This is to certify that the

thesis entitled

RELATIONSHIP BETWEEN COMMUNICATORS' ABILITY
TO PERCEIVE AND INTERPRET FACIAL AFFECT
CUES AND PERCEPTIONS OF THEIR
BEHAVIOR AS EMPATHIC
presented by

Lynn Elizabeth Fraedrich Aho

has been accepted towards fulfillment
of the requirements for

Master of Arts degree in Communication

Gerald R. Miller
Major professor

Date June 23, 1980

RELATIONSHIP BETWEEN COMMUNICATORS' ABILITY TO PERCEIVE AND INTERPRET FACIAL AFFECT CUES AND PERCEPTIONS OF THEIR BEHAVIOR AS EMPATHIC

By

Lynn Elizabeth Fraedrich Aho

A THESIS

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

MASTER OF ARTS

Department of Communication

1980

ABSTRACT

RELATIONSHIP BETWEEN COMMUNICATORS' ABILITY
TO PERCEIVE AND INTERPRET FACIAL AFFECT
CUES AND PERCEPTIONS OF THEIR
BEHAVIOR AS EMPATHIC

By

Lynn Elizabeth Fraedrich Aho

Counselors and clinicians have long suggested that observation of clients' nonverbal emotional cues is extremely helpful in understanding and reacting to them. In this thesis, the relationship between ability to decode facial expressions of emotion, and to perceive differences in visual cues and being perceived as rewarding to interact with is examined.

One-hundred-fifty-eight undergraduates were tested for decoding ability engaged in a role-play counseling exercise, and were rated on their expression of level of regard, empathic understanding, unconditionality of regard, and general rewardingness by their partners. No significant relationships supporting the hypothesis of a positive relationship between decoding ability and interaction outcomes were found. Significant sex differences were found for level of regard and general rewardingness. Women were perceived as showing higher regard for partners and as being more rewarding interactants than men by both men and women.

ACKNOWLEDGMENTS

The help and encouragement of my guidance committee, Dr. Gerald Miller, Dr. Judee Burgoon, and Dr. Norman Fontes must be acknowledged here. I sincerely thank them, especially my chairman, Dr. Miller, whose advice and assistance were invaluable. My gratitude is also expressed to Dr. Michael Burgoon.

I owe a big "thank-you" to my colleagues, especially Jim Dillard and Scott Garrison. Thanks are also expressed to research assistants Mike Manzoni, LuAnn Van Theime, Lorna Akins, and especially Jenny Moore.

I am grateful to and would like to thank my parents, siblings, and other members of my family for their interest and support. Special thanks are expressed to Julie for typing this manuscript. Finally, my most heartfelt appreciation and thanks are expressed to my husband.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

RATIONALE

Most extant work on the concept of empathy has been done by psychologists, who have characteristically taken one of three approaches in defining empathy. Some have described empathy as a mystic quality (Katz, 1963; Stein, 1964), or have left it undefined (Sullivan, 1953). Others, whose work is thoroughly summarized by Stotland (1969), have dealt with empathy as a psychophysical response. A final group has considered empathy to be a social perception skill, dealing with individuals' ability to predict others' responses to selected stimuli or to infer the emotional states of others based on either behavioral or situational cues (Dymond, 1949; Truax & Carkhuff, 1967; Hogan, 1969; Natale, 1972). Dymond's (1949) paper engendered a line of research in which empathy was operationalized as an individual's ability to predict the responses of a friend or acquaintance to a trait questionnaire. Truax and Carkhuff (1967) dealt with the ability of therapists to infer clients' emotional states. Researchers examining the development of empathy in children (Cohen, 1973; Partyka, 1974; Brandt, 1976) have defined it as the ability to take the role of another. This has been operationalized either as the ability to describe a situation from the viewpoint of another or the ability to identify emotions another would be likely to feel in a given situation. The common keystone of all these approaches is that they deal with an individual's ability to understand another's cognitive or emotional state based on information provided by observable cues.

Because they deal with the ability to receive and process cues, these definitions have the most significance for communication.

The social perception view of empathy also most closely resembles a communication definition of empathy presented by Miller and Steinberg (1975). In their definition, Miller and Steinberg propose that empathy consists of two steps:

> 1. The prospective empathizer must be able to discriminate accurately the ways that the individual's motivational and attitudinal posture differs from others.
> 2. Accurate discriminations must be followed by behaviors that are viewed as desirable, or rewarding by persons who are the objects of prediction. (p. 175)

Unlike several of the authors who viewed empathy as a social perception skill, most notably Hogan (1969) and Dymond (1949, 1950), Miller and Steinberg have not defined empathy as the result of one or more underlying personality traits. Rather, their definition specifies a series of events culminating in the perception by the person who is the object of empathy, or empathizee, that the empathizer's behaviors are desirable or rewarding. In contrast, the social perception theorists would view this perception as the <u>result</u> of empathy. Empathy itself, in their view, is the empathizer's ability to <u>understand</u> the empathizee. Unlike Miller and Steinberg, they do not state that a person must base future communication on that understanding in order to be considered empathic.

Shifting the definitional focus on empathy to the desired end state, as Miller and Steinberg have done, provides several advantages for the communication theorist. First, it emphasizes the importance

of the perceptions of the empathizee and of communication between people. Unfortunately, none of the social-perception theorists reviewed determined whether empathic skill, as they defined it, resulted in the empathizee feeling more understood or rewarded. Social perception skill has limited utility if it does not increase people's abilities to reach their social goals.

Second, viewing empathy as a communication process emphasizes the need to study each step in the process rather than limiting study to one isolated aspect. Thus, this view prompts empirical investigation of relationships of perceptual skills and personality traits to empathy. While taking a social perception-view of empathy does not prevent a researcher from doing this, social-perception researchers have typically either focused on measuring a person's perceptiveness in a particular relationship (Dymond, 1949; Truax & Carkhuff, 1967) or on the personality traits of the empathic person (Hogan, 1969). They have not dealt with either raw perceptual ability, such as visual or auditory acuity, or with skill in processing linguistic or nonverbal cues. Research linking personality traits with perceptual skills and both of these with empathic effectiveness would be a step toward an empirically, rather than philosophically based theory of empathy.

