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A STUDY OF NONVERBAL COMMUNICATION AND  
LEADERSHIP EMERGENCE IN TASK-ORIENTED  
AND INFORMAL SMALL GROUPS

by  
Arline F. Schubert


Bachelor of Arts, University of North Dakota, 1967

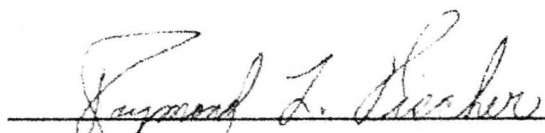
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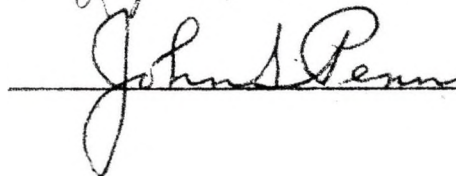
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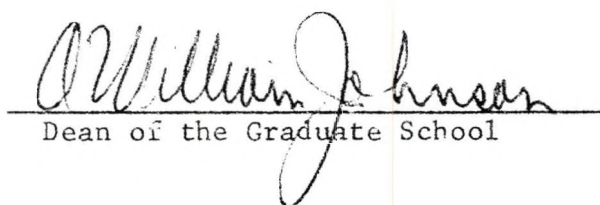
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## ABSTRACT

This study was designed to investigate the nonverbal cues exhibited by participants in informal and task-oriented groups. The following hypotheses were examined: 1) Leaders exhibit significantly more nonverbal cues than do nonleaders in task-oriented and informal small groups; 2) Members of a task-oriented small group will exhibit significantly more nonverbal cues than members of the informal small group; 3) An interaction effect will occur with leaders of the task-oriented groups exhibiting significantly more nonverbal cues than leaders of the informal groups.

Subjects for this study were fifty undergraduate students enrolled in Speech Pathology and Audiology 232 at the University of North Dakota. Volunteers from the class were randomly placed into ten discussion groups consisting of five members each. Five of the groups were designated as task-oriented small groups and five were designated as informal small groups. The type of group was determined by random selection. The topic for the informal group was chosen spontaneously by each individual group. The task-oriented groups were given a specific question and were directed to arrive at a consensus within the one hour. Following each group discussion, a questionnaire which elicited pertinent answers to questions regarding roles of individuals within each group was administered.



Each discussion session was videotaped during predetermined intervals for later analysis. The videotapes then were shown to a group of observers who were asked to record the occurrences of four types of nonverbal behaviors: 1) Head; 2) Face; 3) Postural shift; and 4) gesticulation. These data, along with the information obtained from the group participants, were then analyzed to test the three experimental hypotheses.

The first hypothesis was supported in the instance of head agreement. Leaders did exhibit significantly more head agreement. However, there was no support in the other nonverbal categories. When examining the correlation coefficients, support was provided by the significant correlation between perceived leader and head agreement.

Support for the second hypothesis came from the nonverbal cue of facial disagreement. The results showed that a significant difference existed between task-oriented and informal groups when examining facial disagreement. The task-oriented group members exhibited more facial disagreement than did the informal group members. No support was evident in the other categories.

Hypothesis three was supported by the findings for head agreement and gesticulation from shoulder, arm and wrist. When examining those two categories, it was noted that there was an interaction effect between the task-oriented and informal groups. Leaders exhibited more head agreement and gesticulation than did nonleaders, with leaders of the task-oriented group exceeding all other conditions. There was no support in the remaining categories.

## CHAPTER I

### INTRODUCTION

The field of small group discussion has comprised much of the communication research since 1950. Investigators in the field of small group research recognize that speech plays an important part in human social behavior and have suggested that in future studies the message should be of prime importance. However, authorities caution that the balance of communication be constant. The investigators in small group research have stressed the verbal message and neglected the nonverbal message. Theories of communication have been presented by Berlo,<sup>1</sup> Shannon and Weaver,<sup>2</sup> Barnlund,<sup>3</sup> and Tubbs<sup>4</sup> which stress the channel, the source, encoding, and decoding, but overlook the importance of

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<sup>1</sup>David K. Berlo, The Process of Communication: An Introduction to Theory and Practice (New York: Holt, Rinehart, and Winston, Inc., 1960), p. 72.

<sup>2</sup>Claude Shannon and Warren Weaver, The Mathematical Theory of Communication (Urbana, Illinois: The University of Illinois Press, 1949), p. 5.

<sup>3</sup>Dean Barnlund, "A Transactional Model of Communication," in Speech Communication Behavior: Perspectives and Principles, ed. by L. L. Barker and R. J. Kibler (Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1971), pp. 71-80.

<sup>4</sup>S. L. Tubbs, "An Interpersonal Committee Model," in Speech Communication Behavior: Perspectives and Principles, ed. by L. L. Barker and R. J. Kibler (Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1971), p. 33.

nonverbal communication. The stress on the verbal message by these suggested theories is upsetting the balance of the communication act. The communication act consists of two equal communicative divisions, the verbal message and the nonverbal message. According to Knapp when an imbalance occurs in the communication act, it is often necessary to separate artificially the verbal and the nonverbal acts in order to restore the balance.<sup>5</sup> This study will investigate nonverbal communication in isolation in order to help restore the necessary balance between the verbal and nonverbal communication acts. It is as Argyle stated, "Some of the most important findings in the field of social interaction are about the ways that verbal interaction needs the support of nonverbal communication."<sup>6</sup>

Since interpersonal communication theories involve the roles of the sender and the receiver, they extend to the group situation. Groups today are used extensively by business, industry, and education. The decisions made are now being made in large part by decision-making groups. These are basically task-oriented small groups working toward a goal or objective. Just as important to human communication is the informal group. This informal group is casual and loosely organized. The members are free to discuss whatever they wish. Due to the difference in purpose, the leader of the group will be selected for various reasons. Because the task-oriented group is a decision-making body,

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<sup>5</sup>Mark L. Knapp, Nonverbal Communication in Human Interaction (New York: Holt, Rinehart, and Winston, Inc., 1972), pp. 1-12.

<sup>6</sup>Michael Argyle, Social Interaction (New York: Atherton Press, 1969), pp. 70-71.



the leader will need to fulfill certain functions of leadership which the leader of an informal group will not.

Authorities in the field of communication have generally advanced two theories of leadership emergence in group discussions: the situational theory and the functional theory. Situational theorists argue that the person who emerges as the leader does so because of the situation at hand. Proponents of the functional theory view leadership as the performance of such acts which help the group achieve its goals. Despite their differences, however, there are two common denominators between the functional and situational theories: 1) that leadership and leaders vary from group to group; and 2) that situational aspects of the group will help to determine the needed group functions.

If Knapp's observations on the method of obtaining balance in the communication act are true, then a study of leadership emergence via the observation of nonverbal variables appears to be a worthwhile undertaking. Moreover, since little or no data exist on the influence of nonverbal communication upon the emergence of leadership, and since authorities contend that studies should be done on communicative variables, a study considering the relationship between nonverbal communication and leadership emergence would be of some value.

With the communicative variables of emerging leadership and nonverbal communication effects in the interpersonal small group situation in mind, the purposes of this study will be to determine whether there are differences in the nonverbal behaviors exhibited by leaders and non-leaders in small group discussions, and to determine if

there are differences in the nonverbal behaviors exhibited by leaders of informal groups and leaders of task-oriented groups.

## CHAPTER II

### REVIEW OF THE LITERATURE

This chapter surveys studies in group leadership and nonverbal communication which suggest that the two areas may be related, and then poses three hypotheses through which the existence of such a relationship might be determined.

#### Leadership

Since Lewin and Lippitt's pioneer study of autocracy and democracy, investigators have sought to determine those qualities which characterize leadership.<sup>1</sup> The earliest of these investigations sought to identify traits which distinguished leaders from nonleaders. Bird, in one of the earliest surveys on individual traits characterizing leadership, found 79 traits mentioned in 20 studies. However, only five per cent of these traits were common to four or more of the studies.<sup>2</sup> Stodgill completed a similar survey which corroborated Bird's findings. Stodgill listed the most commonly identified leadership traits as: 1) physical and constitutional factors: height, weight,

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<sup>1</sup>Kurt Lewin and Ronald Lippitt, "An Experimental Approach to the Study of Autocracy and Democracy: A Preliminary Note," Sociometry, 1 (1938), pp. 292-300.

