CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

NONVERBAL CUES AS RELATED TO READING DISORDERS

A graduate project submitted in partial satisfaction of the requirements for the degree of Master of Arts in Education

by

Margo Susan Long and Dorothy Gene Stark

June, 1973
The graduate project of Margo Susan Long and Dorothy Gene Stark is approved:

California State University, Northridge
June, 1973
"The gloom of the world is but a shadow. Behind it, yet within reach, is joy. There is a radiance and glory in the darkness could we but see, and to see we have only to look. I beseech you to look!"

(Fra Giovanni, 1513)
ACKNOWLEDGMENTS

To
Shirley Hansen who
ignited the spark,
and to Phil Hansen
who kindled the fire.
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ABSTRACT

NONVERBAL CUES AS RELATED TO READING DISORDERS

by

Margo Susan Long and Dorothy Gene Stark

Master of Arts in Education

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The purpose of this study was to determine the degree to which non-reading disordered high school students differed in their perception of nonverbal expressional cues from a group of reading disordered high school students.

Hypotheses formulated were derived from Sarbin's role theory and Sullivan's theory of interpersonal relations. The first hypothesis stated that there would be a significant difference between the scores of a group of reading disordered students and a group of non-reading disordered students on tests of perception of nonverbal expressional cues. The second hypothesis held that there would be a significant difference in favor of the reading disordered students in terms of nonmodal responses when compared with the non-reading disordered students on tests
of perception of nonverbal cue perception. The third hypothesis stated that there would be a significant difference in favor of the male reading disordered students in terms of nonmodal responses when compared with the female reading disordered students on tests of perception of nonverbal expressional cues.

Control variables were age, grade, ethnic background, and intelligence. Nonverbal cue perception was measured by Sarbin's Stick Figures Test and Guilford's Faces and Expressions tests.

Data were gathered using 52 reading disordered and 52 non-reading disordered subjects enrolled in the Reading Center at a Los Angeles County high school.

T tests of difference were computed and comparisons made between matched groups of 52 reading disordered and 52 non-reading disordered subjects. Further comparisons were made between reading disordered and non-reading disordered males and between reading disordered and non-reading disordered females. Intragroup differences between reading disordered males and females and between non-reading disordered males and females were also computed.

Hypotheses one and two were substantiated. The third was not. Reading disordered students were significantly different from non-reading disordered students on tests of nonverbal expressional cue perception. The
difference favored reading disordered students in terms of nonmodal responses. There was no statistically significant difference between the male and female reading disordered students in terms of nonmodal responses.
CHAPTER I

Introduction

Philosophers, psychologists, sociologists, physicians, and educators have long questioned the nature of the human perceptual process. Sundry investigators have indicated that our past experiences and present purposes tend to influence how we see or perceive others. One's interpersonal perception must be accurate if one is to behave appropriately and learn effectively (Hamachek, 1971).

Reading, as a function of perception, requires the identification and development of an individual's ideas about his environment (Spencer, 1970). "Reading is the art of transmitting the ideas, facts and feelings from the mind and soul of an author to the mind and soul of a reader, with accuracy and understanding, and much more [Jennings, 1965, p. 11]." He further stated:

Throughout his history man has read many things: the flight of birds, the guts of sheep, sun spots, liver spots, and the life lines on a hand. He has read the lore of the jungle, the spoor of the beasts and portents of a dish of tea. But whatever he has read, however he has read it, it has always been for "reasons." It was only when man invented symbols for the words in his mouth and for the ideas in his teeming
brain, that other kinds of reading became useful, possible, or even desirable [p. 11].

Rationale

Hansen (1969) stressed the necessity for and the value in further research into the problems of social perception. She called for further attention in the area of education to the development of social perception and its relationship to the establishment of more effective school programs.

While there has been widespread research dealing with perception and its relationship to various personality correlates, specific factors involved in the nonverbal perceptive processes of learning disordered students has received little attention.

The present study was designed to provide some empirical evidence of the relationship between perception of nonverbal expressional cues and reading disorders.

Statement of the Problem

It was the purpose of this study to determine the degree to which non-reading disordered high school students differed in their perception of nonverbal expressional cues from a group of reading disordered high school students.

Definitions and Limitations

Reading Disordered Students. (RD) Reading disordered students were defined as students with normal
intelligence, who had measured intelligence quotients of from 90-110, who had no physical disabilities, and who were two or more years behind in their reading achievement.

**Non-reading Disordered Students. (NRD)** Non-reading disordered students were defined as students with normal intelligence who had measured intelligence quotients of from 90-110 and who were at grade level or above in reading achievement.

**Nonverbal Expressional Cues.** Nonverbal expressional cues were defined as representations of human actions in the forms of facial image, body gesture, and postural bearing which could be associated with specific acts, emotions or qualities.

Three limitations to the execution of this study were: (1) social perception was limited to only one factor, nonverbal cue perception; (2) nonverbal cues were tested as isolated factors rather than in the total context of an interpersonal experience; (3) the sample population was limited to the students at one high school.

**Hypotheses**

Three hypotheses were formulated.