Third, Miller and Steinberg's description of the process of emphasizing has implications for developing empathic ability. If, as they propose, the perceptual and inferential abilities needed to discriminate accurately among individuals' attitudinal and motivational postures allow a communicator to behave more consistently in ways that are rewarding to others, then developing these skills should allow a

person to be more empathic. This skill development would have great utility in the training of counselors, therapists, and medical personnel.

Discriminating among individuals' attitudinal and motivational postures involves an inferential process of using available information to draw conclusions about underlying motives and attitudes. Observations of the empathizee's behavior, particularly his or her communication, are the chief source of information available to prospective empathizers. It is anticipated that the greater the individual's accuracy in perceiving and interpreting verbal and nonverbal cues, the greater the amount and accuracy of the information she or he derives from observation of communication behavior. Two conceptually distinct abilities constitute skill in processing communication: the ability to perceive subtle variations in verbal and nonverbal cues, and the ability to interpret, or accurately assign meaning to, these cues as indicators of the other's emotional or cognitive state. These two abilities together will be called cue discrimination. Accurate cue perception is a necessary condition for interpreting cues, since cues which are not perceived or are misperceived will not produce accurate interpretations, except by chance. Two other factors are also needed to produce accurate discriminations: motivation and inferential accuracy. Like any other inferential problem, discriminating people's attitudinal and motivational postures is subject to error even when based on accurate information. For example, a person might accurately perceive and interpret a cluster of verbal and nonverbal cues as signalling anger and frustration, yet mistakenly infer the source of the frustration and anger, leading to an erroneous

conclusion about the other's attitudes. Also, a person might have the ability to make highly accurate discriminations, yet lack the motivation to do so. People do not always operate at the peak of their abilities nor do they invest maximal emotional and cognitive energy in all relationships--or even in all interactions with a given relational partner.

The preceding reasoning culminates in the following theoretical proposition:

1. The greater the cue discrimination ability, the greater the accurate discrimination, given equal levels of inferential error and motivation.

If the discussion is limited to situations in which communicators desire to reward each other, a second theoretical proposition may be formulated from Miller and Steinberg's (1975) definition of empathy.

2. Accurate discriminations lead to the empathizee perceiving that the prospective empathizer's behaviors are desirable and rewarding, that is, greater discrimination produces greater empathy.

Limiting the sphere of discussion in this way is suggested by Miller and Steinberg (1975) on the grounds that persons motivated to punish others are not considered empathic. Naturally, this proposition will not be true when persons desire to punish each other or are apathetic.

Taken together, these two propositions lead to the first hypothesis of this study:

H_1: All other things being equal, the greater the cue discrimination ability, the greater the empathy.

It must be emphasized that empathy, as defined by Miller and Steinberg (1975) is a function of the perceptions of the empathizee.

Empathy is a relational phenomenon, not a characteristic of individuals. Stated differently, empathy only exists when people are communicating and can only be measured by ascertaining how the interaction is perceived by the communicators. Cue discrimination ability, on the other hand, is an individual characteristic. Its component skills exist and can be measured using objective tests when no interaction is taking place. In this conceptualization, empathy is a relational variable while cue discrimination is a psychological variable. Although the two constructs are hypothesized to be positively related, they are quite different in nature.

Since Miller and Steinberg (1975) indicate that discrimination ability may be related to aspects of cognitive style (p. 183), it is deemed of theoretical interest to test the relationships between discrimination ability, being perceived as empathic, and certain personality traits which have been suggested as factors that contribute to a person interacting empathically. Hogan (1969) developed a measure of empathic disposition which includes items assessing the person's tolerance, social awareness and affiliative tendencies, ethnocentricity, and authoritarianism. If these dispositional traits are related to empathy, high positive associations between the empathic disposition scores and scores for empathy and cue discrimination would be expected. This expectation leads to the second and third hypotheses of this study:

H_2: Empathy is positively related to empathic disposition.

H_3: Ability to discriminate cues accurately is positively related to empathic disposition.

Finally, whenever cross-sex differences in empathy have been reported (Dymond, 1949; Dymond, 1950; Hogan, 1969; Mehrabian & Epstein,

1972), women have displayed greater empathy than men. Is this primarily an effect of social stereotyping, a result of more accurate discrimination ability, a general motivational tendency to try to please others, or some combination of these factors? The literature on sex differences (Maccoby & Jacklin, 1974) is inconclusive concerning each of these possibilities. There are no consistent findings of sex differences in visual perception. However, some studies of adolescents and adults report that males are more proficient at visual-spatial tasks, while others report no differences. Self-concept research suggests that females tend to view themselves as more socially oriented than do males. Studies of children's social behavior, on the other hand, yield no consistent pattern of differences in the affiliativeness or social orientation of girls and boys. No differences in accuracy of interpretation of emotion in faces for children ages three to adult have been reported. Hall (1978) reports that the overwhelming majority of studies which report examining sex differences found that females were more accurate at interpreting emotional expressions, but notes that a great many studies do not comment on sex differences at all. Because knowledge of this area is rather limited, a series of cross-sex comparisons is warranted.

First, a comparison of the perceived empathy of men and women would provide a test of the idea that women are more empathic. This leads to a fourth hypothesis:

H_4: Women are perceived as more empathic than men by both men and women.

In addition, cross-sex comparisons of cue perception and interpretation and of empathic disposition could shed some light on the

source of the differences, if any exist. This yields three additional hypotheses:

H_5: Women display greater ability to perceive cues than men.

H_6: Women display greater ability to accurately interpret cues than men.

H_7: Women show more empathic disposition than men.

