ASSESSING AND INFLUENCING THE ATTITUDE AND KNOWLEDGE OF SELECTED POST-SECONDARY STUDENTS CONCERNING BODY LANGUAGE

DISSERTATION

Presented to the Graduate Council of the North Texas State University in Partial Fulfillment of the Requirements For the Degree of

DOCTOR OF PHILOSOPHY

By

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This investigation, which was conducted on the post-secondary level and included vocational and academic students, was undertaken to develop an instrument to assess the attitude and knowledge of students concerning body language and to develop a module of instruction in body language to favorably influence their attitude and knowledge concerning body language. Hypotheses were formulated related to the differences in mean affective and cognitive scores of the experimental group who were taught body language and the control group. Additional hypotheses were formulated related to mean differences in the scores of students differing in age, sex, business experience, and prior exposure to body language.

The subjects of the study were enrolled in mid-management and speech classes in an East Texas junior college with an enrollment of approximately nine thousand students. The Solomon four-group research design was employed and involved one hundred and fifty-nine students in the experimental group and one hundred and ninety-one in the control group.
The statistical procedures employed were test construction statistics and the t-test for correlated and uncorrelated samples. A .05 level of significance was established for the affective and demographic comparisons while a .01 level of significance was established for the cognitive because of its short length (eleven items) and the possible influence of random guessing.

The report of this investigation is organized as follows. Chapter I, statement of the problem researched, purposes of the study, hypotheses, background and significance, definitions of terms, basic assumptions and treatment of data; Chapter II, review of related literature; Chapter III, the module of instruction in body language; Chapter IV, methods and procedures; Chapter V, presentation and analysis of the data; Chapter VI, summary, conclusions and recommendations.

The findings of this study included first, the testing of the instrument; second, the testing of the validity of the research design and third, the testing of the hypotheses. The following conclusions are based on the findings of the study: the instrument seems to be acceptable for assessing the attitude and knowledge of post-secondary students concerning body language, the module of instruction in body language seems to be acceptable as a basis for influencing the attitude and knowledge of post-secondary students concerning body language, the mid-management and
speech students were comparable in attitude and knowledge concerning body language before and after being taught the module, any prior exposure to the principles of body language seemed to favorably influence student's attitude and knowledge concerning body language both before and after they were taught, the age and business experience of students produced no apparent influence on student attitude and knowledge of body language, the sex of the student seemed to produce no apparent influence on student attitude and knowledge of body language.

Recommendations included further research should be conducted on the possibility of expanding and modifying the instrument in Appendix A and developing a profile of its measurement properties, further research should be conducted correlating the scores on the instrument and vocational success, further research should be conducted on the effectiveness of using the module of instruction presented in this study in other vocational programs.
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CHAPTER I

INTRODUCTION

Today there is a growing awareness of the field of body language, which is basically the process of communicating through gestures and nonverbal signals. Body language may accompany and complement speech or communicate without speech (2, 3, 7, 9).

Body language is, as the name implies, very similar to a language in which gestures are the words and gesture-clusters (or groups of related gestures) are the sentences (3, 7, 13).

The development of the study of body language is traced in Chapter II of this dissertation. A portion of Chapter III contains a review of the key principles of body language.

Body language is used frequently on the subconscious level according to Past (7) and Nierenberg (13). Davis refers to this as the intuitive level (6). Basically, this means that people use body language without really being conscious of its impact. The average person would not say that he does not trust an individual because he does not hold eye contact long enough. He might, on the other
hand, refer to a person as "shifty-eyed" which is the con-
scious acknowledgement of the same idea (7, 13).

Culture has a definite influence on some aspects of
body language. However, differences in culture within a
particular country or region is not normally significant
(3, 7, 10, 13).

Interest in practical training in body language has
increased dramatically within business, education and
other fields (2, 7, 13). Businessmen wonder if they are
revealing their intentions through their body language in
critical business situations (7, 13). Educators wonder
how often they have said the "right" thing to a student and
turned him off nonverbally (8).

The writer has been involved for three years in
training students, in a variety of fields, to understand
body language and how it is used. This experience has been
in teaching college level and adult education courses and
business, social, and professional (education) groups.

The top performers in these groups, as judged by
response to questions, class participation, occupational
achievement, and grades, seem to have the best grasp of the
use of body language.

