expressers. The Observers were able to make accurate judgements about these Expressers on the basis of a 30-second exposure with no contextual information. This finding suggests that impressions of expresser affect are made quickly. However, real life is not videotaped observations, and most meaningful interactions last longer than 30 seconds. Future researchers might consider the use of longer, real-life situations and other expresser populations in addition to young college students. Also, future researchers might include comparisons among different communication channels of stimuli, such as audio-only, visual-only, written transcripts, and so on.

In terms of procedure, a future researcher might consider using more than one subject session, as the use of two videotapes and four measures, two of which were administered repeatedly, may have been tiring to the subjects or induced other emotions in addition to anxiety, such as anger or frustration. Smaller group administrations may also be less distracting and more intimate, leading to greater concentration and stronger effects. Also, it would be interesting in future research to ask the Observers directly what they are thinking, that is what their feelings and

self-statements are, to learn more about their reactions to and perceptions of the Expressers. This step would give more information as to the nature of empathy and person perception.

Several empathy studies have examined the effects of different instructions on subjects' empathy, affect, and altruistic behavior (e.g., Adelman, Brehm, & Katz, 1974; Davis, 1983c; Stotland, 1969; Toi & Batson, 1982). For example, in their study of the effects of dramatic film stimuli on empathy, Davis et al. (1987) presented groups of subjects with three types of instructions: perspective-taking, objective-set, and neutral. The perspective-taking instructions asked the subjects to imagine how the character feels and to identify with the character's feelings and reactions, while the objective-set reactions instruct the subjects to observe the character's behavior. The results showed that all three instructional sets affected the emotional reactions of subjects high in perspective-taking empathy. Subjects high in perspective-taking empathy who were given the perspective-taking instructions displayed the most stimulus-congruent emotional reactions. Perhaps the results of hypotheses three and four in this study would have been affected by different instructional sets.

The hypotheses of this study focused on the attributes of highly empathic subjects. It may be more useful to examine what the "average" person's empathy and communication skills are for the purposes of prediction and skills training. The empathy process may be further clarified through developmental studies.

For example, recently Eisenberg, Fabes, Schaller, Carlo, and Miller (1991) examined the relationship of parental empathy characteristics to their children's vicarious emotional responding. Smither (1977) has suggested that empathy researchers should examine the differences in empathy between acquaintances and strangers, and in different situational contexts. Finally, there has been an over reliance in empathy research on self-report measures. The relationships among self-report measures, physiological measures, and skill assessments warrant further research.

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INFORMED CONSENT FORM

I. Objective of This Study

The purpose of this study is to investigate personality traits and feelings of observers who will rate videotapes of expressers.

II. Procedures

This study will involve rating two videotapes and completing three self-report measures. These self-report measures evaluate personality traits and feelings. This experiment will take approximately 1 1/2 to 2 hours to complete. You will receive 2 hours of research credit for coming to today's session.

III. Risks, Benefits, and Precautions

All instruments to be used in this study are standardized questionnaires in wide-spread use, and no known hazards or negative side effects are believed to be involved beyond those minimally associated with the stress of taking academic examinations.

Your confidentiality will be safeguarded. All records will be coded with numbers. You are free to withdraw from this study at any time.

A summary of the results will be made available to you, if you so choose, at the completion of the study.

Although no known hazards or negative side effects are expected, please know that the University of Cincinnati follows a policy of making all decisions concerning compensation and medical treatment for injuries occurring during or caused by participation in biomedical or behavioral research on an individual basis. If you believe you have been injured as a result of this research, please contact Lisa Bailyn, M.A., 861-1425.

IV. Availability of Information

Any questions that you may have concerning any aspect of this study will be answered by Lisa Bailyn, M.A., 861-1425.

V. The Right to Withdraw

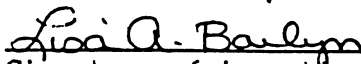
You are free to withdraw from this study at any time.

VI. Signatures

I, the undersigned, have understood the above explanations and have given consent to my voluntary participation in "Observer ratings of videotapes".

Signature of subject

Date


Signature of investigator

Date

DEMOGRAPHIC INFORMATION

INSTRUCTIONS: Please complete the following demographic information. Your responses will be confidential. Please do not put your name on this or any other answer sheet. You will be indentified by subject number only.

1. Age: _____

2. Sex (circle one): F M

3. Race (circle one): Black White Other

SELF-EVALUATION QUESTIONNAIRE

Developed by Charles D. Spielberger
in collaboration with
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs

STAI Form Y-1

Name _____ Date _____ S _____
Age _____ Sex: M _____ F _____ T _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right now*, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

NOT AT ALL
SOMEWHAT
MODERATELY SO
VERY MUCH SO

- | | | | | |
|--|---|---|---|---|
| 1. I feel calm | ① | ② | ③ | ④ |
| 2. I feel secure | ① | ② | ③ | ④ |
| 3. I am tense | ① | ② | ③ | ④ |
| 4. I feel strained | ① | ② | ③ | ④ |
| 5. I feel at ease | ① | ② | ③ | ④ |
| 6. I feel upset | ① | ② | ③ | ④ |
| 7. I am presently worrying over possible misfortunes | ① | ② | ③ | ④ |
| 8. I feel satisfied | ① | ② | ③ | ④ |
| 9. I feel frightened | ① | ② | ③ | ④ |
| 10. I feel comfortable | ① | ② | ③ | ④ |
| 11. I feel self-confident | ① | ② | ③ | ④ |
| 12. I feel nervous | ① | ② | ③ | ④ |
| 13. I am jittery | ① | ② | ③ | ④ |
| 14. I feel indecisive | ① | ② | ③ | ④ |
| 15. I am relaxed | ① | ② | ③ | ④ |
| 16. I feel content | ① | ② | ③ | ④ |
| 17. I am worried | ① | ② | ③ | ④ |
| 18. I feel confused | ① | ② | ③ | ④ |
| 19. I feel steady | ① | ② | ③ | ④ |
| 20. I feel pleasant | ① | ② | ③ | ④ |



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SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