These comparisons have theoretical import beyond simply comparing the performance of men and women because of the extent to which sex differences could mask the hypothesized relationships. For instance, if women are viewed as uniformly empathic due to social stereotyping, regardless of the quality of the interactions in which they participate, the hypothesized relationship between empathy and accurate discrimination ability will be obscured.

Finally, comparisons among dyads of differing sex composition may be made by summing partners' empathy scores. Basing predictions solely on the sex differences already predicted, the hypothesis for this comparison is:

H_8: When scores for members of each dyad are combined, the most perceived empathy is found in a female-female dyad, the next most in a mixed-sex dyad, and the least in a male-male dyad.

If the similarity of the communicators is a salient factor in the amount of empathy generated, significant differences will be found, but mixed-sex dyads will show the least empathy, male-male dyads an intermediate amount, and female-female dyads the most.

CHAPTER II

METHOD

Participants

The participants were 158 students, 59 men and 99 women, enrolled in either an introductory communication course or an introductory psychology course at Michigan State University. The students, who were given extra credit for volunteering to participate, were assigned randomly to same-sex or mixed-sex dyads. There were 13 male-male dyads, 29 female-female dyads, and 30 mixed dyads. No dyad consisted of persons who were previously acquainted.

Operationalization of the Variables

Empathy, as conceptually defined by Miller and Steinberg (1975) was operationalized as the ratings of each participant's behavior made by his/her partner on scales from the Relationship Inventory (Barrett-Lennard, 1962) and additional items of the same format constructed to refer specifically to the research situation. The Relationship Inventory was selected because its Empathic Understanding Scale provides a brief and clear measure of empathy *per se*. Items form the Level of Regard and Unconditionality of Regard scales were used as additional indicators of rewarding behavior. This scale was based on concepts of counseling developed by Carl Rogers. Unconditionality is considered rewarding in that context on the basis that consistent behavior, that is, that expressed emotions toward another are not changed by or

dependent on transitory events, is a necessary condition for positive change in psychotherapy (Barrett-Lennard, 1962). Several items used to obtain ratings of participants' enjoyment of the discussion task and their willingness to participate in another experiment involving the same type of task with the same or another partner were framed in the same format as the Relationship Inventory items and included in the questionnaire. Each Relationship Inventory item consists of a statement about the partner's behavior and six response categories ranging from "I strongly feel that it is true," to "I strongly feel that it is not true," with no neutral point. There were 16 items in the Empathic Understanding scale, 17 in the Level of Regard scale, 17 in the Unconditionality of Regard scale, and 6 additional items. The additional items are listed in Table 1.

Table 1

Additional Items Used to Measure Rewardingness of Interaction with Partner

51.	I would enjoy participating in another experiment involving a discussion period similar to the one in this statement.
52.	I would be willing to participate in another experiment like this one if I could receive extra credit for it.
53.	I felt very uncomfortable during the discussion period.
54.	If I participated in another experiment like this one, I would not want to have the same partner.
55.	If I have a chance, I will try to get to know my partner in this experiment as a friend.
56.	I would have enjoyed the discussion task more if I had had a different partner.

Reliabilities for the Relationship Inventory are reported by Barrett-Lennard (1962), who also describes content-validity tests of the inventory. Comparisons between the Relationship Inventory and other empathy measures are reported by Caracena and Vicory (1969). Barrett-Lennard used the Spearman Brown formula to calculate split-half reliabilities for each scale with the following results: Level of Regard, .93; Empathic Understanding, .86; Unconditionality of Regard, .82. Test-retest correlations in another sample were, Level of Regard, .84; Empathic Understanding, .89; and Unconditionality of Regard, .90. Reliability analysis of data collected in this study yielded the following Cronbach's Alphas: Level of Regard, .90; Empathic Understanding, .80; Unconditionality of Regard, .77. The additional items had a reliability of .57.

Cue perception, the sensory capacity to perceive differences in visual or audible cues, was operationalized as performance in response to a series of 20 visual discrimination items presented on slides (Figure 1). Each slide consisted of a stimulus figure and two matching figures. Participants were to select which, if either, of the two matching figures was different from the stimulus figure after the slide was presented for one half second. Response categories were: a) Both figures are the same as the stimulus figure. b) The figure on the left differs from the stimulus figure. c) The figure on the right differs from the stimulus figure. d) Both figures differ from the stimulus figure. The choices were displayed on the screen for about 20 seconds after each stimulus slide was presented. Reliability analysis yielded a Cronbach's Alpha of .47 for the cue perception test.

Reliabilities for the Relationship Inventory are reported by Barrett-Lennard (1962), who also describes content-validity tests of the inventory. Comparisons between the Relationship Inventory and other empathy measures are reported by Caracena and Vicory (1969). Barrett-Lennard used the Spearman Brown formula to calculate split-half reliabilities for each scale with the following results: Level of Regard, .93; Empathic Understanding, .86; Unconditionality of Regard, .82. Test-retest correlations in another sample were, Level of Regard, .84; Empathic Understanding, .89; and Unconditionality of Regard, .90. Reliability analysis of data collected in this study yielded the following Cronbach's Alphas: Level of Regard, .90; Empathic Understanding, .80; Unconditionality of Regard, .77. The additional items had a reliability of .57.

Cue perception, the sensory capacity to perceive differences in visual or audible cues, was operationalized as performance in response to a series of 20 visual discrimination items presented on slides (Figure 1). Each slide consisted of a stimulus figure and two matching figures. Participants were to select which, if either, of the two matching figures was different from the stimulus figure after the slide was presented for one half second. Response categories were: a) Both figures are the same as the stimulus figure. b) The figure on the left differs from the stimulus figure. c) The figure on the right differs from the stimulus figure. d) Both figures differ from the stimulus figure. The choices were displayed on the screen for about 20 seconds after each stimulus slide was presented. Reliability analysis yielded a Cronbach's Alpha of .47 for the cue perception test.