<sup>2</sup>C. Bird, Social Psychology (New York: Appleton-Century-Crofts, 1940), pp. 57-73.

physique, and appearance; 2) intelligence; 3) self-confidence; 4) sociability; 5) will, including initiative, persistence, and ambition; 6) dominance; and 7) surgency: talkativeness, enthusiasm, alertness, and originality.<sup>3</sup> However, in 1947, one year prior to Stodgill's survey, Gibb theorized that leadership is not a quality which a man possesses, but an interactional function of personality and the social situation.<sup>4</sup> This school of thought soon replaced the trait approach to group leadership.

Three years later, Carter and her associates established fifty-three categories which classified the behavior of the subjects according to behaviors exhibited. The behavior of the leaders was compared to the behavior of the non-leaders and significant differences between leaders and non-leaders were found in twenty of the fifty-three categories investigated. A finding in this study was that one of the behaviors which differentiated the leader from the non-leader regardless of the task involved was the making of interpretations about the situation and giving information on how to carry out the activity. It was also found that in some cases the leader's behavior was determined by the assigned task.<sup>5</sup>

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<sup>3</sup>Ralph M. Stodgill, "Personal Factors Associated with Leadership: A Survey of the Literature," Journal of Psychology, 25 (1948) pp. 35-36.

<sup>4</sup>C. A. Gibb, "The Principles and Traits of Leadership," Journal of Abnormal and Social Psychology, 42 (1947), pp. 267-284.

<sup>5</sup>Launor Carter, William Haythorn, Beatrice Shriver and John Lanzetta, "The Behavior of Leaders and Other Group Members," Journal of Abnormal and Social Psychology, 46 (1950), pp. 589-595.



More recently, Crockett found that emergent leaders had a far higher participation rate than the members in general, and thus they were rated high by other members with regard to being needed by the group. The results of this study fit into the general theory of leadership which states that, all other things being equal, members who are most strongly motivated to perform the leadership functions will be those who take over the leadership role, and that those members who perform the leadership function will be more highly valued than the other members of the group.<sup>6</sup>

Two additional leadership roles were described by Bales and Slater. The two were a task role concerned with managing the task needs of the group, and a social-emotional role concerned with alleviating interpersonal problems and hostilities.<sup>7</sup>

Hemphill suggested several behavioral processes which seem to be important in determining the effectiveness of leadership. These can be placed into three categories: 1) providing flexibility and adaptability in handling changing requirements as new situations develop; 2) providing the group with structure and setting goals; 3) establishing productive social relationships by consistently showing emotional

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<sup>6</sup>Walter H. Crockett, "Emergent Leadership in Small, Decision-Making Groups," Journal of Abnormal and Social Psychology, 51 (1955), pp. 378-383.

<sup>7</sup>Robert F. Bales and P. E. Slater, "Role Differentiation in Small Decision-Making Groups," in Family Socialization and Interaction Process, ed. by T. Parsons and R. F. Bales (New York: Free Press, 1955), pp. 77-91.

stability, dependability, and fairness in distributing rewards.<sup>8</sup> The last leadership function is further illustrated by Hollander who noted that, "The leader has a great deal of visibility and therefore, his actions will be interpreted in some sense as signifying the 'goodness' or 'badness' of the actions of group members."<sup>9</sup>

Fiedler formulated his "Least Preferred Co-Worker Scale" which measured leadership style. This scale approached comparison of task-oriented and social-emotional types of group leadership from a standpoint of personality. A low score on the scale classified a person as one who derived satisfaction from task success, and a high score on the scale classified a person as one who derives satisfaction from interpersonal success. From the Least Preferred Co-Worker Scale, Fiedler was able to measure the individual's motivation to satisfy his need for recognition and self-esteem. The person who emerged the leader with a high rating on the scale felt a need for more interpersonal relations than did the low scoring person. The high scoring individual concentrated on maintaining good relations with the members of the group, while the low scoring leader concentrated on the task. Often

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<sup>8</sup>J. K. Hemphill, "Why People Attempt to Lead," in Leadership and Interpersonal Behavior, ed. by L. Petrullo and B. Bass (New York: Holt, Rinehart and Winston, 1961), pp. 201-215.

<sup>9</sup>Edwin P. Hollander, "Leader Effectiveness and Influence Process," in Leaders, Groups, and Influences, ed. by E. P. Hollander (London: Oxford Press, 1964), pp. 103-109.

this second type of leader was less efficient because he was too task-oriented.<sup>10</sup>

McGrath and Altman determined that member performance in group situations can be predicted more consistently from knowledge of intelligence and job related characteristics than from personal-social properties. Furthermore, they found that feedback from the leader in the form of reward and evaluation of contributions enhance member performance.<sup>11</sup>

Cartwright and Zander stated that any given behavior in a group may have significance both for goal achievement and group maintenance. They listed the following examples of behaviors which serve functions of goal achievement:

1. Initiates action
2. Keeps members attention on the goal
3. Clarifies the issues
4. Develops a procedural plan
5. Evaluates work done
6. Makes expert information available

They also listed the following examples of behaviors which serve functions of group maintenance:

1. Keeps interpersonal relations pleasant
2. Arbitrates disputes
3. Provides encouragement
4. Gives the minority a chance to be heard

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<sup>10</sup>Fred E. Fiedler, "A Contingency Model of Leadership Effectiveness," in Advances in Experimental Social Psychology, ed. by L. Berkowitz (New York: Academic Press, 1964), pp. 79-98.

<sup>11</sup>Joseph E. McGrath and Irwin Altman, Small Group Research. (New York: Holt, Rinehart, and Winston, 1966), p. 63.



5. Stimulates self-direction
6. Increases the interdependence among members.<sup>12</sup>

Mortensen studied the problem of assigned leadership as opposed to leadership emergence. He developed content categories based on quantitative descriptions of communication in task-oriented small groups. This was a ten-category system which measured attempted leadership and response to attempted leadership. The five leadership-related communication categories were:

- 1A. Introducing and formulating goals, tasks, procedures.
- 1B. Eliciting communication from other group members.
- 1C. Delegating, directing action.
- 1D. Showing consideration for group activity.
- 1E. Integrating and summarizing group activity.

It was found that in every group the individual who was contributing the most communications coded into categories 1A-1E was also the member who was perceived as the natural leader of the group by both the participants and the observers.<sup>13</sup>

In a study performed by Geier, positive and negative factors involved in leadership emergence were examined. His study revealed that leaders are perceived as those individual members who most frequently assume leadership functions; therefore, a member might achieve leadership because he took an interest in his fellow member and had a helpful attitude. Geier found that nonparticipation, which was

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<sup>12</sup>Dorwin Cartwright and Alvin Zander, Group Dynamics Research and Theory (New York: Harper and Row, Publishers, 1968), p. 306.

<sup>13</sup>Calvin D. Mortensen, "Should the Discussion Group Have an Assigned Leader?" Speech Teacher, 15 (1966), pp. 34-41.



perceived as ignorance, and extreme rigidity in group interaction contributed to leader rejection.<sup>14</sup>

In still another study, Bostrom studied the patterns of communication interaction in small groups and found that individuals who confine their communicative activity to one or two other participants occupy a restricted or less "central" position. He also related that discussion members chosen as leaders were significantly higher in individual sends, individual receives, group sends, and centrality.<sup>15</sup>

#### Nonverbal Communication

Nonverbal language contributes significantly to human communication. Birdwhistle contended that what a receiver sees guides his understanding of what he hears. The sender, too, relies on visual cues sent to him from the receiver to indicate the impact of his message. Whenever the received verbal and nonverbal cues conflict, the visual cues are believed while the words themselves are discounted.<sup>16</sup>

There have, however, been some difficulties involved in measuring nonverbal behaviors. In 1964, Ekman stated that:

There has been relatively little systematic investigation of the information which may be transmitted through spontaneous

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<sup>14</sup>John G. Geier, "A Trait Approach to the Study of Leadership in Small Groups," Journal of Communication, 17 (1967), pp. 316-322.

<sup>15</sup>Robert N. Bostrom, "Patterns of Communicative Interaction in Small Groups," Speech Monographs, 37 (1970), p. 257-263.