Name _____ Date _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

ALMOST NEVER
SOMETIMES
OFTEN
ALMOST ALWAYS

- | | | | | |
|--|---|---|---|---|
| 21. I feel pleasant | ① | ② | ③ | ④ |
| 22. I feel nervous and restless | ① | ② | ③ | ④ |
| 23. I feel satisfied with myself | ① | ② | ③ | ④ |
| 24. I wish I could be as happy as others seem to be | ① | ② | ③ | ④ |
| 25. I feel like a failure | ① | ② | ③ | ④ |
| 26. I feel rested | ① | ② | ③ | ④ |
| 27. I am "calm, cool, and collected" | ① | ② | ③ | ④ |
| 28. I feel that difficulties are piling up so that I cannot overcome them | ① | ② | ③ | ④ |
| 29. I worry too much over something that really doesn't matter | ① | ② | ③ | ④ |
| 30. I am happy | ① | ② | ③ | ④ |
| 31. I have disturbing thoughts | ① | ② | ③ | ④ |
| 32. I lack self-confidence | ① | ② | ③ | ④ |
| 33. I feel secure | ① | ② | ③ | ④ |
| 34. I make decisions easily | ① | ② | ③ | ④ |
| 35. I feel inadequate | ① | ② | ③ | ④ |
| 36. I am content | ① | ② | ③ | ④ |
| 37. Some unimportant thought runs through my mind and bothers me | ① | ② | ③ | ④ |
| 38. I take disappointments so keenly that I can't put them out of my
mind | ① | ② | ③ | ④ |
| 39. I am a steady person | ① | ② | ③ | ④ |
| 40. I get in a state of tension or turmoil as I think over my recent concerns
and interests | ① | ② | ③ | ④ |

IRI

INSTRUCTIONS: A number of statements which people use to describe themselves are given below. Read each statement and then circle the appropriate number below the statement to indicate how well it describes you using the five-point scale from 0 (does not describe me well) to 4 (describes me very well). There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe you best. There are 28 statements.

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

12. Becoming extremely involved in a good book or movie is somewhat rare for me.

0	1	2	3	4
Does not describe me well			Describes me very well	

13. When I see someone get hurt, I tend to remain calm.

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

17. Being in a tense emotional situation scares me.

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

24. I tend to lose control during emergencies.

0	1	2	3	4
Does not describe me well			Describes me very well	

25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

0	1	2	3	4
Does not describe me well			Describes me very well	

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.

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

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

0	1	2	3	4
Does not describe me well			Describes me very well	

Self-Description Inventory

Test Booklet

Ronald E. Riggio

Directions

On the following pages are 90 statements that indicate an attitude or behavior that may or may not be characteristic or descriptive of you. Read each statement carefully. Then, using the scale shown below, decide which response will most accurately reflect your answer and darken the appropriate circle on your answer sheet. **Note that you will need to work from left to right on the answer sheet.**

Example

	<i>Not at all like me</i>	<i>A little like me</i>	<i>Like me</i>	<i>Very much like me</i>	<i>Exactly like me</i>
I am usually wary of strangers.	①	②	③	④	⑤

Keep in mind that there are no right or wrong answers. Mark only one response for each statement. Mark all of your responses on the separate answer sheet. It is important to try to respond to every statement.



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-
- 1 = *Not at all like me*
2 = *A little like me*
3 = *Like me*
4 = *Very much like me*
5 = *Exactly like me*
-

1. It is difficult for others to know when I am sad or depressed.
2. When people are speaking, I spend as much time watching their movements as I do listening to them.
3. People can always tell when I dislike them no matter how hard I try to hide my feelings.
4. I enjoy giving parties.
5. Criticism or scolding rarely makes me uncomfortable.
6. I can be comfortable with all types of people—young and old, rich and poor.
7. I talk faster than most people.
8. Few people are as sensitive and understanding as I am.
9. It is often hard for me to keep a “straight face” when telling a joke or humorous story.
10. It takes people quite a while to get to know me well.
11. My greatest source of pleasure and pain is other people.
12. When I’m with a group of friends, I am often the spokesperson for the group.
13. When depressed, I tend to make those around me depressed also.
14. At parties, I can immediately tell when someone is interested in me.
15. People can always tell when I am embarrassed by the expression on my face.
16. I love to socialize.
17. I would much rather take part in a political discussion than to observe and analyze what the participants are saying.
18. Sometimes I find it difficult to look at others when I am talking about something personal.
19. I have been told that I have expressive eyes.
20. I am interested in knowing what makes people tick.
21. I am not very skilled in controlling my emotions.
22. I prefer jobs that require working with a large number of people.
23. I am greatly influenced by the moods of those around me.
24. I am not good at making prepared speeches.
25. I usually feel uncomfortable touching other people.
26. I can easily tell what a person’s character is by watching his or her interactions with others.
27. I am able to conceal my true feelings from just about anyone.
28. I always mingle at parties.
29. There are certain situations in which I find myself worrying about whether I am doing or saying the right things.
30. I find it very difficult to speak in front of a large group of people.
31. I often laugh out loud.
32. I always seem to know what peoples’ true feelings are no matter how hard they try to conceal them.
33. I can keep a straight face even when friends try to make me laugh or smile.
34. I usually take the initiative to introduce myself to strangers.

-
- 1 = *Not at all like me*
2 = *A little like me*
3 = *Like me*
4 = *Very much like me*
5 = *Exactly like me*
-

35. Sometimes I think that I take things other people say to me too personally.
36. When in a group of people, I have trouble thinking of the right things to talk about.
37. Sometimes I have trouble making my friends and family realize just how angry or upset I am with them.
38. I can accurately tell what a person's character is upon first meeting him or her.
39. It is very hard for me to control my emotions.
40. I am usually the one to initiate conversations.
41. What others think about my actions is of little or no consequence to me.
42. I am usually very good at leading group discussions.
43. My facial expression is generally neutral.
44. One of my greatest pleasures in life is being with other people.
45. I am very good at maintaining a calm exterior even if I am upset.
46. When telling a story, I usually use a lot of gestures to help get the point across.
47. I often worry that people will misinterpret something I have said to them.
48. I am often uncomfortable around people whose social class is different from mine.
49. I rarely show my anger.
50. I can instantly spot a "phony" the minute I meet him or her.
51. I usually adapt my ideas and behavior to the group I happen to be with at the time.
52. When in discussions, I find myself doing a large share of the talking.
53. While growing up, my parents were always stressing the importance of good manners.
54. I am not very good at mixing at parties.
55. I often touch my friends when talking to them.
56. I dislike it when other people tell me their problems.
57. While I may be nervous on the inside, I can disguise it very well from others.
58. At parties I enjoy talking to a lot of different people.
59. I can be strongly affected by someone smiling or frowning at me.
60. I would feel out of place at a party attended by a lot of very important people.
61. I am able to liven up a dull party.
62. I sometimes cry at sad movies.
63. I can make myself look as if I'm having a good time at a social function even if I'm not really enjoying myself at all.
64. I consider myself a loner.
65. I am very sensitive of criticism.
66. Occasionally I've noticed that people from different backgrounds seem to feel uncomfortable around me.
67. I dislike being the center of attention.
68. I am easily able to give a comforting hug or touch to someone who is distressed.
69. I am rarely able to hide a strong emotion.
70. I enjoy going to large parties and meeting new people.