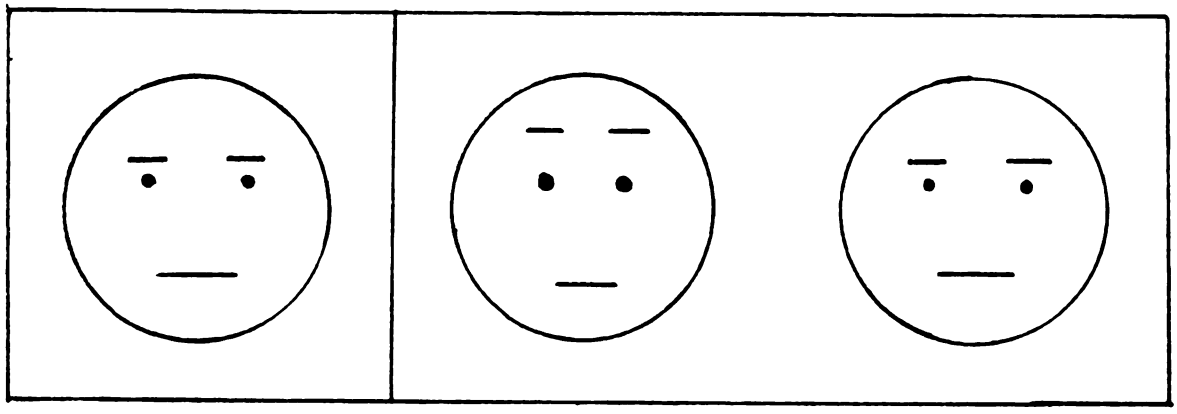

Figure 1--Example of Slides Used in the Cue Perception Test.

Cue interpretation, conceptually defined as the ability to accurately assign meaning to emotional cues, was operationalized as the ability to identify the emotion displayed on each of 30 slides showing facial expressions of "pure" emotion (Ekman & Friesen, 1976). Each slide consists of a black-and-white closeup of the face of a poser displaying one of six emotional expressions, happiness, sadness, fear, anger, surprise, and disgust. Based on their extensive research on the nature of facial expressions of emotion, Ekman and Friesen (1975) considered these six expressions basic or pure emotional expressions which are blended to produce more subtle or complex expressions of emotion. Most of the time, they found, interactants mask their emotions with smiling or neutral expressions. Pure expressions of emotion occur only momentarily, rarely enduring for longer than .8 second, and frequently disappearing much more quickly. The posers appearing in the slides were trained to contract or relax specific facial muscles to duplicate the expressions isolated in earlier research. Ekman and Friesen (1976) report that all the photographs from which those used in this study were selected had reliabilities of more than .70, the majority having reliabilities of .90 or greater. A Cronbach's Alpha of .67 was obtained for this test.

Five slides depicting each of the six emotions were selected. Each emotional expression was portrayed by both male and female posers. Half the slides in the set showed female posers and half male. Slides were ordered so that neither the same emotion nor the same poser were presented twice in a row, and the order of presentation was the same for all subjects. For each slide, five response choices were displayed

for about 30 seconds after the stimulus slide had been displayed for one half second. The very short exposure time for the stimulus slides in this test and the cue perception test is based on Ekman and Friesen's findings on the duration of emotional expressions. Because emotional expressions appear very fleetingly, one must be able to perceive them very quickly while interacting, and a brief test display approximated this situation better than a more lengthy one.

Four different response sets, which are displayed in Table 2, were used. Because expressions of fear are difficult to distinguish from those of surprise, and expressions of anger are difficult to distinguish from those of disgust, response choices were assigned so that half of the slides of these emotions were easy discriminations by virtue of not presenting the incorrect member of the pair as a choice. Otherwise, response sets were distributed randomly. To facilitate recognition that different sets of response choices were being presented, each set was photographed on a different color background.

Empathic disposition was conceptually defined as those personality traits associated with empathy in the social-psychological literature, including tolerance, lack of authoritarian tendencies, self-acceptance, and extraversion. This construct was assessed using Hogan's (1969) Empathy Inventory, a personality inventory consisting of 64 self-descriptive statements to which participants are to respond either "true" or "false." Sample statements are: "I always try to consider the other fellow's feelings before I do something." "I am not easily angered," and "I would like to belong to a singing club." The entire instrument is available from the Psychology Department of

Table 2

Response Choices Used in the Cue Interpretation Test

Answer set number	Background color of slide	Response choices
1	white	a. disgust b. happiness c. sadness d. surprise e. fear
2	orange	a. fear b. sadness c. anger d. happiness e. surprise
3	yellow	a. anger b. fear c. happiness d. disgust e. sadness
4	light blue	a. surprise b. disgust c. anger d. happiness e. sadness

The Johns Hopkins University. Hogan (1969) reports that Spearman-Brown reliabilities for composite ratings using his scale ranged from .68 to .86 with a mean reliability of .80. A test-retest correlation over a two month interval yielded a reliability of .84. A Cronbach's Alpha of .72 was obtained for the Empathy Inventory in this study.

Procedures

Upon arriving at the lab, participants signed a consent form and were given an identification number card. The use of this number

to identify all experimental materials instead of a name or student ID number helped ensure the participants' anonymity. The numbers also served to assign participants to dyads and to match up the scores for members of each dyad. Participants were told that the topic of the first study was "counseling by non-professionals" and that they would be asked to discuss with their partners a "moderately stressful problem, of the sort you might discuss with friends." Each participant acted as counselor for one 10-minute discussion period and counselee for the other. "Having a disagreement with one's roommate over housekeeping chores" was given as an example of a moderately stressful problem. Emphasis was placed on discussing a real problem, and any participant who found this too threatening was given a chance to leave at this point.

After the two "counseling" sessions, each participant rated her or his partner on scales from the Relationship Inventory (Barrett-Lennard, 1962). Participants were told that this completed the first experiment.