1. There will be a significant difference between the scores of a group of reading disordered students and of a group of non-reading disordered students on tests of perception of nonverbal expressional cues.
2. There will be a significant difference in favor of the reading disordered students in terms of nonmodal responses when compared with the non-reading disordered students on tests of perception of nonverbal cue perception.

3. There will be a significant difference in favor of the male reading disordered students in terms of nonmodal responses when compared with the female reading disordered students on tests of perception of nonverbal expressional cues.

Review of Related Literature

The review of the literature was divided into four main subject areas: role perception, social perception, reading disorders, and nonverbal cue perception.

Role perception. Asch (1952) contended that social psychology could not develop without reference to individual experience. Furthermore, he stated that the significance of actions could only be appreciated with reference to their meaning to the individual. Cantril (1965) considered the universals of human nature and stressed human motivations toward "self-actualization," "self-realization," or "becoming." These were representative of a trend toward a conception of the individual's interaction with the social environment and its meaning to him as the central element in social existence. Supporting Cantril were investigations by Allport, 1955; Rogers,
Taguiri (1969) noted that a person's impressions of a situation including another person were a result of three major elements: the situation, the other person, and the perceiver. James (1890) and Cooley (1967) emphasized the notion that one's conception of self was derived from the ways others responded to him, and that this in turn, related to social expectancies or roles. This relationship between role and personality was more fully developed by Mead (1934) and Hunt (1965).

According to Hunt (1965), the basic components of social relations were the coordinate concepts of position (sometimes referred to as status) and role. Sarbin (1961) incorporated these varied role theories into his interactional concept. Essential components of Sarbin's system were: (1) role, or the unit of the culture; (2) position, the unit of society; and (3) self, the unit of personality. Any individual at any given time is a composite of these three components. Thus, the perceiver is forming a perception of another from his point in time, his role, position, and self in relation to the other.

In their paper entitled "Conformance in Role Perception as a Personality Variable," Sarbin and Hardyck (1961) related role perception and expressional cues:

Role perception is the first part of a social act: it is the usually silent naming or locating of the position of the other on the basis of available cues. This serves as an
aid in locating the position of the self.
The motoric response, the role enactment, follows from the perceptual response.
Since the perceptual and motoric aspects of the social act are acquired holistically, if the perceptual response is conformant, then there is a high probability of socially valid (though not necessarily conforming) role enactment [p. 28].

The process of role enactment includes many facets of behavior: gross skeletal movements, the performance of verbal and motoric gestures, styles of speech and accent, the wearing of certain ornaments or dress, posture and gait, etc. These mechanics of the role-taking process were described in terms of three major concepts; number or roles, organismic involvement, and accessibility or reportability (Sarbin & Allen, 1968).

A variable of role perception which related to expressional cues was the role-location variable (Sarbin, Taft, & Bailey, 1960). This variable was a measure of the cue properties of "social ecology," especially cues which arose from the conduct of persons in interaction with one another. The accuracy with which a person noticed such cues and drew conclusions about the role of another was directly related to the accuracy with which he located his own position. The validity, propriety, and convincingness of his own role enactment were dependent on the accuracy of his role placement (Sarbin & Allen, 1968).

Social perception. Sullivan (1947) developed a concept of interpersonal relations. This theory
recognized the necessity of interactions of the individual and the social order and stated that personality was manifest only in interpersonal situations. This idea had its roots in the works of Mead (1964), who first described the "generalized other." Sullivan further delineated Mead's "generalized other" into "significant others." He described this change as follows:

In the Western Culture, into the second decade of this century, there was no devastating divergence of the religious rules from the main trends of the culture-complex. With the short-lived emergence of the Communist idealism and the still-spreading reversion to Totalitarianism as a doctrine of the state, the practical solidarity of the Western Culture was destroyed. There are now many significant differences in the culture-patterns which are impressed on children in home and school, and through the channels of mediate acculturation. A great deal that was unquestionable has now become controversial, if not obsolete. Whereas once one "belonged" or was an outcast, the question now is rather where one belongs than does one [pp. 95-96].

Sullivan held that if one were to communicate and interact successfully, ascriptions of meaning must be in accord. The self was seen as synonymous with appraisals from others. Development of a self-system efficient enough to cope with one's interpersonal environment required knowing who he was, what he was capable of doing, and what others expected of him.

Concerning nonverbal communication, Sullivan (1947) was quite explicit:
Verbal and non-verbal communication are never separated in actual behavior, save perhaps in written communication, and even in print parochial idioms convey far more meaning than is ever grasped by the foreign reader. By separating verbal and non-verbal analytically, however, and seeking to sensitize himself and his subjects to all kinds of nuances of non-verbal communication, Sullivan has opened an important gateway to expansion of our knowledge of this vital aspect of interpersonal processes [pp. 196-197].

The act of social perception was seen to involve questions concerning the ability to judge others. Several investigators have agreed that persons are perceived as unitary entities possessing certain physical and personality characteristics, thoughts, and feelings (Allport, 1937; Asch, 1946). The anthropologist Darwin (1872), in The Expression of the Emotions in Man and Animals, argued that expressive movements associated with emotions had no functional value, but merely represented remnants of movements which had been functional for a certain species.

Many researchers have attempted to explore stimuli in order to attain accurate recognition of other persons' emotional states (Feleky, 1914; Woodworth, 1938; Schlosberg, 1954; Taguiri, 1969). They concluded that perceptions of others were influenced by context, the labeling process, and a host of other variables.