-
- 1 = *Not at all like me*
2 = *A little like me*
3 = *Like me*
4 = *Very much like me*
5 = *Exactly like me*
-

- | | |
|---|--|
| 71. It is very important that other people like me. | 82. I tend to be the "life of the party." |
| 72. I sometimes say the wrong thing when starting a conversation with a stranger. | 83. I'm generally concerned about the impression I'm making on others. |
| 73. I rarely show my feelings or emotions. | 84. I often find myself in awkward social situations. |
| 74. I can spend hours just watching other people. | 85. I never shout or scream when angry. |
| 75. I can easily pretend to be mad even when I am really feeling happy. | 86. When my friends are angry or upset, they seek me out to help calm them down. |
| 76. I am unlikely to speak to strangers until they speak to me. | 87. I am easily able to make myself look happy one minute and sad the next. |
| 77. I get nervous if I think that someone is watching me. | 88. I could talk for hours on just about any subject. |
| 78. I am often chosen to be the leader of a group. | 89. I am often concerned with what others are thinking of me. |
| 79. Friends have sometimes told me that I talk too much. | 90. I can easily adjust to being in just about any social situation. |
| 80. I am often told that I am a sensitive, understanding person. | |
| 81. People can always "read" my feelings even when I'm trying to hide them. | |

SELF-DESCRIPTION INVENTORY

Ronald E. Riggio

CONSULTING
PSYCHOLOGISTS
PRESS, INC.



SSI
● NOT-PREPAID
PROFILE

COMPLETE THE FOLLOWING STEPS:

NAME: Print your name, one letter per box, in the boxes below. Print your last name first, skip one box, and print as much of your first name as possible. Fill in the appropriate bubble below each box, including the blank bubbles for skipped boxes.

[illegible]

2 IMPORTANT MARK ONE

SEX

- ☐ Male
- ☐ Female

4 MARITAL STATUS

- ☐ Single
☐ Married
☐ Widowed
☐ Divorced

5 EDUCATION
(Mark Highest Level)

- ☐ Elementary
☐ Some High School
☐ High School Grad
☐ Some College
☐ College Grad
☐ Some Grad Work
☐ Graduate Degree

7

Very satisfied
Somewhat satisfied
Somewhat dissatisfied
Very dissatisfied

Very Satisfied Satisfied Satisfied Very Satisfied

- ☐ ☐ ☐ ☐ Your present marriage
(or intimate relationship)
- ☐ ☐ ☐ ☐ Relationships with family
members (parents, siblings)
- ☐ ☐ ☐ ☐ Friendships
- ☐ ☐ ☐ ☐ Kind of work you do
- ☐ ☐ ☐ ☐ The place where you work
- ☐ ☐ ☐ ☐ Future work opportunities

3 IDENTIFICATION NUMBER

[illegible]

3 OPTIONAL

6 AGE

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

TO THE COUNSELOR:
FILL OUT YOUR INSTITUTIONAL
ADDRESS BELOW.

NAME		
INSTITUTION		
ADDRESS		
CITY	STATE	ZIP CODE

(PLEASE DO NOT USE ADDRESS STICKER)

MARKING INSTRUCTIONS

- Use a soft (No. 2) black lead pencil.
- Make dark, heavy marks that fill the bubble.
- Mark **ONLY** the bubble areas.
- Make no stray marks.
- Erase completely any answer you wish to change.
- Do not fold or staple answer sheet.

Proper Mark	Improper Marks

EXAMPLES: ○ ● ○ ○ ✓ ✗ ○ ●

8 GO TO THE OTHER SIDE

DO NOT MARK IN SHADED AREAS



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- DO NOT FOLD

- DO NOT MARK BELOW BAR

- SSI-0533

DO NOT MARK IN SHADED AREAS

	EE	ES	EC	SE	SS	SC	TOTAL S
RS							
H							
M							
L							

FOR ADMINISTRATIVE USE ONLY

Directions: Be sure to read all of the instructions on the test booklet before proceeding. Please read each statement in the test booklet carefully, and darken the number between 1 and 5 that best indicates how characteristic the description in the statement is of you.

- 1 means **Not At All Like Me**
- 2 means **A Little Like Me**
- 3 means **Like Me**
- 4 means **Very Much Like Me**
- 5 means **Exactly Like Me**

Note that, unlike the test booklet, items run from left to right.

1. ① ② ③ ④ ⑤ 2. ① ② ③ ④ ⑤ 3. ① ② ③ ④ ⑤ 4. ① ② ③ ④ ⑤ etc.

Make sure to match the item number in the test booklet with the same item number on the answer sheet.