The cue perception and cue interpretation tests were introduced as part of a second experiment, "Interpretation of Nonverbal Cues." The cue perception test was administered first. Participants were shown a sample stimulus slide and instructed that for the first test, they would have to choose which figure, if any, was different from the stimulus figure on the far left, and the response choices were reviewed for them. They were told that each set of figures would be displayed on the screen for about half a second and followed by a longer display of the answer choices during which they were to mark their answers. A sample item was shown in cadence to familiarize participants with the procedure.

When the cue perception test was completed, instructions were given for the cue interpretation test. Participants were told that this test was similar to the first one, except that instead of picking which item was different, they would see a single photograph of a face and select the emotion they thought was being expressed. They were warned that unlike the first test, several different answer sets were used in this exercise, and that they would be cued in to this fact by the use of a different background color for each different answer set. A practice item was shown in cadence to familiarize participants with the procedure. Then they completed the 30-item test.

Next, participants completed Hogan's (1969) Empathy Inventory, which was introduced as an assessment of "the way you view yourself and the world around you." Before beginning the inventory,participants were reminded that their responses were both anonymous and confidential and asked to answer as honestly as possible. Finally participants were debriefed, thanked for their participation, and dismissed.

Although it was expected that the procedures would allow for few, if any, order effects, one potential problem was noted. At the beginning of the cue perception test many of the participants, who were seated near their role-play partners, continued to talk to each other and had difficulty attending to the slides shown for the test. If, as seems likely, this was most likely to happen in those dyads with the most rewarding outcomes, then members of these dyads would show artificially diminished scores for cue perception, attenuating the proposed relationship between cue perception and empathy.

Since accurate discrimination ability is composed of cue perception ability and the ability to interpret cues accurately, scores

for cue discrimination were created by summing scores from the cue perception and interpretation tests. Hypothesis 1 was tested with a multivariate multiple regression analysis using accurate discrimination and assignment to dyad as predictors of empathy, the latter being measured by the partners' ratings on the three scales of the Relationship Inventory and the additional items. These four measures were correlated, but the Relationship Inventory (Barrett-Lennard, 1962) is not summative across scales. Therefore, scores for the three Relationship Inventory scales and the additional items were considered a vector of related dependent variables in the analysis. On the basis of work by Pillai and Jyachandran (1967) indicating that Hotelling's trace statistic has greater power than Pillai's criterion, Wilk's Lambda, or Roy's Largest Root for large samples with highly divergent roots, Hotelling's trace statistic was chosen as the test statistic. Univariate regression analyses were conducted to obtain regression coefficients of accurate discrimination and assignment to dyad, which was included to control for the fact that partners' ratings of each other are not independent.

The relationships between empathic disposition and perceived empathy and cue perception ability specified in Hypotheses 2 and 3 were tested by computing two partial correlations: a correlation between empathy and empathic disposition controlling for the effects of cue discrimination ability, and a correlation between discrimination ability and empathic disposition controlling for the effects of perceived empathy. For the purposes of these tests, perceived empathy was measured by the score on the Empathic Understanding scale of the Relationship Inventory.

Hypotheses 4, 5, 6, and 7, which specify sex differences for individuals, were tested using one-tailed t-tests between means for empathy, cue perception, cue interpretation, and empathic disposition.

The differences in empathy generated in mixed and same sex dyads posited by Hypothesis 8 were tested for overall significance using an analysis of variance. All tests were conducted at the .05 level of significance.

CHAPTER III

RESULTS

The multivariate multiple regression analysis conducted to test Hypothesis 1 showed trends, but no significance. The value of the test statistic, Hotelling's trace statistic, was .125; its approximate F was 1.96 at 8/250 degrees of freedom. Its probability was .052.

Univariate regression analyses were performed for each of the scales from the Relational Inventory (Barrett-Lennard, 1962) to further explore the nature of the trends indicated by the multivariate analysis. The analyses performed on the empathy scores and the additional items yielded no significant results or trends. The analysis of the Level of Regard scores was not significant overall, but did yield a significant regression coefficient for discrimination of -.22. The R^2 for discrimination in this analysis was .03. The analysis of the unconditionality of regard scores, which was also nonsignificant overall, yielded a regression coefficient of .19 at a significance level of $p < .55$. The R^2 for discrimination in that analysis was .03. Thus, no support can be claimed for the hypothesized positive relationship between discrimination and empathy.

The partial correlation between empathy and empathic disposition controlling for discrimination ability was -.05 and was not significant ($p > .05$; $df = 148$). The partial correlation between empathic disposition and discrimination ability controlling for empathy was -.04,

Table 3

Univariate Multiple Regression of Empathic Understanding Scale Scores Predicted by Assignment to Dyad and Cue Discrimination

$$\hat{Y}_1 = \beta_{11}X_1 + \beta_{12}X_2$$

Multiple R = .044 d.f. = 2/129 p > .05

R^2 = .002 F = .122

Variable	beta	R^2 change	F	p
Assignment to dyad (X_1)	-.016	.0017	.198	p > .05
Cue discrimination (X_2)	.019	.0025	.032	p > .05

Table 4

Univariate Multiple Regression of Unconditionality of Regard Scale Scores Predicted by Assignment to Dyad and Cue Discrimination

$$\hat{Y}_2 = \beta_{21}X_1 + \beta_{22}X_2$$

Multiple R = .171	d.f. = 2/129	p > .05
R^2 = .029	F = 1.93	
Betas		
Assignment to dyad	beta = .004	F = .012
	R^2 change = .00003	p > .05
Cue discrimination	beta = .192	F = 3.86
	R^2 change = .029	.05 > p < .06

Table 5

Univariate Multiple Regression of Level of Regard Scale Scores Predicted by Assignment to Dyad and Cue Discrimination

$$\hat{Y}_3 = \beta_{31}X_1 + \beta_{32}X_2$$

Multiple R = .179	d.f. = 2/129	p > .05
R^2 = .032	F = 2.13	
Betas		
Assignment to dyad	beta = .006	F = .023
	R^2 change = .0008	p > .05
Cue discrimination	beta = -.224	F = 4.15
	R^2 change = .032	p < .05

Table 6

Univariate Multiple Regression of Additional Items Scores Predicted by Assignment to Dyad and Cue Discrimination

$$\hat{Y}_4 = \beta_{41}X_1 + \beta_{42}X_2$$

Multiple R = .119	d.f. = 2/129	p > .05
R^2 = .014	F = .932	
Betas		
Assignment to dyad	beta = .012	F = .524
	R^2 change = .003	p > .05
Cue discrimination	beta = .053	F = 1.47
	R^2 change = .011	p > .05

also nonsignificant ($p > .05$; $df = 148$). Thus, the data fail to support either Hypothesis 2 or Hypothesis 3.