<sup>16</sup>Ray L. Birdwhistle, "Kinesic Analysis of the Investigation of Emotions," in Expression of the Emotions of Man, ed. by P. H. Knapp (New York: International University Press, 1963), pp. 123-139.

nonverbal behavior shown during interpersonal transactions. Research pertaining to body movement and facial expression has had to deal with a phenomenon which is continuously occurring, has no readily apparent unit of measurement or method of evaluation, and is both difficult and expensive to record. The major problem in exploration of the nonverbal aspects of interview behavior may at least initially appear to be the acquisition of a permanent record.<sup>17</sup>

Mortensen responded to Ekman's argument with the following statement:

. . . with the advances in instrumentation, the researcher no longer must depend upon the written transcription of the group session for his analysis. It is possible with the use of videotape and videotape equipment to record an accurate, on-going interpersonal exchange with all of the communication variables including vocal intensity together with the relevant nonverbal message factors recorded. Nonverbal communication no longer must go unrecorded.<sup>18</sup>

Recent discussion has led researchers to consider the relative importance of nonverbal communication as a communication variable. However, nonverbal communication cannot be considered until divided into segments for special examination. Four particularly relevant variables within the category of nonverbal communication are facial movements or expressions, gesticulation or hand movements, head movements, and postural shift or body posture.

The first of the nonverbal variables is facial movements or expression. Weaver and Strausbaugh contended that facial movements are adaptive movements of the organism responding to all internal and

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<sup>17</sup>Paul Ekman, "Body Position, Facial Expression, and Verbal Behavior During Interviews," Journal of Abnormal and Social Psychology, 48 (1964), pp. 295-301.

<sup>18</sup>C. David Mortensen, "The Status of Small Group Research," Quarterly Journal of Speech, 55 (1970), pp. 304-309.

external stimuli at once. These authors maintained that because the perception of visual language affords almost simultaneous stimulation of the brain, glands, and muscles while spoken language involves discrete stimuli or words in linear presentation, visual language may have more immediate impact.<sup>19</sup>

Ekman suggested that some information relating to the verbal behavior is conveyed by spontaneous nonverbal behavior. In addition to specific meanings, nonverbal behavior may also communicate more general information about the sender, such as information about activity level, anxiety, or the accumulation and discharge of tension. This was verified by a series of four experiments. Among the important findings of these studies was the fact that facial expression spontaneously shown during an interview is not random activity or noise, but that it does have specific communication value related to the verbal behavior.<sup>20</sup>

Evidence from studies conducted by Rosenfeld consistently supported the interpretation of smiles as approval-seeking devices. Assuming that smiles are signs of approval, as well as ways of attempting to induce approving responses in others, reciprocation can be interpreted as an indication of their effectiveness as instrumental affiliative behaviors.<sup>21</sup>

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<sup>19</sup>C. H. Weaver and W. L. Strausbaugh, Fundamentals of Speech Communication (New York: Van Nostrand Reinhold Co., 1964), p. 187.

<sup>20</sup>Ekman, "Body Position, Facial Expression, and Verbal Behavior During Interviews," pp. 295-301.

<sup>21</sup>Howard Rosenfeld, "Instrumental Affiliative Functions of Facial and Gestural Expressions," Journal of Personality and Social Psychology, 4 (1966), pp. 65-72.



In investigating the persuasiveness of a communication, Mehrabian and Williams found more facial activity by the person trying to persuade. This finding was supported by a series of additional experiments performed by these experimentors.<sup>22</sup> Investigating the ability to communicate and infer positive and negative attitudes facially and vocally, Zaidel and Mehrabian discovered that the facial channel was generally more effective than the vocal channel.<sup>23</sup>

A second variable of nonverbal communication is gestural signals. Rosenfeld determined gesticulations to be characteristic of approval-seeking because of the significant positive correlation with smiles in his two studies.<sup>24</sup> Mehrabian and Williams found in several experiments that a person attempting to persuade will exhibit a higher rate of gesticulation than a person who is not attempting to persuade.<sup>25</sup> In the same study, Mehrabian and Williams noted that one of the non-verbal behaviors which elicits disapproval of the group is gesturing of the fingers which shows boredom. Therefore, gesticulation seems to be a second type of nonverbal cue which plays an important role in communication.

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<sup>22</sup>Albert Mehrabian and M. Williams, "Nonverbal Concomitants of Perceived and Intended Persuasiveness." Journal of Personality and Social Psychology, 13 (1969), pp. 37-58.

<sup>23</sup>S. Zaidel and Albert Mehrabian, "The Ability to Communicate and Infer Positive and Negative Attitudes Facially and Vocally," Journal of Experimental Research in Personality, 13 (1969), pp. 233-241.

<sup>24</sup>Rosenfeld, "Instrumental Affiliative Functions of Facial and Gestural Expressions," pp. 65-72.

<sup>25</sup>Mehrabian and Williams, "Nonverbal Concomitants of Perceived and Intended Persuasiveness," pp. 37-58.

A third variable to consider in studying nonverbal communication is the head movement made during the act of communication. In his studies, Rosenfeld also noted significant positive correlation between smiles and positive head nods.<sup>26</sup> Dittman and Llewellyn stated that head nods are most likely to be found at points of interaction between speaker and listener; therefore, head nods have a social function.<sup>27</sup> Mehrabian and Williams found more head nodding among group participants trying to persuade.<sup>28</sup> They added that disagreement is illustrated not only by words, but by a side-to-side shake of the head, perhaps combined with various facial expressions. Again, head movements would seem to play an important role in communication.

A fourth nonverbal variable is postural shift. Ekman discovered in his four experiments that body position spontaneously displayed during an interview was not random activity, but that it had specific communicative value related to the verbal behavior.<sup>29</sup> Rosenfeld stated that certain body posture and postural shifts appeared to reveal discomfort and served as approval-avoiding functions.<sup>30</sup> The

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<sup>26</sup>Rosenfeld, "Instrumental Affiliative Functions of Facial and Gestural Expressions," pp. 71-72.

<sup>27</sup>A. Dittman and L. G. Llewellyn, "Relationship Between Vocalization and Head Nods as Listener Response," Journal of Personality and Social Psychology, 9 (1968), pp. 79-84.

<sup>28</sup>Mehrabian and Williams, "Nonverbal Concomitants of Perceived and Intended Persuasiveness," pp. 37-58.

<sup>29</sup>Ekman, "Body Position, Facial Expression, and Verbal Behavior During Interviews," pp. 295-301.

<sup>30</sup>Rosenfeld, "Instrumental Affiliative Functions of Facial and Gestural Expressions," pp. 65-72.

person attempting to persuade, as studied by Mehrabian and Williams, exhibits a lower rate of postural shift and self-manipulation.<sup>31</sup>

In summary, nonverbal communication appears to be an ubiquitous, involuntary action accompanying verbal communication. Furthermore, it has been shown that such nonverbal cues as facial expressions, gesticulations, head movements, and postural shifts provide considerable information to observers. Indeed, some authorities have said that people believe what they see rather than what they hear.

The following hypothesis will be examined as a means of assessing this relationship.

H<sub>1</sub>: Leaders exhibit significantly more nonverbal cues than do nonleaders in task-oriented and informal small groups.

This is anticipated because leadership is an interactional function of personality. When a group member is motivated toward a goal, his participation rate in the discussion is increased. With an increase in participation, a member will attempt certain leadership functions and will exhibit nonverbal behaviors which will be significant in fulfilling the leadership function.

H<sub>2</sub>: Members of a task-oriented small group will exhibit significantly more nonverbal cues than members of the informal small group.

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<sup>31</sup>Mehrabian and Williams, "Nonverbal Concomitants of Perceived and Intended Persuasiveness," pp. 37-58.

Task-oriented small groups will involve more participation by members because of the task involvement. Members will feel more motivated and attempt more persuasion in the task-oriented groups. In the task-oriented group, the members anticipate that cohesiveness must be present; therefore, task-oriented group members attempt more leadership functions.

H<sub>3</sub>: An interaction effect will occur with leaders of the task-oriented groups exhibiting significantly more nonverbal cues than leaders of the informal groups.

Leaders of the task-oriented small groups will attempt leadership functions which will be accompanied by specific nonverbal cues. Due to the task involved in task-oriented small groups, leaders of task-oriented groups will exhibit more nonverbal cues.



## CHAPTER III

### PROCEDURES

This chapter describes the methods and procedures used to investigate the relationship between nonverbal communication and leadership emergence. Comments concerning the subject selection, method of recording discussion sessions, observer training session, and duties of the observers will be included in this chapter. The nonverbal behavior categories used by the observers in recording their observations will be described.

#### Discussion Groups

##### Subjects

The subjects were selected from volunteers from the Introduction to Speech Pathology (SPA 232) class at the University of North Dakota during the fall semester of the 1973-1974 academic school year. Volunteers from the class were randomly placed into ten discussion groups consisting of five members each. Five of the groups were designated as task-oriented small groups and five were designated as informal small groups. The type of group was determined by random selection.