In the field of post-secondary vocational education,
collego training time is a one- or two-year period, rather
than longer periods. The objective of this training is
preparation of the student to be employable and to perform satisfactorily in an occupation.

Body language training can develop student skill in using body language to communicate. More importantly it can favorably influence student attitude toward understanding the use of body language. The present study attempted to develop instrumentation to assess post-secondary students' attitude and knowledge of body language. The study further presents and tests a module of instruction to teach the principles of body language in the communications segments of courses in human relations and speech.

Statement of the Problem

The problem was to assess the attitude and the knowledge of post-secondary students concerning body language, to influence their attitude and to develop a beginning skill in its use.

Purposes of the Study

The purposes of this study were

1. To develop an instrument which will assess post-secondary students as to
   a. their attitude toward body language,
   b. their knowledge of body language,
2. To develop a module of instruction in body language for use with post-secondary students to
   a. influence their attitude toward body language,
   b. teach a fundamental knowledge of the use of body language.
Hypotheses

This study tested the following hypotheses using the scores on the instrument in Appendix A which has attitude and cognitive tests. These are divided for clarity into the attitude or affective hypotheses and the cognitive hypotheses.

The attitude or affective hypotheses are stated below.

1. There will be a significant difference in the mean scores on the affective test after students are taught the body language module than before.

2. There will not be a significant difference in the mean scores on the affective pretest of students in mid-management and speech.

3. There will not be a significant difference in the mean scores on the affective posttest of students in mid-management and speech.

4. There will be a significant difference in the mean scores on the affective pretest for students with prior exposure to the principles of body language and those with no prior exposure.

5. There will be a significant difference in the mean scores on the affective posttest of students with any prior exposure to the principles of body language and those with no prior exposure.
6. There will be a significant difference in the mean scores on both the affective pretest and posttest of students twenty-five years old or older and those twenty years old or younger.

7. There will be a significant difference in the mean scores on both the affective pretest and posttest of students with five years or more of business experience and those with two years or less.

8. There will not be a significant difference in the mean scores on either the affective pretest or posttest of male and female students.

9. There will be a significant difference in the mean scores on the cognitive test after students are taught the body language module than before.

10. There will not be a significant difference in the mean scores on the cognitive pretest of students in mid-management and speech.

11. There will not be a significant difference in the mean scores on the cognitive posttest of students in mid-management and speech.

12. There will be a significant difference in the mean scores on the cognitive pretest for students with any prior exposure to the principles of body language and those with no prior exposure.

13. There will be a significant difference in the mean scores on the cognitive posttest for students with
any prior exposure to the principles of body language and those with no prior exposure.

15. There will be a significant difference in the mean scores on both the cognitive pretest and posttest of students with five years or more of business experience and those with two years or less.

16. There will not be a significant difference in the mean scores on either the cognitive pretest or posttest of male and female students.

Background and Significance

Experience is generally accepted as a primary factor in the development of an individual's business career. Normally in business and industrial situations, a period of three to five years is usually required for new employees to become effective and to become eligible for promotion and advancement (1, 5, 12, 14).

One of the skills which employees must develop is person-to-person communication, and body language is generally accepted as a part of developing this skill (4, 7, 13).

Post-secondary vocational education contains mid-management which is an on-the-job training business program which requires two years of work experience concurrently with the two years of junior college. Mid-management students comprise a group which should benefit from body
language training. In order to compare vocational and academic components, students enrolled in speech class were included in the experimental group and students enrolled in government class were included in the control groups. Government courses are not required of vocational students in the particular institution in which the study was made. The control group also contains students in an introduction to business course which includes vocational and academic students.

The institution in which the study was made is an East Texas junior college with an enrollment of approximately nine thousand students.

The basis of this study is that body language is used on the subconscious (7, 13) or intuitive level (6) and that an instructional module which develops an awareness of body language and its uses can result in a more favorable student attitude toward body language. A knowledge of the use of body language can be taught concurrently.

This study presented and used a module of instruction in body language and an instrument to measure the attitude and knowledge of post-secondary students in body language. The outcome of this study could form a foundation for the extension of the use of this type of training into other vocational programs as well as other fields.
Definitions of Terms

Mid-management—a two-year job training-based business management program at the junior college level.