WORK ACROSS →

Not At All Like Me A Little Like Me Like Me Very Much Like Me Exactly Like Me	Not At All Like Me A Little Like Me Like Me Very Much Like Me Exactly Like Me	Not At All Like Me A Little Like Me Like Me Very Much Like Me Exactly Like Me	Not At All Like Me A Little Like Me Like Me Very Much Like Me Exactly Like Me	Not At All Like Me A Little Like Me Like Me Very Much Like Me Exactly Like Me	Not At All Like Me A Little Like Me Like Me Very Much Like Me Exactly Like Me
1. ① ② ③ ④ ⑤	2. ① ② ③ ④ ⑤	3. ① ② ③ ④ ⑤	4. ① ② ③ ④ ⑤	5. ① ② ③ ④ ⑤	6. ① ② ③ ④ ⑤
7. ① ② ③ ④ ⑤	8. ① ② ③ ④ ⑤	9. ① ② ③ ④ ⑤	10. ① ② ③ ④ ⑤	11. ① ② ③ ④ ⑤	12. ① ② ③ ④ ⑤
13. ① ② ③ ④ ⑤	14. ① ② ③ ④ ⑤	15. ① ② ③ ④ ⑤	16. ① ② ③ ④ ⑤	17. ① ② ③ ④ ⑤	18. ① ② ③ ④ ⑤
19. ① ② ③ ④ ⑤	20. ① ② ③ ④ ⑤	21. ① ② ③ ④ ⑤	22. ① ② ③ ④ ⑤	23. ① ② ③ ④ ⑤	24. ① ② ③ ④ ⑤
25. ① ② ③ ④ ⑤	26. ① ② ③ ④ ⑤	27. ① ② ③ ④ ⑤	28. ① ② ③ ④ ⑤	29. ① ② ③ ④ ⑤	30. ① ② ③ ④ ⑤
31. ① ② ③ ④ ⑤	32. ① ② ③ ④ ⑤	33. ① ② ③ ④ ⑤	34. ① ② ③ ④ ⑤	35. ① ② ③ ④ ⑤	36. ① ② ③ ④ ⑤
37. ① ② ③ ④ ⑤	38. ① ② ③ ④ ⑤	39. ① ② ③ ④ ⑤	40. ① ② ③ ④ ⑤	41. ① ② ③ ④ ⑤	42. ① ② ③ ④ ⑤
43. ① ② ③ ④ ⑤	44. ① ② ③ ④ ⑤	45. ① ② ③ ④ ⑤	46. ① ② ③ ④ ⑤	47. ① ② ③ ④ ⑤	48. ① ② ③ ④ ⑤
49. ① ② ③ ④ ⑤	50. ① ② ③ ④ ⑤	51. ① ② ③ ④ ⑤	52. ① ② ③ ④ ⑤	53. ① ② ③ ④ ⑤	54. ① ② ③ ④ ⑤
55. ① ② ③ ④ ⑤	56. ① ② ③ ④ ⑤	57. ① ② ③ ④ ⑤	58. ① ② ③ ④ ⑤	59. ① ② ③ ④ ⑤	60. ① ② ③ ④ ⑤
61. ① ② ③ ④ ⑤	62. ① ② ③ ④ ⑤	63. ① ② ③ ④ ⑤	64. ① ② ③ ④ ⑤	65. ① ② ③ ④ ⑤	66. ① ② ③ ④ ⑤
67. ① ② ③ ④ ⑤	68. ① ② ③ ④ ⑤	69. ① ② ③ ④ ⑤	70. ① ② ③ ④ ⑤	71. ① ② ③ ④ ⑤	72. ① ② ③ ④ ⑤
73. ① ② ③ ④ ⑤	74. ① ② ③ ④ ⑤	75. ① ② ③ ④ ⑤	76. ① ② ③ ④ ⑤	77. ① ② ③ ④ ⑤	78. ① ② ③ ④ ⑤
79. ① ② ③ ④ ⑤	80. ① ② ③ ④ ⑤	81. ① ② ③ ④ ⑤	82. ① ② ③ ④ ⑤	83. ① ② ③ ④ ⑤	84. ① ② ③ ④ ⑤
85. ① ② ③ ④ ⑤	86. ① ② ③ ④ ⑤	87. ① ② ③ ④ ⑤	88. ① ② ③ ④ ⑤	89. ① ② ③ ④ ⑤	90. ① ② ③ ④ ⑤

RATING SCALES

INSTRUCTIONS: Please complete the following rating scales for each expresser during the 30 second rating period after the scene. Record your answers directly onto the computer answer sheet by marking the letter/number corresponding to your rating.

1. NERVOUS

B	C	D	E	F	G	H	I	J
1	2	3	4	5	6	7	8	9
Not								Very
at all								

2. WARM

B	C	D	E	F	G	H	I	J
1	2	3	4	5	6	7	8	9
Not								Very
at all								

3. UNCOMFORTABLE

B	C	D	E	F	G	H	I	J
1	2	3	4	5	6	7	8	9
Not								Very
at all								

4. LIKEABLE

B	C	D	E	F	G	H	I	J
1	2	3	4	5	6	7	8	9
Not								Very
at all								

5. APPREHENSIVE

B	C	D	E	F	G	H	I	J
1	2	3	4	5	6	7	8	9
Not								Very
at all								

A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
61 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	71 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	81 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
62 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	72 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	82 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
63 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	73 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	83 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
64 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	74 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	84 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
65 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	75 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	85 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
66 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	76 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	86 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
67 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	77 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	87 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
68 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	78 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	88 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
69 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	79 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	89 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
70 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	80 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	90 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
91 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	101 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	111 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
92 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	102 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	112 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
93 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	103 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	113 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
94 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	104 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	114 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
95 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	105 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	115 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
96 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	106 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	116 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
97 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	107 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	117 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
98 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	108 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	118 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
99 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	109 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	119 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
A B C D E F G H I J	A B C D E F G H I J	A B C D E F G H I J
100 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	110 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	120 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

GENERAL PURPOSE
NCS®
ANSWER SHEET
form no. 4887

EXAMPLES	IMPORTANT DIRECTIONS FOR MARKING ANSWERS
1 ① ☒ ③ ④ ⑤	• Use #2 pencil only.
WRONG	• Do NOT use ink or ballpoint pens.
2 ① ② ☒ ④ ⑤	• Make heavy black marks that fill the circle completely.
WRONG	• Erase cleanly any answer you wish to change.
3 ① ② ③ ☒ ⑤	• Make no stray marks on the answer sheet.
RIGHT	
4 ① ② ③ ☒ ⑤	

DO NOT
WRITE
IN THIS
SPACE

Appendix I

ORDER OF EXPRESSERS ON VIDEOTAPES

Each tape begins with two identical practice scenes, one male and one female (these scenes are labelled with the word "practice"). The Expressers are in the same order on both the anxious and comfortable videotapes.