##### Methodology

The subjects were instructed as to the place and time of the meeting. Before beginning the discussion, each member of the group read



a page of instructions containing a brief explanation of the specific task (Appendix A). The examiner also read the instructions to the group at this time. It was explained that this was research being done for a Master's thesis, and that it was an investigation in the field of communication.

The task-oriented groups were directed to discuss the following question which was suggested by the instructor of the Introduction to Speech Pathology and Audiology class: Considering the speech therapy situation and a speech problem in general, which would be the greater handicap, the psychological problems which exist or the speech problem itself? This topic was used because it was anticipated by the instructor of the class that the students could discuss this question in some detail since they had just finished discussing the psychological problems of the speech handicapped person. Each group discussion lasted for sixty minutes, and the group was required to reach a consensus by the end of the discussion. Following the group discussion period, the students were given a questionnaire which they were asked to complete (Appendix B).

The topic for the informal discussion groups was chosen spontaneously by each individual group. The informal group was not given a specific task, but was instructed to continue the discussion for sixty minutes. At the end of the sixty minute discussion each person was asked to complete the same questionnaire given the task-oriented groups.

The questionnaire which was submitted to the groups for completion asked questions pertinent to the roles of the group members. Examples

of the questions were: Who did you perceive the leader of the group to be? Who was the most informed member of the group? Who was the most liked member of the group? Who was the most agreeable member of the group? Who was the most disagreeable member of the group? Which of the members seemed to enjoy this discussion the most? Which of the members seemed to enjoy this discussion the least? (Appendix C). It was felt that each of these questions would provide useful information concerning why certain members emerged as group leaders.

#### Videotaping the Discussion Session

A twenty minute sampling of each of the groups was videotaped for data analysis. The decision of what segments to film was based upon the theory which Bormann presents in Discussion and Group Methods. Bormann stated that a discussion is divided into four segments: first is the removal of primary tensions; second is when suggestions are made and rejected; third is where group members speak out against plans or support plans and an understanding of each member and plan submitted takes place, making way for the ultimate work which will follow; and the fourth is the work session.<sup>1</sup> A five minute time segment was selected out of each of these sections as a representative sampling. The first five minute recording was made after the discussion had continued for ten minutes. This was to represent the time spent releasing primary tensions. The second recording occurred twenty-five minutes after the discussion began and it lasted for ten minutes. This

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<sup>1</sup>Ernest G. Bormann, Discussion and Group Methods (New York: Harper and Row, Publishers, 1969), pp. 167-170.

was to represent the most productive sections of the discussion. The third recording was for a five minute period and occurred at the forty-five minute mark. This period of time was nearing the end of the discussion, but was at a point where fatigue was not yet apparent. The discussion sessions were taped in the evenings in a therapy room which was furnished with a table and five chairs. The five members of the discussion groups were seated in a semi-circle at a round table so that each member could be observed on the videotape. The videotape recorder and camera were shielded from the discussion group.

All discussion groups were videotaped during the second and third weeks of the academic school year, 1973-1974. This period of the semester was chosen so that the possibility of prior interaction among the discussants was minimal.

### Observers

#### Subjects

The subjects serving as the observers were volunteers from the Introduction to Speech Pathology (SPA 232) class at the University of North Dakota. The ten people were randomly selected from those who had volunteered to observe the videotaped segments from the discussions of the groups.

Prior to observing the videotapes, each observer was given a one-hour training period. A ten minute tape was specifically made for training purposes. This ten minute tape was an informal group discussion by five people not used previously in the study. The tape was shown after a twenty minute discussion session in which the



categories were explained and the observers were made aware of the nonverbal behaviors they were to note.

The training tape was shown twice to the observers. The first time it was shown, the observers recorded their data and asked questions. The notations were tabulated from the first viewing, and the tape was shown a second time. The observers again made their notations and these were tabulated. Two viewings were used to verify that the observers knew what it was they were to observe when the actual discussion groups were reviewed.

Each observer was then randomly placed on a team consisting of himself and four other observers. Each observer was asked to observe and record the nonverbal behaviors of a specific group member who had been numbered one to five. Since each observer viewed every tape, assignments were altered so that an observer did not record the nonverbal cues of the same numbered position on the tape more than once in each of the two kinds of groups, informal and task-oriented. The judging of the tapes was done throughout one week in one hour segments in the mornings. This was done for two reasons: 1) there were conflicts with other university classes, and 2) the observers experienced no fatigue after only one hour. The teams of observers viewed the tapes at different sittings.

### Categories

In order to record the nonverbal behavior of the discussion members, two analysis systems were combined, Birdwhistle's Notation

System<sup>2</sup> and Rosenfeld's Gestural Categories.<sup>3</sup> These were examined and modified so that a simplified Nonverbal Behavioral Category System would result. Birdwhistle's Notation System was detailed and included many nonverbal movements which were not to be included in this study. Likewise, Rosenfeld's Gestural Categories included behaviors which were not to be observed in this study. Therefore, by using some of the existing categories from both studies, by combining other categories, and by deletions of the unnecessary categories, the Nonverbal Behavioral Category System (Appendix D) was developed.

Following is a description and discussion of each of the individual categories as they exist on the Nonverbal Behavioral Category System:

1. Head: Movements of the head were divided into two subparts. The first was a movement of the head in a bidirectional manner on the vertical plane which the observers agreed to perceive as being an affirmative behavior. The second was a bidirectional movement of the head on the horizontal plane. This was perceived by the observers to be a negative behavior. It was expected to be present in those members who were expressing disagreement.

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<sup>2</sup>Birdwhistle, "Kinesic Analysis of the Investigation of Emotions," pp. 123-127.

<sup>3</sup>Rosenfeld, "Instrumental Affiliative Functions of Facial and Gestural Expressions," pp. 71-72.

2. Face: The category of the face was subdivided into three sections. First, the observers considered the eye-contact between speaker and listener and between participants in the group other than speaker. Eye contact was described as any time a member looked at someone and then looked away. It was expected that this behavior would be present in those members who were seeking approval of the group. The second subdivision involving the face was listed as agreement. In this area the considered behaviors were smiles, brow movements, and a wink of the eye. Again, these behaviors were seen as agreeable behaviors present in those seeking approval. The third subdivision of the facial category was disagreement. This involved the widening of the eyes, a sideways look, rolled eyes, flaring nostrils, wrinkled nose, sneer, and a droopy mouth.
3. Postural shift: The category of postural shift was described to the observers and on the Nonverbal Behavioral Category System as shifts of the body forward or backward, side to side, slouched to erect, or erect to slouched, crossing or uncrossing the legs, and gross movements of the body either toward or away from the speaker. Since such behaviors often indicate discomfort, observations falling into this category suggest that the member of the group is disagreeing with the speaker.

4. Gesticulation: This was divided into two subparts. The first is gesticulation of the shoulder, arms, and wrist, which was described as any distinct arm movement originating from the shoulder, elbow, or wrist. Finger movements were not included here. Some examples of the movements considered in subpoint one were shrug of the shoulders, arm movements, raising of the hand (or hands), and a waving motion of the hand. This gesticulation was expected to be present in those group members who were trying to persuade or those seeking approval. The second subpoint in gesticulation was the hand and finger, interlacing fingers, tapping the fingers, grasping an object such as a pencil, closing the hand into a fist and then opening it, or playing with the fingers. This was expected to appear in those participants who avoided acceptance or who showed hostility to the group.

The observers were instructed to mark on the raw data collection sheet (Appendix E) each occurrence of those behaviors. Repetitive performance of a behavior was counted as one single event. When an intervening behavior occurred, the behavior was counted again as a single event. The exceptions were the smile which was included in facial agreement. This was counted at each "on-off" movement, and the other behavior which was an exception, eye contact, was also measured at each "on-off" movement. Observers were carefully instructed to observe



movements and behaviors of the participants and mark the occurrence of the behavior without concern as to the meaning it might have for the group members.

### Intercoder Reliability

Intercoder reliability was established by comparing the observation of the two observers on each behavior category. As described earlier in this chapter, both observers were trained in a one hour session prior to the observation sessions. In order to establish reliability the observations were done at separate hours and extended over one week. The observation rooms were equipped with a videotape recorder and receiver and a table and five chairs. Two tapes were viewed at each session, one informal and one task-oriented. The agreement between the two observers was 98 per cent.<sup>4</sup>

### Statistical Analyses

Three statistical analyses were performed on data obtained from the recorded data made by the judges.