Another issue raised in studying accuracy of interpersonal perception was whether the ability to perceive others accurately was a general trait dependent on who
was perceived and what type of judgment was to be made. Crow and Hammond (1957) investigated the accuracy issue, using a wide variety of stimuli, persons, and criteria. Their findings strongly suggested that general accuracy of person perception was due to stable response tendencies rather than to differential accuracy. Cline and Richards (1960) also researched the accuracy problem and concluded that it was possible to obtain a measure of the ability to judge others accurately that was both reliable and general. Contrary to Crow and Hammond's conclusions, the latter study stated, "There is a general ability to perceive others accurately. This general ability, however, consists of two (at least) independent parts: Sensitivity to the Generalized Other and Interpersonal Sensitivity [Cline & Richards, 1960, p. 5]." The research on generality of judging ability was inconclusive.

In final analysis, there are complex relationships between our perceptions of others and our behavior toward them. Asch (1958) has best summarized this position:

The paramount fact about social interaction is that the participants stand on common ground, that they turn toward one another, that their acts interpenetrate and therefore regulate each other [p. 161].

Reading disorders. Investigations of reading disorders indicated that academic achievement may depend less upon the student's innate intelligence than upon his evaluation of himself. Hamachek stated:
Indeed classroom and clinical research evidence suggests that school or life success may depend less on those qualities a person has by way of genes or circumstances and more on how he feels about those qualities. Basically, the self has two aspects—concept and feeling. That is, each knows himself to have particular qualities and he feels certain ways about those qualities. For example, a student may know that his measured IQ is, say 125, but unless he has the self confidence and belief in himself to accompany his intelligence, his 125 IQ is a practically useless possession [pp. 174-175].

Educators and psychologists alike have been involved in the search for specific personality components in the reading disordered student. Although many aspects of behavior have been investigated, no valid set of factors has been agreed upon. Evidence which supported the relationship between the degree of personality adjustment of an individual and the predictability of his academic achievement was provided by Hoyt and Norman (1954). Findings indicated that personality characteristics do play an important role and that accurate achievement predictions could be made accordingly. Shaw and McCuen (1960) researched the onset of the problem of reading disorders and its relationship to basic personality structure. Results suggested that the predisposition was present with boys when they entered school and steadily became more serious. Gever (1970) saw learning problems as a reaction to failure both in and out of the classroom. He stated:
Often a penetrating self-consciousness floods the child so that he becomes too aware of the mechanics of his performance or the reactions of others. Additional reactions may be serious interferences with the child's capacity to attend and concentrate on instructional materials due to acute fear and panic reactions [p. 311].

Numerous studies indicated that social perceptual differences did exist between reading disordered and non-reading disordered students. Shaw, Edson, and Bell (1960) were concerned with the reading disordered student's perception of self as compared with the perception of the successful student. Using the Sarbin Adjective Checklist, clear evidence was found that male achievers felt more positively about themselves. They exceeded underachievers significantly in selecting adjectives indicative of a positive self-concept. Female achievers and underachievers seemed to feel both positively and negatively about themselves. The relationship between children's personal-social adjustment and their perception of adults' nonverbal behavior was further explored by Bunning (1969). The Sarbin Hardyck Stick Figure Test was used to determine the difference in their attentiveness to specific nonverbal cues. Poorly adjusted children perceived more negative and ambivalent attitudes from the significant adults in their lives and indicated negative self perceptions in the areas of personal worth and belongingness.

Nonverbal cue perception. Researchers have become increasingly aware of the significant role that nonverbal
behaviors play in social perception. Evidence suggested that accurate perception of nonverbal cues is essential for successful interpersonal relationships. Facial expressions, gestures, and postures have been accepted as bodily expressions used to communicate emotions and attitudes.

In an attempt to look at the relationship between social perception and nonverbal cue perception, several investigators found facial expressions dominant in perceptual accuracy. Buzby (1924) indicated that the upper part of the face, eyes, and brows were the more effective areas for correct judgment of expression. Birth order was used as the criterion to determine the degree of ability to recognize effectively facial moods by Staffiere and Bassett (1970). Ekman (1969) found evidence of similarity of facial expressions used to convey the same emotion in a number of cultures.

Few studies were available in the area of manual expressions such as gestures, a handshake, the shaking of a fist, or similar nonverbal cues used in interpersonal communication. Mehrabian (1971) explored the behaviors of deceitful communicators in order to study the person unwilling or unable to express his feelings. Findings determined the inhibition of gestures, head nodding, leg and foot movement. Conversely, an increase in gesticulation in subjects attempting to persuade was noted.
Limited research was found concerning posture as a bodily expression of emotions. Correlating physical characteristics with personality, Sheldon, Stevens, and Tucker (1940) found that classifying personality on the basis of physical characteristics was worthy of further investigation. Kiker and Miller (1967) noted that stereotyping occurred when perception was based on physiques. Perceivers had a tendency to distort their perceptions in favor of their own body images. Findings of Mehrabian (1968) correlated posture and position cues with attitudes and status. They found that positive attitudes were communicated by specific positions and postures as were status level perceptions. Posture was a more subtle form of nonverbal communication than were gestures or facial expressions. However, posture was found to be equally as valid an index for supplying perceptual cues.