<u>Scene</u>	<u>Trait anxiety level</u>	<u>Sex</u>
1	medium	female
2	high	female
3	low	female
4	high	male
5	medium	male
6	high	female
7	low	female
8	high	male
9	medium	female
10	low	male
11	medium	male
12	low	male

Appendix J

Instructions to Subjects

Hi. My name is Lisa Bailyn and I want to thank you for coming today and helping with the experiment. I'm going to be reading the instructions and will be here to help you with any questions or difficulties you might have. I'm reading the instructions because we want all the participants in the study to hear exactly the same instructions; research has shown that even tiny variations in the instructions can affect how participants respond.

I'm going to be asking you to look at and rate certain characteristics of people shown on 2 short videotapes. Each videotape shows 12 different people talking. You will also be given 4 questionnaires that ask about you and your feelings. You are contributing important information and I appreciate your best efforts. This experiment takes approximately 2 hours. If, at any point during this time you would like to discontinue your participation in the study, please feel free to do so. Before we begin, does anyone need a #2 pencil? (Pause, pass out pencils)

Your responses to all questionnaires will be confidential. Your work will be identified by subject number only. Each of you has received an informed consent form and a package of papers which contains different numbered questionnaires. Please read and sign the informed consent form now. This form will be kept separate from the data. Please raise your hand if you have any

questions (Pause).....I will collect your consent forms now.
Please pass your form forward to the front of the room. (Collect forms)

Now please look at the packet of questionnaires you have received. There are 4 questionnaires. Let me review the instructions for all 4 questionnaires with you now and then I will give you time to complete them. Please note that your questionnaires have been prenumbered in colored ink with the same subject number that is on the front of your packet. Do not put your name on any of these questionnaires. All of these questionnaires include written instructions to help you.

(Each questionnaire is held up for view during its instructions)

Please look at the "Demographic Questionnaire". This brief questionnaire asks you to complete 3 demographic questions commonly used in psychological research, your age, sex, and race. Any questions about this form? (Pause)

Now please look at the questionnaire marked the "IRI". You are asked to respond to 28 statements using a five point scale from "0--Does not describe me well", to "4--Describes me very well". Please circle the number below each statement that best indicates how well the statement describes you. Are there any questions about this measure? (Pause)

Now please look at the blue "Self-Evaluation" questionnaire. On the front you are asked to read each statement and indicate how you feel right now, at this moment using a 4-point scale from "1--Not at all", to "4--Very much so". On the back of this you

are asked to read each statement and describe how you generally feel, from "1--Almost never", to "4--Almost always". Please read the instructions on both sides of this questionnaire carefully to review what you are to do before you begin. Please complete both sides. Are there any questions about this measure? (Pause)

The fourth questionnaire is the "Self-Description Inventory". Please note that the test book and answer sheet are separate for this questionnaire, you will find the answer sheet inside the test book. Please do not write on the test book. The answer sheets has 2 sides. Please do not complete the 7 questions on side 1, just use the bubble area on side 2. This measure consists of 90 statements that may or may not describe you. Please use the 5-point scale to indicate whether each statement is descriptive of you, from "1--Not at all like me", to "5--Exactly like me". Are there any questions about this measure? (Pause)

Please keep in mind that there are no right or wrong answers to any of these questionnaires, just describe yourself. Please read all of the instructions before you complete each questionnaire and please respond to all questions. You may complete the questionnaires in any order that you wish. Are there any questions? (Pause) Please place the questionnaires back in the envelope when you are finished and sit quietly so that others may finish. Now please complete the 4 questionnaires.

(After all have finished)

We will now look at the videotapes. Each of you will now receive a paper labelled Rating Scales and an opscan form. (pass out papers, opscan forms are precoded for subject number and videotape sequence)

Please look at the bottom of side 1 on the opscan form at the space labelled "Identification Number". Please check to be sure the subject number on the right side of this space matches the subject number on your envelope. (Pause) Please also look as to how the opscan form is numbered.

You will rate each person on the videotape using all 5 rating scales. You will judge how nervous, warm, uncomfortable, likeable, and apprehensive you think each person appears to be at that moment. Each scene you will view lasts 30 seconds. Because the scenes are brief and you will only be seeing them once, it is important that you watch carefully. Please focus your attention on the person so that after the scene is over you can give us your impressions of that person using the rating scales during the pause that comes after each scene.

When each scene is over there will be a brief pause in the tape which will give you time to complete the ratings scales. You will be using the same 5 scales after every scene. Please mark your impressions of the person you have just viewed on the opscan form using the rating scales. I will call out the first number on the opscan of each rating group to help you keep your place. It is important that you do not mark any answers as "A" on the opscan

form; all of your answers should begin as "B", just as it is marked on the scales.

Now please look at the rating scales. You are to describe each person you see on the videotape using these 5 adjectives: nervous, warm, uncomfortable, likeable, apprehensive using the scale from 1--Not at all, to 9--Very. Please read the directions and all five scales now, and please ask me any questions you may have about them. (Pause).

Some scenes will be more difficult to judge than others, but just make your best judgements. Please refrain from commenting out loud, so that other people will not be distracted or influenced by your responses. We appreciate your conscientiousness in this task, but please remember you have to work quickly on the rating scales because we want your immediate impressions and the pauses are brief.

Okay, let's begin with two practice scenes. Remember to quickly complete the 5 rating scales immediately after the scene is over. Please do not mark any of the scales while the scene is still showing. (Start tape, show first two scenes, call out first number on the opscan form to be rated, pause tape for questions after second scene).

Are there any questions? (Pause) Remember, please work quickly on the rating scales after the scene is over. If you have not finished the rating scales when the next scene begins please

stop and view the new scene and do not finish the ratings for the last scene. Any questions? Let's begin.