The first measurement used was the Pearson Product-Moment Correlation.<sup>5</sup> This method of analysis indexes the existing relationships between variables, and is called the correlation coefficient. The formula for the Pearson Product-Moment method of analysis is:

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$$\text{Agreement} = \frac{\text{Judge 1} + \text{Judge 2} + 5\%}{2}$$

<sup>4</sup>The formula used to establish intercoder reliability is Agreement =  $\frac{\text{Judge 1} + \text{Judge 2} + 5\%}{2}$ .

<sup>5</sup>Frederick Williams, Reasoning with Statistics (New York: Holt, Rinehart, and Winston, Inc., 1968), pp. 127-141.



$$r_{xy} = \frac{\sum XY}{\sqrt{\sum X^2 \cdot \sum Y^2}}$$

This method was employed to examine the relationship between the group's choice of perceived leader and seven other pertinent questions from the questionnaire discussed in Chapter II. Perceived leadership in relationship to the Nonverbal Category System was also examined by this statistical method.

The second measurement used to analyze the data was Multiple Regression which is a predicting measurement.<sup>6</sup> It is possible to use this analysis when taking an existing relationship and using it as a basis for predictions. If the relationship between variables is known, and the particular values are known for one variable, then using this information, the corresponding values of the other variables can be predicted. To perform this statistical analysis, the following formula is employed:

$$Z' = a + b_{xz}'y + b_{yz}'x$$

This multiple regression equation can also supply information concerning how each variable contributes to the variable under consideration. This technique was applied when predicting perceived leadership based upon the Nonverbal Behavioral Category System in both task-oriented and informal small groups.

The third statistical analysis method used in this study was Analysis of Variance.<sup>7</sup> Analysis of variance is used when the hypothesis

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<sup>6</sup>Ibid., pp. 142-150.

<sup>7</sup>Ibid., pp. 83-94.

includes two or more population means. Therefore, in hypothesis three, leadership emergence in informal small groups is to be compared with leadership emergence in task-oriented small groups. The general formula for Analysis of Variance is:

$$F = \frac{\text{variance between groups}}{\text{variance within groups}}$$

In summary this chapter has presented the methods and procedures to be followed in the study. The subjects, procedures, and statistical designs were explained. In the next chapter the results of the statistical design will be presented and discussed.

## CHAPTER IV

### RESULTS

#### Introduction

This chapter discusses the statistical procedures which were employed and analyzes the data collection by presenting the data in tabled form, and presents the results of the selected statistical procedures to test the hypotheses.

The questionnaire which was given to the group participants after completion of the discussion session was examined and the question of most importance to this study was, "Who did you perceive the leader of the group to be?" Because this study was examining perceived leadership emergence via the nonverbal cues exhibited, the question was judged to be important. The information regarding the question of perceived leadership as it relates to other relevant questions on the questionnaire with task-oriented and informal groups combined is summarized in Table 1. The Pearson Product-Moment Correlation test was used to measure the relationship between perceived leadership and group evaluations for task-oriented and informal groups.

Results show that the correlation of the perceived leadership role and the most informed member role is significantly high. It can also be seen that the relationship of the perceived leader and the best liked member has a high correlation, as does the relationship of

perceived leader and the member who enjoyed the discussion the most. It is noted that there are three negative correlations which are significant at the .03 level of significance. These are the relationships of perceived leader and the least liked member of the group, perceived leader and the most disagreeable member of the group, and the perceived leader and the member who enjoyed the discussion the least. It is suspected that the negative correlation in these three cases showed evidence of leadership avoidance by certain group members.

TABLE 1

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS  
OF PERCEIVED LEADERSHIP IN RELATIONSHIP TO  
GROUP EVALUATIONS FOR TASK-ORIENTED  
AND INFORMAL GROUPS

Question	Correlation Coefficient	Level of Significance
1. Who was the most informed member?	.6749	.001 <sup>a</sup>
2. Who was the best liked member?	.6601	.001 <sup>a</sup>
3. Who was the least liked member?	-.3114	.028 <sup>b</sup>
7. Who was the most agreeable member?	.1384	.338
8. Who was the most disagreeable member?	-.3114	.028 <sup>b</sup>
9. Who was the member who enjoyed the discussion the most?	.6520	.001 <sup>a</sup>
10. Who was the member who enjoyed the discussion the least?	-.3438	.014 <sup>b</sup>

<sup>a</sup> $p \leq .01$

<sup>b</sup> $p \leq .03$



Table 2 includes the information concerning the relationship of perceived leadership and group evaluations from the questionnaire for the informal group only as calculated using the Pearson Product-Moment Correlation test.

TABLE 2

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS  
OF PERCEIVED LEADERSHIP IN RELATIONSHIP TO  
GROUP EVALUATIONS FOR INFORMAL GROUPS

Question	Correlation Coefficient	Level of Significance
1. Who was the most informed member?	.8696	.001 <sup>a</sup>
2. Who was the best liked member?	.8645	.001 <sup>a</sup>
3. Who was the least liked member?	-.1865	.372
7. Who was the most agreeable member?	.4454	.026 <sup>b</sup>
8. Who was the most disagreeable member?	-.2798	.176
9. Who was the member who enjoyed the discussion the most?	.8548	.001 <sup>a</sup>
10. Who was the member who enjoyed the discussion the least?	-.4196	.037 <sup>c</sup>

<sup>a</sup><sub>p</sub> ≤ .01

<sup>b</sup><sub>p</sub> ≤ .03

<sup>c</sup><sub>p</sub> ≤ .04

As is suggested by the table, there is a significantly high correlation between perceived leadership and the member perceived as the most informed, the member perceived to be the most liked, and the member who enjoyed the discussion the most. These are significant at the .01 level of confidence. At the .03 significance level, there is a

correlation of perceived leader and the member who was the most agreeable. There was a negative correlation between the perceived leader and the member who enjoyed the discussion the least. This negative correlation was at the .04 level of significance.

Table 3 summarizes the calculations of the Pearson Product-Moment Correlation when measuring the relationship of perceived leadership and the group evaluations from the task-oriented small groups.

TABLE 3  
PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS  
OF PERCEIVED LEADERSHIP IN RELATIONSHIP TO  
GROUP EVALUATIONS FOR TASK-ORIENTED GROUPS

Question	Correlation Coefficient	Level of Significance
1. Who was the most informed member?	.5133	.009 <sup>a</sup>
2. Who was the best liked member?	.4625	.020 <sup>b</sup>
3. Who was the least liked member?	-.4256	.034 <sup>c</sup>
7. Who was the most agreeable member?	-.0248	.907
8. Who was the most disagreeable member?	-.3423	.094
9. Who was the member who enjoyed the discussion the most?	.4216	.036 <sup>c</sup>
10. Who was the member who enjoyed the discussion the least?	-.2843	.168

<sup>a</sup><sub>p</sub> ≤ .01

<sup>b</sup><sub>p</sub> ≤ .03

<sup>c</sup><sub>p</sub> ≤ .04

As can be seen in the table, there is a high correlation between the member perceived to be the most informed and the perceived leader at the .01 level of significance. The correlation between perceived leader and the person most liked is significant at the .03 level of significance, and at the .04 level of significance a correlation is seen between the perceived leader and the member who enjoyed the discussion the most. A negative correlation at the .04 level of significance exists between the perceived leader and the person who was the least liked.

From the data presented in these preceding tables, it could possibly be stated that when each group is considered separately, the high correlations occur between the perceived leadership variable and the person who was the most informed, the member who was most liked, and the member who enjoyed the discussion the most. This was also evidenced in Table 1 where both groups were combined.

In order to test the hypothesis that leaders in task-oriented and informal small groups exhibit more nonverbal cues than do nonleaders, Pearson Product-Moment Correlation was employed. Table 4 shows the results of that statistical analysis.

From this table it can be seen that the gesticulation of shoulder, arm and wrist is significant at the .01 level of confidence. Also, head agreement is significant at the .06 level of significance. However, the correlation is low.

Table 5 includes the data concerning the relationship of perceived leadership and nonverbal cues exhibited in informal groups.