The sex differences Hypotheses, 4-7, were tested using t-tests, the results of which are presented in Table 7.

Table 7

Cross-sex Comparisons

Variable	Group means		d.f.	t
	females	males		
Empathic Understanding	8.6	6.4	149	1.23
Unconditionality of Regard	0.9	0.03	145	0.44
Level of Regard	27.6	23.3	155	2.04*
Additional Items	6.4	4.2	147	2.57*
Cue perception	38.8	38.1	156	0.54
Cue interpretation	67.1	66.4	156	0.63
Empathic disposition	52.5	50.7	156	1.93*

$p < .05$

As can be seen from these results, the data fail to support Hypothesis 5, that women would demonstrate greater ability than men to perceive cues, and Hypothesis 6, that women would show greater ability than men to interpret cues.

The data do support Hypothesis 7, that women show higher levels of personality traits related to empathy. Hypothesis 4 is also partially supported; i.e., that women show more empathy than men. This support

is indicated by significant differences for two of the four scales used as indices of empathy.

Since the Level of Regard and experimental partner evaluation scores (additional items) were ratings made by the participants' partners and since there were far more female-female dyads than male-female dyads, these results can conceivably be interpreted as a sex difference in response tendencies, i.e. females may tend to rate their partners more positively than do males. To eliminate this possibility, two-way analyses of variance using participant sex and partner sex as variates were computed for each measure. Neither measure showed effects for partner sex or for interaction. Therefore, these results do not appear to reflect sex differences in the response tendencies of the raters.

Table 8

Two-way Analysis of Variance in Level of Regard Scale Scores by Participant Sex and Parnter Sex

Source	SS	d.f.	MS	F
Participant sex	541.62	1	541.62	3.17[a]
Partner sex	27.61	1	27.61	.16[a]
Interaction	34.08	1	34.08	.20[2]
Error	21868.22	128	170.85	
Total	22448.24	131	171.36	

[a] $p > .05$

Table 9

Two-way Analysis of Variance in Additional Item Scores by Participant Sex and Partner Sex

Source	SS	d.f.	MS	F
Participant sex	118.93	1	118.93	4.55
Partner sex	6.96	1	6.96	.28[a]
Interaction	31.18	1	31.18	1.19[a]
Error	3343.09	128	26.12	
Total	3494.55	131	26.68	

[a] $p > .05$

Hypothesis 8, which specified sex-composition differences in the total amount of empathy generated in the dyad was tested using an analysis of variance. No significant effect of sex composition was found on the amount of empathy generated in the dyad ($F < 1$, df = 2/69). Consequently, Hypothesis 8 was not supported.

CHAPTER IV

DISCUSSION

The results obtained for Hypotheses 1, 2, and 3 do not clearly support or falsify the reasoning on which they are based. The estimates of strength of statistical association obtained in the analyses conducted to test these hypotheses were quite small, the largest being .03. This largest effect, which was statistically significant, was in the opposite direction from that predicted. Those which were in the predicted direction were very weak. Since a very small (R^2 = .03) effect did reach significance, inadequate sample size cannot explain the lack of significant results. Such findings indicate either that the proposed relationships do not exist or that the experimental procedures used were inadequate to detect them. Without methodological impeccability, it would be premature to conclude that the theoretical basis was unsound. Thus, methodological problems which may have caused these results will be discussed first.

One possible reason for the obtained inconclusiveness lies in two aspects of the measurement of discrimination. First, most of the scores for interpretation of facial expressions of emotion were perfect or nearly so. Thus, there was little variance on this measure, militating against the identification of strong correlations between it and any other variable. Consequently, most of the variance in the discrimination variable was due to the visual perception measure. As was noted earlier, the cue perception measure was confounded with

outcomes of the experimental interaction such that those who participated in more highly rewarding interactions were more likely to continue relating to their partners during the cue perception test and, because they were distracted from the test, to perform poorly. These problems provide one likely explanation for the negative relationship between Level of Regard and discrimination.

While the trend toward a positive relationship between Unconditionality of Regard and discrimination seems at first to contradict this reasoning, examination of the Unconditionality of Regard scale indicates that this may not be the case. Each item in the scale was worded so as to apply to either positive or negative evaluations by the relational partner. The scale attempted to assess the extent to which people feel that their relational partners' regard for them is contingent on what they say or do. High scores on this scale, then, might be associated with insensitivity to the partner's behavior and unwillingness to process additional information once an initial evaluation is made. While it is probably quite rewarding for people to interact with others who regard them positively, no matter what they say or do, it is likely very frustrating for them to deal with others who regard them negatively or apathetically and whose evaluations cannot be changed by actions on their part. Thus, the reward value of unconditionality of regard depends upon the level of regard. In this study, it is possible that for some participants the experimental interaction was unrewarding because their partners' negative or neutral evaluations of them did not seem to be affected by their actions. Members of these dyads would be unlikely to be distracted from the cue perception test by conversation with each other, and would be likely

to perform well. If this occurred in several dyads, it could have produced this trend.

Although the role-play counseling task was designed to get the participants to discuss something more personal than the demographic-type information usually exchanged in initial interactions, the 20 minutes allotted for this task might be too brief an acquaintanceship to allow participants to accurately rate their partners' behavior. Several participants asked the experimenter how they should respond to items which they felt they could not answer because of their minimal experience relating to their partners. When controlling for differences in degree of prior knowledge by using previously unacquainted dyads, as was done in this study, a much longer interaction period may be required. This problem might also be alleviated to some extent by using a rating instrument designed specifically for initial acquaintances. While Barrett-Lennard's (1962) scale conformed most closely to the definition of empathy used in this study, it was designed for use in long-term therapeutic relationships.