Body language—basically, the process of communicating through gestures and nonverbal signals.

Gestures—individual signal units present in body language.

Gesture-clusters—groups of gestures which are closely related in body language.

"Read" body language—to interpret a group's or a person's body language signals in terms of attitude or meaning.

Likert scale—a response format developed by Likert for questions relating to attitude (11).

Post-secondary—beyond high school and in vocational training, normally the junior college level.

Limitations of the Study

This study was restricted to post-secondary students for the experimental group in a junior college in East Texas. These students were taking either the communications section of a speech class or a similar segment of a mid-management course in human relations. The random assignment of students to classes and the large control group tend to minimize the influence of uncontrolled factors.
Basic Assumptions

Major assumptions in this study are

1. The instructors adequately studied the concepts of body language given to them in the module of instruction;

2. The Likert and Likert-type scales will measure attitudes effectively if constructed and administered properly (11);

3. The t-test is an acceptable technique to measure the significance of difference in scores on Likert scale measurement.

Treatment of the Data

Data obtained from the attitude and cognitive tests of the instrument in Appendix A were treated statistically using test construction measurements and the t-test for significance in the difference of means for experimental and control groups.

The significance level for the attitude test and demographic comparisons was .05 for acceptance of the hypotheses. The significance level was .01 for acceptance of the hypotheses, related to the cognitive test, because of its shorter length and the possible influence of random guessing.
CHAPGER BIBLIOGRAPHY


CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

The purpose of this chapter is to review the literature related to the development of the field of body language. For many years, body language was simply an undifferentiated area of nonverbal communication. Nonverbal communication has been a part of society at least as far back as recorded history.

The field of nonverbal communication was influenced primarily by researchers in speech, linguistics, anthropology, psychiatry, psychology, and research methodology.

The first major influence in formalizing the study of nonverbal communication was the work of Charles Darwin in *The Expression of the Emotions in Man and Animals*. Darwin believed that there was a relationship between physical actions and emotions (22). Although he failed to accomplish his immediate goal of demonstrating a correlation between gestures and emotions, his work served as a foundation for future thought in nonverbal investigation (7, 28, 48).

The Influence of Speech

Practitioners in the field of speech were aware of the concepts of nonverbal communication in that gesticulation...
was considered to be an integral part of public speaking. In the latter part of the nineteenth century, the major activity in nonverbal communication was in the field of speech. Vickers, in 1892 (61), used line drawings to pictorially illustrate how gestures can accent, complement, and modify the speaker's words. Campbell and others reinforced these ideas in *Voice, Speech and Gestures: Elocutionary Art* (15).

**Emerging Thought**

In 1920 Anderson published an article (2) in which he detailed over three hundred gestures. Little interest was generated by this article because Anderson's article was published in the magazine *Folklore* which was not a professional journal.

Edward Sapir, a linguist, stated in an article in 1921:

> Gestures are hard to classify and it is difficult to make a conscious separation between that in gesture which is of merely individual origin and that which is referable to the habits of the group as a whole ... we respond to gestures with an extreme alertness and might almost say, in accordance with an elaborate and secret code that is written nowhere, known by none and understood by all (51, p. 556).

Sapir did not follow up on this concept, but his students, and others influenced by his work, later contributed to the systematization of body motion research.
An Influence of Anthropology

Efron, an anthropologist, contributed to the field of nonverbal communication in 1942, when he demonstrated that there was a direct correlation between previous social environment of European immigrants to the United States and their gestural systems (26).

LaBarre (40) and Hewes (32) followed Efron's work but with emphasis on the recording and analyzing gestural behavior in field work. Bateson and Mead, in 1942, set the stage for the development of detailed experimentation in nonverbal communication by introducing the camera as a research tool in their study (4).

An Influence of Psychiatry and Psychology

Psychiatrists and psychologists were among those who had for many years believed that body movements were meaningful in emotional terms and were seeking methodology with which to do research. Krout, in 1931, published a paper on the symbolic gesture in clinical work (37). He used observers and checked interobserver reliability. Krout was active in the area of expressive movements (38, 39) as were Allport and Vernon (1).