TABLE 4

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS  
OF PERCEIVED LEADERSHIP AND NONVERBAL CUES  
EXHIBITED IN TASK-ORIENTED AND  
INFORMAL GROUPS

Behavioral Cues	Correlation Coefficient	Level of Significance
1. Head Agreement	.2733	.055 <sup>b</sup>
2. Head Disagreement	-.1513	.294
3. Face - Eye Contact	.0925	.523
4. Face Agreement	.0970	.503
5. Face Disagreement	.1501	.298
6. Postural Shift	.1551	.282
7. Gesticulation - Shoulder, Arm, Wrist	.4472	.001 <sup>a</sup>
8. Gesticulation - Finger	-.0893	.538

<sup>a</sup> $p \leq .01$

<sup>b</sup> $p \leq .06$

TABLE 5

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS  
OF PERCEIVED LEADERSHIP AND NONVERBAL CUES  
EXHIBITED IN INFORMAL GROUPS

Behavioral Cues	Correlation Coefficient	Level of Significance
1. Head Agreement	-.0930	.658
2. Head Disagreement	-.1008	.631
3. Face - Eye Contact	-.0938	.656
4. Face Agreement	-.1315	.531
5. Face Disagreement	.0933	.658
6. Postural Shift	.2352	.258
7. Gesticulation - Shoulder Arm, Wrist	.2290	.271
8. Gesticulation - Finger	-.0338	.873



As is suggested by Table 5, there are no nonverbal cues which have a significant correlation with perceived leadership. It should be noted that there are five inverse relationships.

Table 6 contains the data concerning the relationship of perceived leader and exhibited nonverbal cues in a task-oriented small group.

Results in Table 6 show that gesticulation of the shoulder, arm, and wrist is significant at the .01 level of significance and has a high correlation of .70. Head agreement shows a high correlation (.55) at the .04 level of confidence.

TABLE 6  
PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS  
OF PERCEIVED LEADERSHIP AND NONVERBAL CUES  
EXHIBITED IN TASK-ORIENTED GROUPS

Behavioral Cues	Correlation Coefficient	Level of Significance
1. Head Agreement	.5579	.004 <sup>b</sup>
2. Head Disagreement	-.1946	.351
3. Face - Eye Contact	.2804	.175
4. Face Agreement	.3540	.083
5. Face Disagreement	-.2715	.189
6. Postural Shift	.1058	.615
7. Gesticulation - Shoulder Arm, Wrist	.6989	.001 <sup>a</sup>
8. Gesticulation - Fingers	-.1300	.536

<sup>a</sup> $p \leq .01$

<sup>b</sup> $p \leq .04$

From the data presented in the tables concerning nonverbal cues, it can be observed that gesticulation of the shoulder, arm and

wrist has the highest correlation. In Table 4 the correlation of .27 at the .06 level of confidence between perceived leadership and head agreement should be noted.

Multiple regression was used to predict the nonverbal gesture which was the most important predictive measure of group leadership. This information is presented in Table 7 for both informal and task-oriented groups.

TABLE 7

MULTIPLE REGRESSION OF PERCEIVED LEADERSHIP  
BASED ON THE NONVERBAL BEHAVIORAL CATEGORY  
SYSTEM IN INFORMAL AND  
TASK-ORIENTED GROUPS

Behavioral Cues	Multiple R	$r^2$	$r^2$ change	Simple r
7. Gesticulation - Shoulder, Arm, Wrist	.44716	.199	.19996	.44716
2. Head Disagreement	.47580	.226	.02643	-.15127
3. Face - Eye Contact	.50364	.253	.02726	.09255
1. Head - Agreement	.53312	.284	.03057	.27329
8. Gesticulation - Finger	.54334	.295	.01100	-.08926
6. Postural Shift	.55163	.304	.00908	.15515
5. Face - Disagreement	.56132	.315	.01079	-.15008
4. Face - Agreement	.56260	.316	.00144	.09699

The behavioral category with the most predictive power is gesticulation of the shoulder, arm, and wrist. The predictive percentage of gesticulation of the shoulder, arm, and wrist is twenty per cent. The cumulative predictable power of all eight categories is thirty-one per cent and is significant at the .05 level of confidence.

Analysis of variance was employed to answer hypothesis three which stated that there would be an interaction effect with the task-oriented groups exhibiting more nonverbal cues than the informal groups. As can be seen in Tables 8 through 15, there were some significant differences in the nonverbal behavioral cues which were exhibited. There were also interactions involved in two of the categories. Following are the tables which show the results of the analysis of variance tests.

TABLE 8  
ANALYSIS OF VARIANCE SUMMARY TABLE  
HEAD - AGREEMENT

Source of Variance	DF	SS	MS	F
Leadership - Leader and Nonleader	1	109.520	109.520	4.074 <sup>b</sup>
Groups - Informal and Task-Oriented	1	13.520	13.520	.503
Groups and Leadership	1	151.380	151.380	5.631 <sup>b</sup>
Within	46	1236.701	26.885	
Total	49	1511.120		

<sup>b</sup><sub>p</sub> ≤ .05

In Table 8 it can be seen that there is a significant difference of the number of head agreement responses in the leaders and nonleaders. It can also be observed that there is an interaction effect when groups and leadership are compared.

From Table 9 it can be noted that there is no significant difference between group roles or leadership when examining head

disagreement. There is no interaction between the variables in this category of nonverbal cues exhibited.

TABLE 9

ANALYSIS OF VARIANCE SUMMARY TABLE  
HEAD - DISAGREEMENT

Source of Variance	DF	SS	MS	F
Leadership - Leader and Nonleader	1	2.531	2.531	.771
Groups - Informal and Task-Oriented	1	5.445	5.445	1.659
Groups and Leadership	1	.211	.211	.064
Within	46	150.938	3.281	
Total	49	159.125		

Table 10 shows no significance in the differences between leadership and group role when examining the nonverbal cue of eye contact.

TABLE 10

ANALYSIS OF VARIANCE SUMMARY TABLE  
FACE ~ EYE CONTACT

Source of Variance	DF	SS	MS	F
Leadership - Leader and Nonleader	1	.605	.605	.016
Groups - Informal and Task-Oriented	1	11.520	11.520	.297
Groups and Leadership	1	142.805	142.805	3.684
Within	46	1783.051	38.762	
Total	49	1937.980		

Table 11 shows no significant differences and no interaction when examining facial agreement.



TABLE 11

ANALYSIS OF VARIANCE SUMMARY TABLE  
FACE - AGREEMENT

Source of Variance	DF	SS	MS	F
Leadership - Leader and Nonleader	1	33.620	33.620	1.033
Groups - Informal and Task-Oriented	1	14.580	14.580	.448
Groups and Leadership	1	87.120	87.120	2.676
Within	46	1497.800	32.561	
Total	49	1633.120		

From Table 12 it can be seen that there is a significant difference between the task-oriented and informal groups when examining facial disagreement.

TABLE 12

ANALYSIS OF VARIANCE SUMMARY TABLE  
FACE - DISAGREEMENT

Source of Variance	DF	SS	MS	F
Leadership - Leader and Nonleader	1	3.125	3.125	1.359
Groups - Informal and Task-Oriented	1	24.500	24.500	10.657 <sup>a</sup>
Groups and Leadership	1	3.125	3.125	1.359
Within	46	105.750	2.299	
Total	49	136.500		

<sup>a</sup> $p \leq .01$

TABLE 13  
ANALYSIS OF VARIANCE SUMMARY TABLE  
POSTURAL SHIFT

Source of Variance	DF	SS	MS	F
Leadership - Leader and Nonleader	1	.151	.151	.010
Groups - Informal and Task-Oriented	1	51.005	51.005	3.488
Groups and Leadership	1	1.051	1.051	.072
Within	46	672.737	14.625	
Total	49	724.945		

From this table it can be observed that when examining postural shift there are no significant differences and no interaction effects between the group role and leadership.

From Table 14 it can be seen that there is an interaction between the group role and leadership. There is no significant difference between groups and leadership when examining this variable.

TABLE 14  
ANALYSIS OF VARIANCE SUMMARY TABLE  
GESTICULATION - SHOULDER  
ARM, WRIST

Source of Variance	DF	SS	MS	F
Leadership - Leader and Nonleader	1	105.125	105.125	2.096
Groups - Informal and Task-Oriented	1	43.245	43.245	.862
Groups and Leadership	1	202.004	202.004	4.027 <sup>b</sup>
Within	46	2307.251	50.158	
Total	49	2657.625		

<sup>b</sup><sub>p</sub> ≤ .05

Table 15 shows no significant differences between group role and leadership when examining gesticulation of the fingers. There was no interaction between groups and leadership in this variable.

TABLE 15

ANALYSIS OF VARIANCE SUMMARY TABLE  
GESTICULATION - FINGERS

Source of Variance	DF	SS	MS	F
Leadership - Leader and Nonleader	1	13.005	13.005	.654
Groups - Informal and Task-Oriented	1	8.820	8.820	.444
Groups and Leadership	1	.980	.980	.049
Within	46	914.775	19.886	
Total	49	937.580		

Three statistical analyses were used to examine the data collected. Fifteen tables were presented which supply the collected results of the Pearson Product-Moment Correlation Coefficients, the Multiple Regression, and the Analysis of Variance. The last chapter will discuss the conclusions and the limitations of this study.