**Summary**

The theoretical framework of this paper was based on the role theory defined by Sarbin (1952, 1954, 1960, 1968) and the concept of interpersonal relations developed by Sullivan (1947).

The literature provided a reasonable background of research concerned with the respective areas of reading disorders and social perception. There was a dearth of research concerned with the relationship between these two areas. The task of the present investigation was to find
the extent to which a correlation exists between the factors in social perception and reading difficulties.

A review of the literature tended to support the following conclusions: (1) the areas of reading disorders and nonverbal cue perception had been studied independently, (2) there was no research on the relationship between these two areas, and (3) research which would illuminate correlations between these fields is necessary.
CHAPTER II

Experimental Design and Procedures

The purpose of this study was to determine the degree to which non-reading disordered high school students differed from a group of reading disordered high school students in their nonverbal expressional cue perception. The statement of the problem suggested investigation be made according to the theoretical constructs of role theory and interpersonal communication.

Hypotheses

Three hypotheses were formulated.

1. There would be a significant difference between the scores of a group of reading disordered students and a group of non-reading disordered students on tests of perception of nonverbal expressional cues.

2. There would be a significant difference in favor of the reading disordered students in terms of nonmodal responses when compared with the non-reading disordered students on tests of perception of nonverbal cues.

3. There would be a significant difference in favor of the male reading disordered students in terms of
nonmodal responses when compared with the female reading disordered students on tests of nonverbal expressional cues.

Subjects

Subjects were students enrolled in the Reading Center of a Los Angeles County high school. The Reading Center contained a heterogenous population of 250 tenth-, eleventh-, and twelfth-grade students. Reading abilities of students ranged from the first- to the fourteenth-grade level.

Each student was given the Botel and Nelson-Denny reading tests to determine his level of reading achievement. Students who scored two or more years below grade level were classified as reading disordered. Students who scored at grade level or above were classified as non-reading disordered.

All 250 students were given the opportunity to participate in a study which involved nonverbal cue perception. One hundred seventy-six volunteered and were given the Beta Intelligence Test.

Students were eliminated from the study if they were members of any ethnic minority.¹ Others were eliminated if their reading achievement level was below the

¹Nine were in this category--eight Chicano, and one black. All students were classified within the reading disordered group.
sixth-grade level or if their overt attitude toward the project was negative.

An attempt was made to match the remaining students on age, grade, IQ, and socioeconomic status (SES). Study subjects comprised a group of 52 reading disordered subjects matched with a group of 52 non-reading disordered subjects on age, grade, and intelligence. All subjects were Caucasian and had no apparent physical disabilities.

**Instruments for Control Variables**

**Botel Reading Test.** This was an item multiple choice test which required the subject to select the word with the opposite meaning from the given word. Results indicated reading ability from first- through twelfth-grade.

**Nelson-Denny Reading Test.** This test was designed to provide the level of reading ability in terms of vocabulary and comprehension. It consisted of 100 items that measured vocabulary and 36 items that measured reading comprehension. Results indicated reading ability from the seventh- to the fourteenth-grade levels.

**Revised Beta Examination.** This was a nonverbal IQ test intended to measure general intellectual ability. A validity coefficient of .92 was found between the Beta and the Weschler Intelligence Scale for Children (WISC), and of .71 between the Beta and the Otis Self-Administering Tests of Mental Maturity.
Socioeconomic Index. This index was developed by Reiss (1961). A ten point scale was used with one indicating the lowest and ten indicating the highest socioeconomic position.

Socioeconomic Status (SES) Questionnaire. All students enrolled in the Reading Center were given a short questionnaire to determine their socioeconomic level by occupation of head of the household (see Appendix).

Instruments for Experimental Variables

The Faces and Expressions tests described in this section were developed under the direction of Guilford, by O'Sullivan (1965) for the Aptitudes Research Project at the University of Southern California.

Faces Test. This test consisted of multiple choice of four photographed men's faces which expressed different emotions. The subject was required to select the one face that expressed the same feeling or emotion as that of a photographed woman's face. The Kuder-Richardson and Spearman-Brown estimates of reliability for this test were .37 and .39 respectively.

Expressions Test. This test consisted of a drawn bodily expression, in the form of a gesture, followed by four alternative drawings. The subject was required to select the posture, gesture or expression which emoted the same feelings as the primary drawing. Reliability estimates for this test were .64 and .57 according to the
Kuder-Richardson and Spearman-Brown formulas respectively.  

**Stick Figures Test.** This test was designed by Sarbin to explore the importance of body posture on role perception. It consisted of 42 slides of stick figures which expressed varied postural behaviors. For each postural position there were five adjective distractors describing the posed behavior. The subject had to choose the adjective he felt best described the posture of the stick figure.

The mean grade placement of the adjectives used in this test was 4.8. Sarbin obtained a split-half reliability of .50.

**Data Collection**

Subjects were selected by the processes described earlier in this study. All testing was done in the Reading Center on the high school campus. The Center was housed in a bungalow with regulation furniture (tables, chairs, chalkboards, etc.). Twelve to 15 subjects were tested each session by the investigators. Five 45-minute sessions were necessary to complete the testing for each subject. Administration for all tests required two weeks of consecutive testing periods.