Another key emphasis among psychologists was the expressive nature of body posture (3, 33, 34). The area was called posturology by Deutsch, recognized as one of the most distinguished workers in the field of psychology (24, 25).
An Emerging Methodology

During 1939, Chapple began his work on a quantitative technique for interviews which culminated in the development of his "interaction chronograph" (16, 17, 18, 19). This development provided a more objective basis for studying various facets of nonverbal behavior.

From 1941 to 1951, psychologists were actively engaged in studying nonverbal communication including several investigations into facial expressions (29, 41, 53, 54, 55), efforts to improve measurement techniques, (6, 49) and a study by Steiner on the spatial influence in group situations (57).

During this period (1941-1951), researchers also studied the description and analysis of gestures (30, 42, 59). An interesting idea was presented by Johanneson who supported the theory that the origin of language was partially the result of the imitation by the speech organs of the gestures of the body, especially the hands (35).

The Birth of Kinesics

In 1952, Ray L. Birdwhistell published his classic work, *Introduction to Kinesics* (8). Kinesics is defined as the science of analysis of gestures (7).

Birdwhistell published prolifically in the 1950's and 1960's on the subject of kinesics (8, 9, 10, 11, 12, 13). Barton Jones edited these publications and numerous others
by Birdwhistell and in 1970 published *Kinesics and Context* (7). This work represents a comprehensive presentation of Birdwhistell's work prior to 1970. As a result of his effective and extensive work in the field, Birdwhistell is considered the father of kinesics.

Birdwhistell developed a system for very detailed analysis of body motion. The smallest unit possible in body motion is the kine, hence, the term kinesics (7).

Birdwhistell admits that Craighead, Lifer, and Pollenz (7) influenced the development of this system. In the same article, he discusses John Broderious, a former student of Sapir, who worked with and was a strong influence on Birdwhistell. Broderious' main influence, states Birdwhistell, was that "kinesics be firmly based in pre-kinesic research and not be lost, as Broderius phrased it 'in the thin atmosphere of intuition' " (7, p. 182).

Birdwhistell divides kinesics into two areas of study. These are macrokinesics and microkinesics.

Regarding macrokinesics, Birdwhistell states

One class includes the formal phenomena which appear in interactional sequences whether there is speech present or not. This behavior, as its structures become analyzable, was assigned to macrokinesics proper. Macrokinesics supplies, to repeat the structural elements of complex kinomorphic constructions: the wordlike, the phraselike, sentence-like, and the paragraphlike forms of the kinesic communicative stream (7, p. 117).
Microkinesics is the very detailed recording of the specifics of body motion. The detailed nature of Birdwhistell's system of kinesic study lead him to comment:

Some readers may feel like the little boy who received a birthday book on penguins from his aunt and felt it contained more about penguins than he ever wanted to know (7, p. 177).

Birdwhistell explains that these microkinesic descriptions make it possible to do extended analyses of each transaction which would otherwise be impossible (7, p. 177).

Birdwhistell points out seven underlying assumptions of kinesics (7, pp. 183-184).

1. Like other events in nature, no body movement or expression is without meaning in the context in which it appears.

2. Like other aspects of human behavior, body posture, movement, and facial expression are patterned and, thus, subject to systematic analysis.

3. While the possible limitations imposed by particular biological substrata are recognized, until otherwise demonstrated, the systematic body motion of the members of a community is considered a function of the social system to which the group belongs.

4. Visible body activity, like audible acoustic activity, systematically influences the behavior of other members of any particular group.

5. Until otherwise demonstrated such behavior will be considered to have an investigable communication function.

6. The meaning derived therefrom are functions both of the behavior and of the operations by which it is investigated.
7. The particular biological system and the special life experience of any individual will contribute idiosyncratic elements to his kinesic system, but the individual or symptomatic quality of these elements can only be assessed following the analysis of the larger system of which he is a part.

Other Researchers

Although Birdwhistell had a major influence in research methodology, he was not the only researcher in nonverbal communication in the 1950's and 1960's. Saslow (52), Matarazzo (43), and Ekman (27) contributed to the methodology of the study of gestures. Steindler (56), Trager (60), Bateson (5), and Critchley (20) contributed to the specific study of kinesics.