For this study, perception and interpretation of facial affect cues were chosen as indicators of general ability to perceive and interpret cues because these cues are clearly related to a person's emotional state, and would be available to participants in the experimental interaction. However, the fact that these cues are such clear indicators of a person's emotional state may be balanced by a very small population variance in recognizing these pure emotional expressions. Ekman and Friesen's (1975) success in demonstrating that the emotional expressions displayed in the photographs used for the interpretation test are widely recognizable in this culture and

cross-culturally might indicate that few differences in competence in facial affect cue interpretation exist at this level. In order to detect individual differences, it may be necessary to use more subtle emotional blends or variations, or perhaps a series of emotional expressions requiring more complex interpretations. Research conducted by Rosenthal, Hall, DiMatteo, and Archer (1979) has demonstrated that people do have consistent preferences for attending to certain nonverbal channels. They also suggest that individuals differ in their abilities to send messages in various channels and that the easiest and the greatest degree of interpersonal understanding is likely to occur in dyads where the preferred sending channels of each member correspond to the preferred receiving channels of the other. If this occurred in dyads in this study for channels other than facial expression, it would have weakened the proposed relationship. The findings of Rosenthal et al. (1979) suggest that testing nonverbal sensitivity in several channels may be necessary for this sort of study.

Although little individual variability in ability to detect and interpret cues was found in this study, the work of Rosenthal et al. (1979) indicates that substantial individual differences do exist. Far more complex and subtle methods must be used to test for them than those employed here, however. In any case, the assumption embodied in these theoretical propositions that individuals vary significantly in their ability as receivers of nonverbal communication is not unwarranted.

It is still possible that variations in the ability to perceive and interpret cues do not account for variability in rewarding behavior, even when all communicators are motivated to be rewarding.

Perhaps ability to perform the behaviors which all understand are desirable to the other is such an important factor that ability to process cues is really insignificant. Perhaps attention or inferential accuracy are the important explanatory factors. In any case, this study has not ruled out the possibility that cue perception and interpretation ability are important causal mechanisms because insufficient variation in cue interpretation ability was detected and because scores for cue perception were confounded, very possibly, with interaction outcomes.

Three types of explanations have been offered for the origin of sex differences in social behavior (Maccoby & Jacklin, 1974). Differences may be due to stereotyping by the observers, i.e. males and females may behave similarly, but observers may interpret the behavior of female actors differently than that of male actors. Differences may be caused by physiological differences, such as differences in hormonal levels or maturation rates or some sort of neurological differences which affect behavior. Third, differences may develop in the socialization process. Boys and girls may be trained to behave differently in social situations from early childhood and may merely behave in the lab in ways they have been taught are socially appropriate.

This study provides no support for the idea that women are simply stereotyped as empathic. If that were the case, differences would be expected on the Empathic Understanding scale of the Relationship Inventory, which includes such terms as "empathy" and "understanding," and not necessarily on the Level of Regard scale or the additional partner rating items. The fact that significant sex differences were obtained for the latter two measures but not the former makes stereotyping a

minimally plausible explanation for these findings.

Because of the nature of the tests used in this study, there is no way to tell if any differences obtained are physiologically based or the result of socialization processes. Doing so would require either developmental study, showing changes produced by socialization, cross-cultural studies, showing different effects due to being socialized in different cultures, or physiological studies, identifying structure or physiological processes which produce differences. Physiological sex differences which would, if they exist, bear on the problem of empathy are neurological differences in the ways in which verbal and nonverbal cues are processed.

The socialization explanation focuses on two characteristics supposedly produced by differences in the ways girls and boys are raised. The first is that females have a stronger orientation toward social phenomena. In terms of the empathic process proposed here, this could lead to greater empathy in two ways. First, it may result in female empathizers being characteristically more attentive to cues during interactions. Second, a history of greater attentiveness and interest would lead to greater inferential accuracy about the behaviors that would be rewarding to others. A major problem with this argument is that, although studies can be cited in which females showed greater interest in social stimuli, the literature as a whole shows no consistent differences in overall interest in or orientation toward social phenomena (Maccoby & Jacklin, 1974).

Although differences in motivation may not be the explanation, do differences in attentiveness or inferential accuracy exist?

Accuracy in making inferences about the feelings another person would experience in a hypothetical situation seems bound to the person's own experience in similar situations. When the situations were sex-typed, the sex with greater experience in that situation was favored. When the situations were sex-neutral, no sex differences emerged (Maccoby & Jacklin, 1974). Hall (1978) states that studies which report examining sex differences in inferring emotion from nonverbal cues obtained differences favoring females far more of the time than would be expected by chance. Thus, although such differences in cue interpretation were not obtained in this study it is quite possible that females are more accurate inferring emotions from nonverbal cues. The only clue to levels of attentiveness in interacting adults is the finding that women look at those with whom they interact more than men do (Henley, 1977). This would provide them greater opportunities to gather information. Rosenthal et al. (1979) found that women engaged in more eye contact than men, although the difference was not significant in that study. Persons who engaged in more eye contact were more accurate at decoding nonverbal cues and females were more accurate than males. However, when the effects of greater eye contact were partialed out, the sex difference in accuracy, though diminished, still remained. Thus,while females may gain more information through greater attentiveness, this does not entirely account for sex differences in nonverbal decoding accuracy.