(After first tape and all subjects have finished ratings)

That is the end of this tape. Please put the opscan form into your envelope. You will receive a new form for the next tape, but keep your rating scales out to use for the next tape. Before we view the second videotape, I would like you to complete again a brief questionnaire. (Pass out new copies of state-anxiety questionnaire). Please complete this questionnaire according to how you feel now. Put the questionnaire into your envelope when you have finished. (Pause)

We will now look at the second tape. (Pass out new opscan forms, precoded with subject and sequence numbers). Again, please check for your subject number in the right side of the space for identification number. (Pause)

The second tape will again begin with 2 practice scenes to help you use the rating scales. You will use the same 5 adjective rating scales to rate these scenes. Please reread the instructions for the rating scales to remind yourself of what to do. Are there any questions? (Show second tape)

(After tape is over and all subjects have completed ratings)

That is the end of the tape. Please put both the rating scales and your opscan form into your envelope. I will now pass out the questionnaire asking how you feel right now to complete

once more. When you are finished, please put your paper into the envelope and sit quietly at your desk. (Pass out state anxiety forms, precoded with subject and sequence numbers)

(When everyone is finished)

I'd like to tell you a little about what this study is all about. What we are studying is the relationship between empathy and anxiety and their relationship to people's impressions of others' anxious and comfortable behaviors and feelings. Previous researchers have reported different relationships may exist between empathy and anxiety, and also between empathy and different social skills. In order to measure your impressions in a systematic way, we had you fill out scales on a numerical basis. We can now put all of your answers together as a group and average them and perform other statistical analyses.

If you would like to know more about empathy and the results of this experiment, please leave a stamped, self-addressed envelope in a campus mail envelope marked "Bailyn" and place it in the mailbox marked "B" in 429 Dyer. I'd like to ask you to refrain from discussing this experiment with people that you think might also be participating in this study. The reason for this is that prior knowledge can affect results if the people do participate.

Please leave your questionnaire envelope on your desk for collection. I will give you your credit slips as you leave. Thank you for your cooperation. I appreciate your help.

APPENDIX K

ANOVA for Observer Ratings of Expressers' Nervous AffectTable A: Between-Subjects Effects

Source	<u>df</u> ^a	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	129	17.18		
Constant	1	6115.01	355.99	
Observer Trait (OT)	2	25.43	1.48	ns
Observer Empathy (OE)	2	22.69	1.32	ns
Observer Sex (OS)	1	185.74	10.81	.001
Sequence (S)	1	21.78	1.27	ns
OT X OE	4	15.17	.88	ns
OT X OS	2	62.94	3.66	.028
OT X S	2	17.06	.99	ns
OE X OS	2	62.82	3.66	.028
OE X S	2	15.43	.90	ns
OS X S	1	2.97	.17	ns
OT X OE X OS	4	29.39	1.71	ns
OT X OE X S	4	47.13	2.74	.046
OT X OS X S	2	9.74	.57	ns
OE X OS X S	2	42.12	2.45	ns
OT X OE X OS X S	4	4.57	.27	ns

^an = 165, 22 Observers with missing data

APPENDIX K

Table B: Within-Subject Effect for Expresser Trait Anxiety Group

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	258	2.23		
Expresser Trait (ET)	2	33.99	15.24	.001
OT X ET	4	2.32	1.04	ns
OE X ET	4	3.91	1.75	ns
OS X ET	2	2.63	1.18	ns
S X ET	2	4.15	1.86	ns
OT X OE X ET	8	1.87	.84	ns
OT X OS X ET	4	.79	.35	ns
OT X S X ET	4	4.20	1.88	ns
OE X OS X ET	4	3.18	1.43	ns
OE X S X ET	4	4.91	2.20	.069
OS X S X ET	2	.65	.29	ns
OT X OE X OS X ET	8	3.78	1.70	ns
OT X OE X S X ET	8	3.99	1.79	ns
OT X OS X S X ET	4	1.26	.56	ns
OE X OS X S X ET	4	.82	.37	ns
OT X OE X OS X S X ET	8	.16	.07	ns

APPENDIX K

Table C: Within-Subject Effect: Expresser Sex

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	129	2.34		
Expresser Sex (ES)	1	4.87	2.08	ns
OT X ES	2	.14	.06	ns
OE X ES	2	.13	.06	ns
OS X ES	1	.94	.40	ns
S X ES	1	2.44	1.04	ns
OT X OE X ES	4	3.20	1.37	ns
OT X OS X ES	2	3.90	1.67	ns
OT X S X ES	2	1.61	.69	ns
OE X OS X ES	2	.30	.13	ns
OE X S X ES	2	.23	.10	ns
OS X S X ES	1	.03	.01	ns
OT X OE X OS X ES	4	3.78	1.62	ns
OT X OE X S X ES	4	1.85	.79	ns
OT X OS X S X ES	4	.86	.37	ns
OE X OS X S X ES	4	.88	.38	ns
OT X OE X OS X S X ES	4	.70	.30	ns

APPENDIX K

Table D: Within-Subject Effect: Expresser Affect

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	129	2.90		
Expresser Affect (EA)	1	15.44	5.32	.023
OT X EA	2	6.64	2.28	ns
OE X EA	2	7.47	2.57	.080
OS X EA	1	.33	.11	ns
S X EA	1	10.94	3.77	.054
OT X OE X EA	4	4.61	1.59	ns
OT X OS X EA	2	.65	.23	ns
OT X S X EA	2	1.90	.65	ns
OE X OS X EA	2	1.25	.43	ns
OE X S X EA	2	2.53	.87	ns
OS X S X EA	1	.25	.09	ns
OT X OE X OS X EA	4	2.93	1.01	ns
OT X OE X S X EA	4	1.51	.52	ns
OT X OS X S X EA	2	3.01	1.04	ns
OE X OS X S X EA	2	1.38	.47	ns
OT X OE X OS X S X EA	4	.35	.12	ns

APPENDIX K

Table E: Within-Subject Effect: Scene

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	129	3.25		
Scene (SC)	1	158.22	48.62	.001
OT X SC	2	.87	.27	ns
OE X SC	2	.03	.01	ns
OS X SC	1	.01	.00	ns
S X SC	1	12.10	3.72	.056
OT X OE X SC	4	3.20	.98	ns
OT X OS X SC	2	.81	.25	ns
OT X S X SC	2	.59	.18	ns
OE X OS X SC	2	.01	.00	ns
OE X S X SC	2	.57	.17	ns
OS X S X SC	1	.09	.03	ns
OT X OE X OS X SC	4	.49	.15	ns
OT X OE X S X SC	4	.93	.29	ns
OT X OS X S X SC	2	2.12	.65	ns
OE X OS X S X SC	2	.99	.31	ns
OT X OE X OS X S X SC	4	.14	.04	ns