The tests were given in the following order: (1) Faces, (2) Expressions, and (3) Stick Figures. At the end of the testing the investigators expressed their appreciation for the students' cooperation. All tests were scored
by the investigators according to the directions in the respective manuals.

Accumulated data were codified for electronic data processing and were processed using the IBM computer facilities housed in the Health Science Department of California State University, Northridge (CSUN).

Summary

One hundred four students enrolled in the Reading Center of a Los Angeles County high school were selected to participate in a study concerned with nonverbal expressive cue perception. Two groups were established: (1) a reading disordered group whose 52 subjects were two or more years behind in their reading achievement, and (2) a non-reading disordered group whose 52 subjects were on grade level or above in their reading achievement. Groups were matched for age, grade, ethnicity, intelligence, and were free from physical disabilities.

Subjects were tested in the Reading Center in groups of 12 to 15 by the investigators. Five 45-minute sessions were necessary, per student, to complete data collection. Appropriate statistical treatment was determined and data were processed by an IBM computer at CSUN.
CHAPTER III

Findings

The purpose of this investigation was to determine whether there was a significant difference between a group of reading disordered and a group of non-reading disordered high school students on three tests of nonverbal expressional cue perception.

The control variables introduced were age, grade, sex, socioeconomic status, ethnic background, and intelligence. Comparisons were made between the reading disordered and non-reading disordered populations on three tests of nonverbal cue perception: Faces, Expressions, and Stick Figures. Males and females of each group were compared respectively. Comparisons were also made within each group.

Control Variables

The sample for the study included 52 reading disordered and 52 non-reading disordered high school students. The two groups were matched for age, grade, and intelligence. Ethnic identification was controlled by observation. Table 1 compares the reading disordered and non-reading disordered subjects on the control variables.
It can be noted that there was no statistically significant difference between the reading disordered and non-reading disordered groups on age \( t = .47 \), grade \( t = .43 \) and intelligence \( t = 1.66 \).

**TABLE 1**

A Comparison of Means for Reading Disordered (RD) and Non-Reading Disordered (NRD) Populations on the Control Variables of Age, Grade, and Intelligence

<table>
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<td>SD</td>
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</tbody>
</table>

Table 2 illustrates the distribution of males and females within each group. The chi-square two-tailed test indicated statistically significant differences in the proportions of male:female subjects within each group at the .05 level of confidence \( x^2 = 3.97 \). Males were represented

**TABLE 2**

A Comparison of Males and Females in Reading Disordered (RD) and Non-Reading Disordered (NRD) Groups

<table>
<thead>
<tr>
<th>Sex</th>
<th>RD (N=52)</th>
<th>NRD (N=52)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Males</td>
<td>35</td>
<td>67</td>
<td>25</td>
</tr>
<tr>
<td>Females</td>
<td>17</td>
<td>33</td>
<td>27</td>
</tr>
</tbody>
</table>
in the reading disordered group by a ratio of 2:1. An approximately equal number of males and females were represented in the non-reading disordered group.

Comparison of the socioeconomic status of the reading disordered and non-reading disordered populations indicated a statistically significant difference at the .01 level of confidence (t=4.11). This may be observed in Table 3. Reading disordered subjects had a significantly lower socioeconomic index than non-reading disordered subjects.

TABLE 3

A Comparison of Means of Reading Disordered (RD) and Non-Reading Disordered (NRD) Subjects on Socioeconomic Status (SES)

<table>
<thead>
<tr>
<th>Control Variable</th>
<th>NRD (N=52)</th>
<th>RD (N=52)</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>SES</td>
<td>Mean 7.79</td>
<td>Mean 5.94</td>
<td>102</td>
<td>4.11</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>DS 2.40</td>
<td>SD 2.67</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 shows the inverse relationship of socioeconomic status between reading disordered and non-reading disordered populations. Fifteen reading disordered subjects were within the 1-4 SES range in contrast to seven non-reading disordered subjects (ratio 2:1). Twenty-one reading disordered subjects were within the 7-10 range in contrast to 38 non-reading disordered subjects (ratio 1:2).
TABLE 4

A Comparison of Frequency of Socioeconomic Status (SES) of Reading Disordered (RD) and Non-Reading Disordered (NRD) Groups

<table>
<thead>
<tr>
<th>SES Level</th>
<th>RD (N=52)</th>
<th>NRD (N=52)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>19.23</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>9.62</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>19.23</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>11.54</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>3.85</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>15.38</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>9.62</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>11.54</td>
</tr>
</tbody>
</table>

Experimental Variables

Matched groups of 52 reading disordered and 52 non-reading disordered subjects were compared on three tests of nonverbal expressional cue perception: Faces, Expressions, and Stick Figures. Comparisons were made between the male subjects within the reading disordered and non-reading disordered groups and between the female subjects of both groups. The same variables were used to assess intragroup differences between reading disordered male and female subjects and non-reading disordered male and female subjects.

Comparison of scores on experimental variables between reading disordered and non-reading disordered populations is shown in Table 5. The reading disordered
group indicated significantly fewer modal responses than the non-reading disordered group on all three tests of nonverbal cue perception (p < .01, p < .05, and p < .05).