The second characteristic produced by differences in socialization is that females are purported to engage in nurturant, socially-oriented behavior more often than males. The findings on helping and

nurturant behavior are mixed; helping behaviors seem to be bound to perceptions of being able to help in a particular situation. Experimental situations in which men were more likely to feel competent, such as calling a garage mechanic, elicited more helping behavior from men than from women. Sex-neutral situations generally show no sex differences in helping behavior (Maccoby & Jacklin, 1974). These studies indicate that there is no warrant for the conclusion that women are more strongly motivated to engage in helping behavior than are men when both feel competent and when helping is clearly the appropriate behavior. That males tend to be more aggressive and, at least in some situations, more competitive (Maccoby & Jacklin, 1974) may lead them to view helping as appropriate less often than females, but this possibility has not been tested. In many situations where the concept of empathy is relevant, men may feel less competent to help. This might be especially true in situations where the help required involves giving emotional support or otherwise dealing with feelings. Although the discussion task in this study did not involve strong emotions, it clearly fell within this domain, and the male participants may have felt less competent than the female participants.

An aspect of socialization not often considered is that the interaction style appropriate for males in this culture may be less rewarding to fellow interactants than that taught to women. Research in nonverbal communication (Henley, 1977) indicates that men show less facial expressiveness, smile less, show less facial pleasantness, and maintain less eye contact. Sociolinguistic research (Thorne & Henley, 1975) shows that men are more likely to interrupt and change topics. They

tend to talk for a larger proportion of the time in a mixed-sex conversation, and to take longer turns than women. Men generally use more intrusive forms of showing agreement or attention, and give more direct orders as opposed to requests. They are also more likely than women to fall into argumentative or competitive modes of discourse. Besides being potentially less rewarding for interactants in general, these habits would tend to make the communication of liking and understanding difficult.

Of these possibilities, two seem to provide the most fruitful areas for the communication researcher. First, one could focus on empathizers' abilities as sources and test whether differences in male and female interaction styles lead to females being perceived as more rewarding interactants. Or perhaps, since this behavior is normative, it is merely expected of women. If this is the case, the number of positive cues men would need to display to be rewarding would be less than the number women would have to provide to produce the same effect. Second, and much more difficult is to examine situations in which persons must simultaneously send and receive as they do in actual interactions. Females seem to be more accurate at decoding emotional cues (Hall, 1978) and their social role may lead to a more rewarding interaction style. What is the joint effect of these two factors when both are present? This question can only be answered by examining such situations.

Establishing the exact nature of sex differences in empathizing in this manner is needed before speculation about the sources of sex differences can bear fruit. The female participants in this study did communicate higher levels of regard and were perceived as more

rewarding partners than the males. Results such as these, which indicate that very real differences in the behavior of the sexes exist, should prompt further research on the nature of the differences.

LIST OF REFERENCES

LIST OF REFERENCES

Barrett-Lennard, G. T. Dimensions of therapist response as causal factors in therapeutic change. Psychological Monographs, 1962, 76, (43, whole No. 562).

Brandt, B. J. Empathy in preschool children: Its relation to age, cognitive ability and social experience. Unpublished doctoral dissertation, Michigan State University, 1976.

Caracena, P. F. & Vicory, J. R. Correlates of phenomenological and judged empathy. Journal of Counseling Psychology, 1969, 6, 510-515.

Cohen, E. C. Empathy, awareness of interpersonal responsibility and consideration for others in young children. Unpublished doctoral dissertation, Michigan State University, 1973.

Dymond, R. F. A scale for the measurement of empathic ability. Journal of Consulting Psychology, 1949, 14, 129-133.

_____. Personality and empathy. Journal of Consulting Psychology, 1950, 14, 343-350.

Ekman, P. & Friesen, W. Unmasking the Face. Englewood Cliffs, N. J.: Prentice-Hall, 1975.

_____. Pictures of Facial Affect. Palo Alto, Cal.: Consulting Psychologists Press, 1976.

Grief, E. B. & Hogan, R. The theory and measurement of empathy. Journal of Counseling Psychology, 1973, 20, 280-284.

Hall, J. A. Gender effects in decoding nonverbal cues. Psychological Bulletin, 1978, 85, 845-857.

Henley, N. M. Body Politics: Power, Sex, and Nonverbal Communication. Englewood Cliffs, N.J.: Prentice-Hall, 1977.

Hogan, R. Development of an empathy scale. Journal of Consulting and Clinical Psychology, 1969, 33, 307-316.

Katz, R. L. Empathy: Its Nature and Uses. Glencoe, Ill.: Free Press, 1963.

Maccoby, E. E. & Jacklin, C. N. The Psychology of Sex Differences. Palo Alto, Cal.: Stanford University Press, 1974.

Mehrabian, A. & Epstein, N. A measure of emotional empathy. Journal of Personality, 1972, 40, 525-543.

Miller, G. R. & Steinberg, M. Between People: A New Analysis of Interpersonal Communication. Chicago: Science Research Associates, 1975.

Natale, S. An Experiment in Empathy. Windsor, Berkshire, G. B.: National Foundation for Educational Research in England and Wales, 1972.

Partyka, L. B. Two aspects of empathic awareness in young children: Affective and cognitive role-taking. Unpublished doctoral dissertation, Michigan State University, 1974.

Pillai, K. C. S. & Jayachandran, K. Power comparisons of tests of two multivariate hypotheses based on four criteria. Biometrika, 1967, 54, 195-210.

Stein, E. On the Problem of Empathy. The Hague, Netherlands: Martinus Nijhoff, 1964.

Stotland, E. Exploratory investigations in empathy. In L. Berkowitz (Ed.) Advances in Experimental Social Psychology (Vol. 4). New York: Academic Press, 1969.

Sullivan, H. S. The Interpersonal Theory of Psychiatry. New York: Norton, 1953.

Thorne, B. & Henley, N. Language and Sex: Difference and Dominance. Rowley, Mass.: Newbury House, 1975.

Truax, C. B. & Carkhuff, R. R. Toward Effective Counseling and Psychotherapy: Training and Practice. Chicago: Aldine, 1967.

Accepted by the faculty of the Department of Communication, College of Communication Arts and Sciences, Michigan State University, in partial fulfillment of the requirements for the Master of Arts degree.

_____

Director of Thesis