## CHAPTER V

### DISCUSSION, SUMMARY, AND CONCLUSIONS

Previous chapters have discussed the literature in the field of nonverbal communication and group leadership, the methodology employed to collect the data, and the results of the analytical process. This chapter will consider the implications and possible limitations of the study. Also to be considered are future research suggestions.

#### Implications of the Study

This study was designed to test the hypotheses that leaders exhibit more nonverbal cues than do nonleaders in informal and task-oriented small groups, members of task-oriented small groups exhibit more nonverbal cues than members of informal small groups, and that an interaction effect will occur with leaders of task-oriented groups exhibiting more nonverbal cues than leaders in informal groups.

From the collected data in Tables 1, 2, and 3, it can be observed that when the members of the discussion groups were asked who they perceived the leader to be, their answers had a high correlation with the most informed (.67), the best liked (.66), and the member who enjoyed the discussion the most (.65). This high correlation leads one to believe that the leader performs various functions such as encouraging members to participate, establishing productive social relationships, reinforcing



member participation, and rewarding group participation. The negative correlations between perceived leadership and the least liked member (-.31), the most disagreeable member (-.31), and the member who enjoyed the discussion the least (-.34) lends further credence to the idea that showing consideration for group activity, eliciting communication from others, and reinforcing member participation are functions of leadership. These results tend to confirm Geier's findings that leaders are perceived as those individuals who most frequently assume leadership because of an interest in his fellow members, and those who do not participate in group activity and group interaction contribute to leader rejection.<sup>1</sup> The only question on the questionnaire which was not highly correlated with perceived leadership concerned the member perceived as the most agreeable.

From the data in Table 2 and Table 3 it is observed that in the informal groups the best liked member had a high correlation with the perceived leader (.86), whereas in the task-oriented groups the correlation between the perceived leader and the best liked member of the group was only moderately high (.46). This may be due to the fact that in an informal group the leader is attempting a socialization function of leadership and is not directed by a specific task or goal. This supposition was confirmed by Fiedler in his study on leadership style.<sup>2</sup>

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<sup>1</sup>Geier, "A Trait Approach to the Study of Leadership in Small Groups," pp. 316-323.

<sup>2</sup>Fiedler, "A Contingency Model of Leadership Effectiveness," pp. 79-98.

Also, from Table 2 and Table 3 it is seen that a moderately high negative correlation ( $-.42$ ) existed between the perceived leader and the least liked member in the task-oriented group. In the informal group the correlation between these same variables was negligible. This may be due to the fact that a sense of cohesiveness must exist among the group in order for the group to be productive.

In Table 2 data showed that in the informal groups the correlation between the perceived leader and the most agreeable member was moderately high ( $.44$ ), but in the task-oriented groups (Table 3) the correlation between these same two variables was negligible. Possibly this can be explained by the fact that when a task is involved, agreeableness is only secondary to completion of the goal. When socialization is attempted, the member is more agreeable than if directed by a specific task.

Table 2 and Table 3 showed a difference in the correlation of the perceived leader and the member who enjoyed the discussion the most. In the informal group the correlation is high at  $.85$  and in the task-oriented the correlation is moderately high at  $.42$ . The members of the informal group are less restricted by tasks and goals; therefore, the socialization of the group can occur.

The last comparison to be made between Table 2 and Table 3 is the correlation of the perceived leader and the member who enjoyed the discussion the least. Both correlations are negative, but in the informal groups the correlation is moderately high ( $-.42$ ) and in the task-oriented groups the correlation is negligible. An explanation for

this difference might be that socialization had occurred as a function of leadership. When a task is involved, the task rather than group socialization is the primary goal.

The data in Tables 4, 5, and 6 suggested that gesticulation from the shoulder, wrist, and arm had a moderately high correlation (.44) in the combined groups and a high correlation (.70) in the task-oriented group. This tended to confirm the suggestion made by Mehrabian and Williams that a person who is attempting leadership might show the tendency to persuade and, therefore, will exhibit more gesticulation than one who is not attempting leadership.<sup>3</sup> The correlation of perceived leader and gesticulation from the shoulder, arm, and wrist in the informal group is not significant in showing relationship between perceived leader and gesticulation. Leaders in informal groups perform different leadership roles than leaders in task-oriented groups. It can be suggested that because leadership in the informal group is not directed to the completion of a specific task, leadership is a function of socialization and not direction.

In Tables 5 and 6 the groups are considered separately and it can be observed that head agreement had a high correlation (.55) with the perceived leader in a task-oriented group and in the informal group the correlation between these two variables is negligible. It can be suggested that the leader of the task-oriented group must reinforce member participation and encourage further discussion by exhibiting

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<sup>3</sup>Mehrabian and Williams, "Nonverbal Concomitants of Perceived and Intended Persuasiveness," pp. 56-58.



head agreement. Also in these two tables, it was shown that gesticulation from the shoulder, arm, and wrist had a high correlation (.69) with the perceived leader. This variable is negligible in the informal group. The task-oriented group was attempting to reach a consensus and the leader may have been trying to guide the group toward the ultimate solution.

The prediction of perceived leadership based upon the Nonverbal Category System is presented in Table 7. From this table it can be seen that the nonverbal cue of gesticulation from the shoulder, wrist, and arm has the highest predictive value of the nonverbal categories. This predictive value is twenty per cent. All of the nonverbal categories except postural shift and face agreement contribute at least one per cent to the total predictive value of the nonverbal cues which are thirty-one per cent.

Tables 8 through 15 presented data which showed the results of the Analysis of Variance test performed on each nonverbal variable. From Table 8 it was noted that a significant difference existed between leaders and nonleaders when examining the use of head agreement. There was also an interaction effect which is illustrated in Table 16.

TABLE 16  
MEAN FREQUENCIES OF HEAD AGREEMENT

	Informal Groups	Task-Oriented Groups
Leaders	4.700	12.700
Nonleaders	5.350	4.650



From this table it can be seen that leaders exhibit more head agreement than any member of the group and leaders of the task-oriented group exhibited the most significant amount.

It is possible that the leaders felt a need to reinforce the members who were adding ideas to the discussion, or it might have been due to the fact the leader encourages membership participation and involvement.

Tables 9, 10, 11, 13, and 15 showed no significant differences existed between group membership or leadership when examining head disagreement, face - eye contact, face - agreement, postural shift, and gesticulation of the fingers. In Table 12 there was a significant difference at the .01 level of significance between task-oriented and informal groups when examining face disagreement. Task-oriented group members exhibited more facial disagreement than the informal group members. It can be suggested that due to the involvement of a task, the group members were not as concerned with positive rapport with the other members as they were with reaching their goal.

In Table 14 the data showed no significant difference in leadership or group membership when examining gesticulation of the shoulder, arm, and wrist. However, an interaction effect did occur as illustrated by Table 17.

A possible explanation for this occurrence may be that those leaders in task-oriented groups who exhibit gesticulation were trying to persuade the group. It is noted that task-oriented group leaders exhibited significantly more gesticulations from the shoulder, arm,

and wrist than did any of the other groups. Also, the group leaders may have been explaining something which had been presented for discussion.

TABLE 17  
MEAN FREQUENCIES OF GESTICULATION

	Informal Groups	Task-Oriented Groups
Leaders	6.800	16.700
Nonleaders	8.200	8.050

#### Summary

This study was designed to answer three hypotheses. The first hypothesis was that leaders exhibit significantly more nonverbal cues than do nonleaders in informal and task-oriented small groups. This hypothesis was supported in the instance of head agreement, as leaders showed significantly more of this behavior than nonleaders. However, no support for the hypothesis was found in any of the other nonverbal categories. Further support was provided by the correlation coefficients in Table 4, where it can be seen that there are significant correlations between perceived leadership and head agreement (significant at the .06 level of confidence).

The second hypothesis that members of task-oriented groups exhibit significantly more nonverbal cues than members of informal small groups was supported by the findings related in Table 12. In Table 12 it

can be seen that a significant difference exists between task-oriented and informal small groups when examining facial disagreement. However, the remaining seven nonverbal cues presented in Tables 8, 9, 10, 13 and 15 showed no significant differences when reporting the differences between task-oriented and informal small groups.