### TABLE 5

A Comparison of Means for Reading Disordered (RD) and Non-Reading Disordered (NRD) on Tests of Nonverbal Expressional Cue Perception

<table>
<thead>
<tr>
<th>Experimental Variables</th>
<th>RD (N=52)</th>
<th>NRD (N=52)</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Faces</td>
<td>17.29</td>
<td>2.53</td>
<td>18.51</td>
<td>2.68</td>
<td>102</td>
</tr>
<tr>
<td>Expressions</td>
<td>17.83</td>
<td>5.16</td>
<td>19.83</td>
<td>5.40</td>
<td>102</td>
</tr>
<tr>
<td>Stick Figures</td>
<td>17.12</td>
<td>2.93</td>
<td>18.64</td>
<td>3.63</td>
<td>102</td>
</tr>
</tbody>
</table>

Reading disordered and non-reading disordered subjects differed at the .01 level of confidence on the Faces Test (t=2.65). The Expressions Test (t=2.10) and the Stick Figures Test (t=2.57) showed a statistically significant difference at the .05 level of confidence.

Table 6 compares the male reading disordered and male non-reading disordered subjects. Reading disordered male subjects had more nonmodal responses on each of the experimental variables than did non-reading disordered males. The SES factor (t=3.31) was statistically significant at the .01 level of confidence. The Expressions Test only was statistically significant at the .05 level of confidence (t=2.17). Other experimental variables
were not statistically significant.

### TABLE 6

A Comparison of Means for Reading Disordered Males (RDM) and Non-Reading Disordered Males (NRDM) on IQ, SES, and Tests of Nonverbal Cue Perception

<table>
<thead>
<tr>
<th>Variables</th>
<th>RDM (N=35)</th>
<th>NRDM (N=25)</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>IQ</td>
<td>108.03</td>
<td>9.12</td>
<td>110.60</td>
<td>10.65</td>
<td>58</td>
</tr>
<tr>
<td>SES</td>
<td>5.91</td>
<td>2.67</td>
<td>8.00</td>
<td>2.33</td>
<td>58</td>
</tr>
<tr>
<td>Faces</td>
<td>17.46</td>
<td>2.23</td>
<td>18.48</td>
<td>2.77</td>
<td>58</td>
</tr>
<tr>
<td>Expressions</td>
<td>17.86</td>
<td>5.62</td>
<td>20.80</td>
<td>5.08</td>
<td>58</td>
</tr>
<tr>
<td>Stick Figures</td>
<td>16.83</td>
<td>3.16</td>
<td>17.96</td>
<td>3.46</td>
<td>58</td>
</tr>
</tbody>
</table>

Comparison of reading disordered female and non-reading disordered female subjects is shown in Table 7. Reading disordered females had more nonmodal responses than did non-reading disordered females on all the experimental variables. The SES factor was found to be statistically significant. Reading disordered females had a lower socioeconomic index at the .05 level of confidence (t=2.06).

An intragroup comparison between reading disordered males and reading disordered females indicated no statistically significant differences on any variable (see Table 8).
### TABLE 7

A Comparison of Means for Reading Disordered Females (RDF) and Non-Reading Disordered Females (NRDF) on IQ, SES, and Tests of Nonverbal Cue Perception

<table>
<thead>
<tr>
<th>Variables</th>
<th>RDF (N=17)</th>
<th>NRDF (N=27)</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>42</td>
</tr>
<tr>
<td>IQ</td>
<td>109.18</td>
<td>7.32</td>
<td>108.15</td>
<td>12.25</td>
<td>42</td>
</tr>
<tr>
<td>SES</td>
<td>6.0</td>
<td>2.76</td>
<td>7.59</td>
<td>2.48</td>
<td>42</td>
</tr>
<tr>
<td>Faces</td>
<td>16.94</td>
<td>3.11</td>
<td>18.56</td>
<td>2.65</td>
<td>42</td>
</tr>
<tr>
<td>Expressions</td>
<td>17.76</td>
<td>4.22</td>
<td>18.93</td>
<td>2.65</td>
<td>42</td>
</tr>
<tr>
<td>Stick Figures</td>
<td>17.70</td>
<td>2.37</td>
<td>19.26</td>
<td>3.74</td>
<td>42</td>
</tr>
</tbody>
</table>

### TABLE 8

A Comparison of Means for Reading Disordered Males (RDM) and Females (RDF) on IQ, SES, and Tests of Nonverbal Cue Perception

<table>
<thead>
<tr>
<th>Variables</th>
<th>RDM (N=35)</th>
<th>RDM (N=17)</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>50</td>
</tr>
<tr>
<td>IQ</td>
<td>108.03</td>
<td>9.12</td>
<td>109.18</td>
<td>7.32</td>
<td>50</td>
</tr>
<tr>
<td>SES</td>
<td>5.91</td>
<td>2.67</td>
<td>6.0</td>
<td>2.76</td>
<td>50</td>
</tr>
<tr>
<td>Faces</td>
<td>17.46</td>
<td>2.23</td>
<td>16.94</td>
<td>3.11</td>
<td>50</td>
</tr>
<tr>
<td>Expressions</td>
<td>17.86</td>
<td>5.62</td>
<td>17.76</td>
<td>4.22</td>
<td>50</td>
</tr>
<tr>
<td>Stick Figures</td>
<td>16.83</td>
<td>3.16</td>
<td>17.71</td>
<td>2.37</td>
<td>50</td>
</tr>
</tbody>
</table>
Table 9 shows intragroup comparison of non-reading disordered males and females. No statistically significant difference was found on any variable.