APPENDIX K

Table F: Within-Subject Effect: Expresser Trait Group by
Expresser Sex

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	258	1.97		
ET X ES	2	4.96	2.52	.082
OT X ET X ES	4	.68	.35	ns
OE X ET X ES	4	4.25	2.16	.074
OS X ET X ES	2	2.89	1.47	ns
S X ET X ES	2	6.39	3.25	.040
OT X OE X ET X ES	8	2.11	1.07	ns
OT X OS X ET X ES	4	3.45	1.76	ns
OT X S X ET X ES	4	5.17	2.63	.035
OE X OS X ET X ES	4	2.66	1.35	ns
OE X S X ET X ES	4	.89	.46	ns
OS X S X ET X ES	2	.31	.16	ns
OT X OE X OS X ET X ES	8	2.32	1.18	ns
OT X OE X S X ET X ES	8	1.69	.86	ns
OT X OS X S X ET X ES	4	.84	.43	ns
OE X OS X S X ET X ES	4	1.47	.75	ns
OT X OE X OS X S X ET X ES	8	4.00	2.03	ns

APPENDIX K

Table G: Within-Subject Effect: Expresser Trait Group by
Expresser Affect

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	258	1.39		
ET X EA	2	6.20	4.45	.013
OT X ET X EA	4	1.53	1.10	ns
OE X ET X EA	4	3.56	2.55	.040
OS X ET X EA	2	2.74	1.96	ns
S X ET X EA	2	2.27	1.63	ns
OT X OE X ET X EA	8	1.76	1.26	ns
OT X OS X ET X EA	4	1.69	1.21	ns
OT X S X ET X EA	4	1.07	.77	ns
OE X OS X ET X EA	4	.55	.39	ns
OE X S X ET X EA	4	.82	.59	ns
OS X S X ET X EA	2	.99	.71	ns
OT X OE X OS X ET X EA	8	1.18	.85	ns
OT X OE X S X ET X EA	8	2.14	1.54	ns
OT X OS X S X ET X EA	4	2.03	1.46	ns
OE X OS X S X ET X EA	4	1.27	.91	ns
OT X OE X OS X S X ET X EA	8	1.54	1.10	ns

APPENDIX K

Table H: Within-Subject Effect: Expresser Trait Group by Scene

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	258	2.24		
ET X SC	2	34.92	15.60	.001
OT X ET X SC	4	3.07	1.37	ns
OE X ET X SC	4	1.27	.57	ns
OS X ET X SC	2	1.19	.53	ns
S X ET X SC	2	.25	.11	ns
OT X OE X ET X SC	8	2.09	.93	ns
OT X OS X ET X SC	4	.71	.32	ns
OT X S X ET X SC	4	.48	.22	ns
OE X OS X ET X SC	4	.75	.33	ns
OE X S X ET X SC	4	.90	.40	ns
OS X S X ET X SC	2	1.77	.79	ns
OT X OE X OS X ET X SC	8	3.54	1.58	ns
OT X OE X S X ET X SC	8	1.14	.51	ns
OT X OS X S X ET X SC	4	.82	.37	ns
OE X OS X S X ET X SC	4	1.05	.47	ns
OT X OE X OS X S X ET X SC	8	1.48	.66	ns

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Table I: Within-Subject Effect: Expresser Sex by Expresser Affect

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	129	1.16		
ES X EA	1	.08	.07	ns
OT X ES X EA	2	2.24	1.93	ns
OE X ES X EA	2	.19	.17	ns
OS X ES X EA	1	3.22	2.77	ns
S X ES X EA	1	.07	.06	ns
OT X OE X ES X EA	4	5.14	4.42	.002
OT X OS X ES X EA	2	1.77	1.53	ns
OT X S X ES X EA	2	5.49	4.72	.010
OE X OS X ES X EA	2	1.54	1.32	ns
OE X S X ES X EA	2	.02	.01	ns
OS X S X ES X EA	1	2.12	1.82	ns
OT X OE X OS X ES X EA	4	2.68	2.31	.061
OT X OE X S X ES X EA	4	4.79	4.12	.008
OT X OS X S X ES X EA	2	2.10	1.80	ns
OE X OS X S X ES X EA	2	.94	.80	ns
OT X OE X OS X S X ES X EA	4	3.91	3.36	.069

APPENDIX K

Table J: Within-Subject Effect: Expresser Sex by Scene

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	129	1.87		
ES X SC	1	.66	.36	ns
OT X ES X SC	2	3.11	1.67	ns
OE X ES X SC	2	.99	.53	ns
OS X ES X SC	1	.62	.33	ns
S X ES X SC	1	11.77	6.30	.013
OT X OE X ES X SC	4	1.96	1.05	ns
OT X OS X ES X SC	2	1.24	.66	ns
OT X S X ES X SC	2	2.57	1.37	ns
OE X OS X ES X SC	2	.71	.38	ns
OE X S X ES X SC	2	3.40	1.82	ns
OS X S X ES X SC	1	5.39	2.88	ns
OT X OE X OS X ES X SC	4	1.78	.95	ns
OT X OE X S X ES X SC	4	3.40	1.82	ns
OT X OS X S X ES X SC	2	.42	.22	ns
OE X OS X S X ES X SC	2	2.73	1.46	ns
OT X OE X OS X S X ES X SC	4	2.92	1.56	ns

APPENDIX K

Table K: Within-Subject Effect: Expresser Affect by Scene

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	129	1.56		
EA X SC	1	6.60	4.23	.042
OT X EA X SC	2	.12	.08	ns
OE X EA X SC	2	.41	.26	ns
OS X EA X SC	1	.00	.00	ns
S X EA X SC	1	.04	.03	ns
OT X OE X EA X SC	4	.93	.60	ns
OT X OS X EA X SC	2	.32	.21	ns
OT X S X EA X SC	2	.16	.10	ns
OE X OS X EA X SC	2	.93	.60	ns
OE X S X EA X SC	2	.33	.21	ns
OS X S X EA X SC	1	.34	.22	ns
OT X OE X OS X EA X SC	4	.42	.27	ns
OT X OE X S X EA X SC	4	.17	.11	ns
OT X OS X S X EA X SC	2	3.07	1.96	ns
OE X OS X S X EA X SC	2	.05	.03	ns
OT X OE X OS X S X EA X SC	4	.20	.13	ns