The third hypothesis which stated that an interaction effect would occur with leaders of task-oriented groups exhibiting significantly more nonverbal cues than leaders of informal groups was supported by the findings in Table 8 and Table 14. Table 8 showed that there was an interaction effect in group role and leadership when examining head agreement, as task-oriented leaders exhibited more of this behavior than any other group. Similarly, Table 14 showed that there was an interaction effect when observing gesticulation from the shoulder, arm, and wrist, for leaders of task-oriented groups gesticulated more frequently than leaders of informal groups. However, Tables 8 through 15 showed no significant differences across the eight nonverbal categories when examining leadership and group role. In addition to these findings from the Analysis of Variance, it can be observed from the correlation coefficients in Tables 5 and 6 that gesticulation from the shoulder, arm, and wrist and head agreement have high positive correlations which are significant at the .01 level and .04 level of significance in task-oriented groups, but in the informal groups both gesticulation of the shoulder, arm, and wrist and head agreement had negligible correlations.



### Limitations of the Study

Several factors limit the degree to which the findings of this study can be generalized. The most obvious of the limiting factors is the complexity of the nonverbal communication act. There is an artificial separation between the nonverbal behaviors exhibited and the verbal message. The two are so interwoven within the communication act that it is difficult to separate them.

A second limiting factor is the artificial discussion situation. The discussion was done as an extracurricular assignment with a question which had little effect upon the discussion members. If the reward of an ultimate decision would have affected further policies or conditions, the participating subjects would have been more motivated and possibly different types of behaviors would have been observed.

A third factor is the limited number of participants involved in the study. By increasing the number of groups which would participate, the probability of obtaining significant differences and higher correlations is increased.

A fourth factor limiting the study is the fact that it was difficult to distinguish between nervous gestures and gestures which were meaningful to the communication act. Also, when considering gestures, the size of the person may have influenced the amount of gesticulation used.

### Suggestions for Further Research

The results of this study suggest additional areas which might be investigated. The first possibility would be an experimental study



examining the relationship of the number of eye contact movements with the amount of time that eye contact exists. In the present study only the initial contact was counted. It seems necessary that the length of time be studied since there is no indication of how long each eye contact movement lasted.

Second, one might conduct a study examining the relationship of facial movements with the verbal message. From the results of this study, the category of facial movements appears to need further research.

A third suggestion for further study is to repeat this study, increasing the number of discussion sessions of each group. Taping various segments from several of the discussion sessions for each group would add dimension to the emergence of group leadership via the nonverbal categories examined.

An additional suggestion would be to administer a personality test preceding the group discussions. This would facilitate the identification of members who might be leaders or nonleaders. A pre-test and post-test measuring involvement is also suggested as it might be advantageous to see how each individual was affected by the discussion. By measuring the attitudes and interests of participants prior to the discussion and then measuring the attitudes of the participants following the discussion, the effect of the discussion could be analyzed.

Finally, one might study each independent nonverbal category in detail. An investigation to examine the relationship between the

number of nonverbal cues exhibited and the per cent of discussion-time involved with each cue seems a worthwhile study.

APPENDIX A

INSTRUCTIONS TO GROUP PARTICIPANTS  
IN THE INFORMAL GROUPS

INSTRUCTIONS TO GROUP PARTICIPANTS  
IN THE INFORMAL GROUPS

In Introduction to Speech Correction you have discussed the materials included in Chapter 1 in the assigned text, and your lecturer has supplied you with Van Riper's formula concerning the causes and effects of stuttering which may also be applied to any speech problem.

The purpose of your group will be to have an informal discussion. You may discuss any phase of speech correction or you may wish to choose the subject yourselves.

There are a few regulations which need to be reviewed:

1. Begin your discussion immediately after the examiner leaves the room.
2. The discussion should last for one hour.
3. At the close of the discussion, each member of the group will be asked to complete a short questionnaire.

The examiner will signal you when the hour is over.

Thank you.



APPENDIX B

INSTRUCTIONS TO GROUP PARTICIPANTS  
IN THE TASK-ORIENTED GROUPS

INSTRUCTIONS TO GROUP PARTICIPANTS  
IN THE TASK-ORIENTED GROUPS

In Introduction to Speech Correction you have discussed the materials included in Chapter 1 in the assigned text, and your lecturer has supplied you with Van Riper's formula concerning the causes and effects of stuttering which may also be applied to any speech problem.

The purpose of your group will be to discuss the question, "Considering a speech problem in general, which would be the greater handicap, the psychological problems which exist or the speech problem itself?" You will then arrive at some group decision concerning this question.

There are a few regulations which need to be reviewed:

1. Begin your discussion immediately after the examiner leaves the room.
2. The discussion should last for one hour.
3. At the conclusion of the hour, the group should arrive at some group decision concerning the question, "Considering a speech problem in general, which would be the greater handicap, the psychological problems which exist or the speech problem itself?"
4. At the close of the discussion, each member of the group will be asked to complete a short questionnaire.

The examiner will signal you when the hour is over.

Thank you.

APPENDIX C

QUESTIONNAIRE

Age \_\_\_\_\_  
 Sex \_\_\_\_\_  
 No. \_\_\_\_\_

QUESTIONNAIRE

Please circle the number of the person in your group other than yourself who best completes the following:

1. The most informed member of the group was  
 1            2            3            4            5
2. The most liked member of the group was  
 1            2            3            4            5
3. The least liked member of the group was  
 1            2            3            4            5
4. I perceived the leader of the group to be  
 1            2            3            4            5
5. Do you believe that this group session helped you to better understand the material discussed?  
           yes                            no
6. Do you believe that one member dominated the discussion?  
           yes                            no
7. Who was the most agreeable member of your group?  
 1            2            3            4            5
8. The most disagreeable member was  
 1            2            3            4            5
9. Which of the members seemed to enjoy this discussion the most?  
 1            2            3            4            5
10. Which of the members seemed to enjoy this discussion the least?  
 1            2            3            4            5



11. On the scale below, indicate the degree of agreement you feel towards the decisions (if any) reached by the group.

Strongly \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Strongly  
Disagree Agree

12. Would you like to meet with the same group again?  
(Circle the appropriate answer)

Very	Some	Don't	Not	Not
Much		Really	Much	At
		Care		All

APPENDIX D

NONVERBAL BEHAVIORAL CATEGORY SYSTEM

## NONVERBAL BEHAVIORAL CATEGORY SYSTEM

Behavioral Cue	Description
1. Head A. Agree B. Disagree	Observation of the head; nodding in a vertical plane. Observation of the head; nodding in a horizontal plane.
2. Face A. Eye Contact B. Agree C. Disagree	Look directly at the speaker or listener. Brow movements, wink, or smile. Wide eyes, sideway look, rolled eyes, flaring nostrils, wrinkled nose, sneer, droopy mouth.
3. Postural Shift	Shifts of the body forward or backward, side-to-side, slouched to erect, erect to slouched, crossing or uncrossing legs, turning body away from or toward the speaker.
4. Gesticulation A. Shoulder, Arm, Wrist B. Hand and Finger	Distinct arm movements originating from the shoulder, elbow, or wrist. Finger movement not included here. Movement of the arm, shrug of the shoulders. Point a finger, interlace-fingers, tap fingers on table, grasp an object (i.e. pencil), clip nails, open and close fingers into fist.

APPENDIX E

RAW DATA COLLECTION SHEET



## RAW DATA COLLECTION SHEET

Categories	Observations					Totals
1. Head						
A. Agree	_____	_____	_____	_____	_____	□
	_____	_____	_____	_____		
	_____	_____	_____	_____		
B. Disagree	_____	_____	_____	_____	_____	□
	_____	_____	_____	_____		
	_____	_____	_____	_____		
2. Face						
A. Eye Contact	_____	_____	_____	_____	_____	□
	_____	_____	_____	_____		
	_____	_____	_____	_____		
B. Agree	_____	_____	_____	_____	_____	□
	_____	_____	_____	_____		
	_____	_____	_____	_____		
C. Disagree	_____	_____	_____	_____	_____	□
	_____	_____	_____	_____		
	_____	_____	_____	_____		
3. Postural Shift	_____	_____	_____	_____	_____	□
	_____	_____	_____	_____		
	_____	_____	_____	_____		
4. Gesticulation						
A. Shoulder, Arms, Wrist	_____	_____	_____	_____	_____	□
	_____	_____	_____	_____		
	_____	_____	_____	_____		
B. Hand and Finger	_____	_____	_____	_____	_____	□
	_____	_____	_____	_____		
	_____	_____	_____	_____		

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