**TABLE 9**

A Comparison of Means for Non-Reading Disordered Males (NRDM) and Females (NRDF) on IQ, SES, and Tests of Nonverbal Cue Perception

<table>
<thead>
<tr>
<th>Variables</th>
<th>NRDM (N=25)</th>
<th>NRDF (N=27)</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>IQ</td>
<td>110.60</td>
<td>10.65</td>
<td>108.15</td>
<td>12.25</td>
<td>50</td>
</tr>
<tr>
<td>SES</td>
<td>8.0</td>
<td>2.33</td>
<td>7.59</td>
<td>2.48</td>
<td>50</td>
</tr>
<tr>
<td>Faces</td>
<td>18.48</td>
<td>2.77</td>
<td>18.55</td>
<td>2.65</td>
<td>50</td>
</tr>
<tr>
<td>Expressions</td>
<td>20.80</td>
<td>5.08</td>
<td>18.93</td>
<td>5.62</td>
<td>50</td>
</tr>
<tr>
<td>Stick Figures</td>
<td>17.96</td>
<td>3.46</td>
<td>19.26</td>
<td>3.74</td>
<td>50</td>
</tr>
</tbody>
</table>

**Summary of Findings**

Findings in relation to control variables. Fifty-two reading disordered and 52 non-reading disordered subjects were matched on the control variables of age, grade, ethnic background, and intelligence. The sex distribution of the two groups was not matched. Twice as many males than females were represented in the reading disordered group. An approximately even distribution was maintained in the non-reading disordered group.

The socioeconomic status of the two groups was
markedly different. There was a statistically significant difference on the SES index between the reading disordered and non-reading disordered populations, the highest SES rating being obtained by the non-reading disordered subjects.

Findings in relation to experimental variables. On three tests of nonverbal expressional cues the reading disordered subjects had fewer modal responses than the non-reading disordered subjects. There was a statistically significant difference between these two groups on all tests of nonverbal cue perception. When reading disordered and non-reading disordered males were compared, statistically significant differences were noted in relation to the SES factor and the Faces Test. The SES factor also played an important role in differences found between the reading disordered and non-reading disordered females. Intragroup comparisons showed no statistically significant differences on any variable.

Findings in relation to hypotheses. The first hypothesis stated that there would be a significant difference between the scores of a group of reading disordered and a group of non-reading disordered students on tests of perception of nonverbal expressional cues. This hypothesis was substantiated. Scores of reading disordered and non-reading disordered subjects were significantly different on all three tests measuring perception of nonverbal
expressional cues (p ≤ .01 and p ≤ .05).

The second hypothesis held that there would be a significant difference in favor of the reading disordered students in terms of nonmodal responses when compared with non-reading disordered students on tests of nonverbal expressional cue perception. This hypothesis was substantiated. The scores of the reading disordered subjects were significantly lower and more nonmodal than the non-reading disordered subjects' scores on all tests of nonverbal expressional cue perception (p ≤ .01 and p ≤ .05).

The third hypothesis stated that there would be a significant difference in favor of the male reading disordered students in terms of nonmodal responses when compared with female reading disordered students on tests of perception of nonverbal expressional cues. This hypothesis was not substantiated. There was no statistically significant difference between the scores of the male and female reading disordered populations.

In conclusion, the findings supported the first two hypotheses, but not the third. Reading disordered students were significantly different from non-reading disordered students on tests of nonverbal expressional cue perception. The difference favored reading disordered subjects in terms of nonmodal responses. There was no significant difference between the male and female reading disordered students in terms of nonmodal responses.
CHAPTER IV

Conclusions, Implications, and Summary

The overall task of the present investigation was to find the extent to which a correlation existed between social perception and reading difficulties. An abundance of literature was available regarding the separate areas of social perception and reading disorders. No research studies tended to relate these two areas. This study was designed to provide some empirical evidence of the relationship between perception of nonverbal expressional cues and reading disorders.

Conclusions

Sample students represented twice as many male as female high school students who were two or more years behind grade level in reading achievement. Earlier studies have suggested that male personality correlates differ from those of girls, that parents and teachers relate differently to children of different sexes and have different sets of expectations for boys and girls, and that a child's perception of his parents and himself differ in accordance with his sex (Taylor & Combs, 1952; Meyer & Thompson, 1956; Kagan, 1956). It is accepted that
the male sequence of motor development and maturation level is completed later than the female (Breckenridge & Vincent, 1955). The present evidence supplies more evidence favoring the popular argument that boys should start their formal education later than girls. Differences in expectations and development of the sexes lead to different levels of skill acquisition at specific ages. Teaching techniques should be employed that will benefit students emotionally, socially, and academically. Evidenced by the 2:1 ratio of male reading disordered students to female reading disordered students, this has not been successfully accomplished insofar as the study population is concerned.