APPENDIX K

Table L: Within-Subject Effect: Expresser Trait Anxiety Group by Expresser Sex by Expresser Affect

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	258	1.27		
ET X ES X EA	2	.88	.69	ns
OT X ET X ES X EA	4	.46	.36	ns
OE X ET X ES X EA	4	1.25	.99	ns
OS X ET X ES X EA	2	1.12	.89	ns
S X ET X ES X EA	2	2.40	1.90	ns
OT X OE X ET X ES X EA	8	1.03	.81	ns
OT X OS X ET X ES X EA	4	.25	.19	ns
OT X S X ET X ES X EA	4	.19	.15	ns
OE X OS X ET X ES X EA	4	.21	.16	ns
OE X S X ET X ES X EA	4	1.11	.88	ns
OS X S X ET X ES X EA	2	1.09	.86	ns
OT X OE X OS X ET X ES X EA	8	.63	.50	ns
OT X OE X S X ET X ES X EA	8	.78	.61	ns
OT X OS X S X ET X ES X EA	4	.99	.78	ns
OE X OS X S X ET X ES X EA	4	.73	.57	ns
OT X OE X OS X S X ET X ES X EA	8	.03	.02	ns

APPENDIX K

Table M: Within-Subject Effect: Expresser Trait Anxiety Group by Expresser Sex by Scene

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	258	2.55		
ET X ES X SC	2	31.97	12.53	.001
OT X ET X ES X SC	4	1.17	.46	ns
OE X ET X ES X SC	4	.88	.35	ns
OS X ET X ES X SC	2	.62	.24	ns
S X ET X ES X SC	2	.79	.31	ns
OT X OE X ET X ES X SC	8	1.24	.48	ns
OT X OS X ET X ES X SC	4	.44	.17	ns
OT X S X ET X ES X SC	4	.13	.05	ns
OE X OS X ET X ES X SC	4	2.28	.89	ns
OE X S X ET X ES X SC	4	.94	.37	ns
OS X S X ET X ES X SC	2	5.43	2.13	ns
OT X OE X OS X ET X ES X SC	8	.87	.34	ns
OT X OE X S X ET X ES X SC	8	.34	.13	ns
OT X OS X S X ET X ES X SC	4	2.83	1.11	ns
OE X OS X S X ET X ES X SC	4	2.51	.99	ns
OT X OE X OS X S X ET X ES X SC	8	.57	.22	ns

APPENDIX K

Table N: Within-Subject Effect: Expresser Trait Anxiety Group by
Expresser Affect by Scene

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Within Cells	258	1.35		
ET X EA X SC	2	.94	.70	ns
OT X ET X EA X SC	4	3.77	2.80	.027
OE X ET X EA X SC	4	1.32	.98	ns
OS X ET X EA X SC	2	3.82	2.83	.061
S X ET X EA X SC	2	.24	.18	ns
OT X OE X ET X EA X SC	8	2.47	1.83	.071
OT X OS X ET X EA X SC	4	2.29	1.70	ns
OT X S X ET X EA X SC	4	1.34	1.00	ns
OE X OS X ET X EA X SC	4	2.21	1.64	ns
OE X S X ET X EA X SC	4	1.62	1.20	ns
OS X S X ET X EA X SC	2	1.87	1.39	ns
OT X OE X OS X ET X EA X SC	8	2.37	1.76	.085
OT X OE X S X ET X EA X SC	8	2.26	1.68	ns
OT X OS X S X ET X EA X SC	4	1.92	1.42	ns
OE X OS X S X ET X EA X SC	4	1.71	1.27	ns
OT X OE X OS X S X ET X EA X SC	8	1.38	1.03	ns

APPENDIX K

Table O: Within-Subject Effect: Expresser Sex by Expresser
Affect by Scene

Source	df	MS	F	p
Within Cells	129	1.48		
ES X EA X SC	1	2.38	1.61	ns
OT X ES X EA X SC	2	3.25	2.20	ns
OE X ES X EA X SC	2	.50	.34	ns
OS X ES X EA X SC	1	.09	.06	ns
S X ES X EA X SC	1	.20	.14	ns
OT X OE X ES X EA X SC	4	1.11	.75	ns
OT X OS X ES X EA X SC	2	.14	.09	ns
OT X S X ES X EA X SC	2	.04	.03	ns
OE X OS X ES X EA X SC	2	.93	.63	ns
OE X S X ES X EA X SC	2	.99	.67	ns
OS X S X ES X EA X SC	1	1.00	.68	ns
OT X OE X OS X ES X EA X SC	4	1.71	1.16	ns
OT X OE X S X ES X EA X SC	4	.08	.05	ns
OT X OS X S X ES X EA X SC	2	.81	.55	ns
OE X OS X S X ES X EA X SC	2	1.10	.74	ns
OT X OE X OS X S X ES X EA X SC	4	.62	.42	ns

APPENDIX K

Table P: Within-Subject Effect: Expresser Trait Group by
Expresser Sex by Expresser Affect by Scene

Source	df	MS	F	p
Within Cells	258	1.15		
ET X ES X EA X SC	2	.29	.25	ns
OT X ET X ES X EA X SC	4	.25	.22	ns
OE X ET X ES X EA X SC	4	.37	.32	ns
OS X ET X ES X EA X SC	2	.42	.37	ns
S X ET X ES X EA X SC	2	3.63	3.16	.044
OT X OE X ET X ES X EA X SC	8	1.75	1.53	ns
OT X OS X ET X ES X EA X SC	4	.43	.38	ns
OT X S X ET X ES X EA X SC	4	.49	.43	ns
OE X OS X ET X ES X EA X SC	4	.60	.52	ns
OE X S X ET X ES X EA X SC	4	.36	.31	ns
OS X S X ET X ES X EA X SC	2	.15	.13	ns
OT X OE X OS X ET X ES X EA X SC	8	1.01	.88	ns
OT X OE X S X ET X ES X EA X SC	8	.65	.57	ns
OT X OS X S X ET X ES X EA X SC	4	.97	.85	ns
OE X OS X S X ET X ES X EA X SC	4	1.05	.91	ns
OT X OE X OS X S X ET X ES X EA X SC	8	.52	.45	ns