Socioeconomic status plays an important role in a student's level of reading achievement. Non-reading disordered high school students had a statistically higher SES index than did reading disordered high school students. The most distinctive characteristic of the low socioeconomic group was their low productivity, due perhaps to the fact that a large proportion of family units are headed by persons who do not command a high income because of age, illness, lack of training, or work experience (Seligman, 1965). The causes of poverty are many, but the consequences are devastating. Poverty children tend to become poorly motivated essentially because they rarely experience any reward or punishment in the family.
for success or failure in school.

If there is no mechanism for prompting children to gain and sustain academic interest and achievement, the school system as it is structured cannot succeed... the poverty child usually does not even have books and pencils in the home environment [Seligman, 1965, p. 107].

The inability of the school system to cope adequately with the problems of the poor needs to be remedied.

There were statistically significant differences between the scores of a group of reading disordered and a group of non-reading disordered students on tests of non-verbal expressional cues. This strongly suggests that the primary reading skills described by Spencer (1970) are a necessary ingredient in becoming a successful reader. Schools should incorporate the "reading" of one's environment before attempting to teach the printed word. Thus, evidence contained in this study gives strong support to the notion-rich preschool experiences which are likely to contribute to later success in the reading of books in school.

Study subjects showed more nonmodal responses on tests of perception of nonverbal cues for the reading disordered when compared with the non-reading disordered students. Again, the concepts of Spencer are given increased importance.

Finally, there were no statistically significant differences between reading disordered males and reading
disordered females in terms of nonmodal responses on tests of perception of nonverbal expressional cues. Both males and females displayed similar disturbances of expressional cue perception. It is important to remember, however, that there were twice as many reading disordered males as females.

**Implications**

Empirical evidence has been presented to support the idea that direct experiencing of the nonverbal world is necessary for successful reading development.

The student's reading of the things of his physical world, and of himself, and those who surround him in his social world, will provide the extent and quality of his primary reading. . . . From this basis further educational development of both non-symbolic and symbolic nature may be developed as part of the total reading program [Spencer, 1970, p. 76].

This study delved into the relationship between social perception and reading. Further investigations must be attempted in this area. The instruments for assessing social perception are also limited and need to be improved and standardized. Longitudinal studies of social perception could reveal critical stages of development for acquisition of skills used in nonverbal perception.

The control variables of sex, socioeconomic status, and ethnic background were found to be related to differences in social perception and reading achievement.
Future studies should investigate the independent significance of these factors. For instance, what part does one's sex play in reading achievement? How does one's socioeconomic role influence his perception of nonverbal expressional cues? What other ways does one's economic level affect his academic success? What elements contribute to the significantly lower reading achievement level of minority students? Are cultural differences necessarily detrimental to social perception and school success? The answers to these questions are crucial to understanding the individual and his educational advancement.

The study of perception of social cues in relation to reading disorders needs attention. Such investigations may provide insights which could reduce reading disorders. School programs and curriculum planning must take into account students' psychological, social, and academic needs.

We can learn. Man is capable of growth and maturity. But he must have a place and an opportunity. And of our social institutions the educational system, at least, must change its ways and become a major contributor toward that end. It can do that by recognizing the importance of affective or emotional learning as a primary educational function. Administrators and teachers must become cognizant of how the integration of affective learning with cognitive learning benefits both domains [Brown, 1971, p. 17].
Summary

The theoretical framework of this study was based on the role theory defined by Sarvin and the concept of interpersonal relations developed by Sullivan. Hypotheses were formulated from both the review of relevant literature and the experiences of the investigators.

The review of literature provided reasonable background in the respective areas of reading disorders and social perception. There was a dearth of research concerned with the relationship between these two areas.

Three hypotheses were formulated. The first hypothesis held there would be a significant difference between the scores of a group of reading disordered and a group of non-reading disordered students on tests of perception of nonverbal expressional cues. The second hypothesis predicted there would be a significant difference in favor of the reading disordered students in terms of nonmodal responses when compared with non-reading disordered students on tests of perception of nonverbal cue perception. The third hypothesis stated there would be a significant difference in favor of male reading disordered subjects in terms of nonmodal responses when compared with female reading disordered subjects on tests of perception of nonverbal expressional cues.

Fifty-two reading disordered and 52 non-reading disordered high school students were matched on the
control variables of age, grade, ethnicity, and intelligence. Nonverbal expressional cue perception was measured by Sarbin's Stick Figures Test and Guilford's Faces and Expressions tests.

Data were collected during the last two weeks in November, 1972. Subjects were students enrolled in the Reading Center of a Los Angeles County high school. Accumulated data were codified for electronic data processing and were processed using the IBM computer facilities of the Health Sciences Department at CSUN. Means, standard deviations, chi-square and t tests of differences were computed. Comparisons were made between the reading disordered and non-reading disordered populations, between the males and females of each group, and within each group. Findings supported two of the three hypotheses.
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Rogers, C. R. Freedom to learn. Columbus, Ohio: Charles Merrill, 1969.


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Questionnaire Used With High School Population

Name ____________________________

Sex: Male _____ Female _____

Birthdate (month) (day) (year)

Occupation of Head of Household _______________________

______________________________

______________________________