Hayes (31) produced a ninety-nine page bibliography on gestures in 1957 which listed exhaustively the references to gestures which have occurred for over one hundred years. The significance of the appearance of this bibliography is that after years of having only intuition on which to base ideas on nonverbal communication, this article appeared after Birdwhistell and other researchers had validated and brought nonverbal communication to general acceptance.

Cutner (21), Sainsbury (50), Taylor (58), and Winick (62) applied nonverbal concepts to psychiatric and psychological interview situations.
Body Language Emerges

Cutner in 1953 used the term "Body Experiment" in one of his papers (21) on analysis. Sainsbury in 1954 highlighted in one of his papers (50) the use of time sampling motion pictures.

Reference was first made to "body language" in 1959 when Taylor and others used the term in his paper "Body Language in Treatment of the Psychotic" (58).

Nierenberg reported in 1968 and 1971 the results of twenty-five hundred taped seminars in which he found a high correlation between gestures and simultaneous communication meaning on a subjective basis (46, 47). Fast and Nierenberg separately asserted in 1972 that the understanding of gestures, though on a subconscious level, can become conscious with instruction or training (28, 48).

The foundations of the study of body language lie in the work of Birdwhistell but researchers in the field of business negotiation applied these principles at the macro-kinesics level. This was the direction against which Broderius had warned Birdwhistell (7). However, Birdwhistell and others had documented the principles of kinesics to the extent that the principles were generally established.

Key Principles of Body Language

The subconscious level of Fast and Nierenberg, is the level to which Sapir referred when he stated “... we
respond to gestures . . . in accordance with an elaborate and secret code that is written nowhere, known by none and understood by all" (51, p. 556). Davis refers to this level as the intuitive level (23).

Body language, then, is based on macrokinesics about which Birdwhistell stated "... supplies ... the wordlike, the phraselike, sentencelike and the paragraph-like forms of the kinesic communicative stream" (7, p. 117). This adds the concept of language to the body movements of macrokinesics. The term body language is the expression of this idea.

Birdwhistell referred to the fact that gestures can be consciously interpreted when he said "Gestures are characterized by the fact that informants can easily recall them and attach a general order of meaning to them as recognized" (7, p. 119).

Birdwhistell also demonstrated that kinesics alone cannot analyze the social meaning of interaction. The context of the interaction must be considered, in conjunction with kinesics to analyze social meaning. Similarly Birdwhistell contributed other concepts upon which body language is based (48). Body language is, today, a widely accepted field of study, although, it has only been in this decade that body language has been formally recognized (12, 28, 36, 44, 48).
Summary

Body language was an undifferentiated part of non-verbal communication for many years. The field of nonverbal communication was influenced primarily by researchers in speech, linguistics, anthropology, psychiatry, psychology, and research methodology.

The influence of these researchers preceded R. L. Birdwhistell's research in kinesics. Birdwhistell is considered the father of kinesics, which he divides into macrokinesics and microkinesics.

The term body language was first used by Taylor in a paper in 1953. Nierenberg used the principles of Birdwhistell's kinesics study but worked on the macrokinesic level. Nierenberg and Fast went to a more subjective system than did Birdwhistell but were able to correlate body language with social meaning. Body language is, today, a widely accepted field of study which has only been formally recognized in this decade.
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CHAPTER III

THE MODULE OF INSTRUCTION
IN BODY LANGUAGE

The basis of the module of instruction is that body language is used and understood by everyone, but, most often, on a subconscious (2, 3) or intuitive (1) level. The purpose of the module is to move this understanding from a subconscious to a conscious level. The module is only two hours in length in order to be useable in a wide variety of circumstances and occupy as little classtime as possible.

The approach of the module, which is presented as Exhibit I, makes five basic assumptions, which are

1. Illustration of body language requires a visual medium to graphically illustrate gestures and their meaning. In this module the teacher's physical movements and the line drawings in Handout I are used.

2. The various gesture-clusters must be organized into natural groupings which will facilitate student understanding.

3. The module should be presented to the teacher as a unit and should require very little or no instruction. This, of course, varies with the background of the teacher, but the teachers in this study have taught communications before.
4. At the beginning, illustrations should be presented to convince the student of the value of having a knowledge of body language.

5. Body language is understood by people on a subconscious or intuitive level. Moving this understanding to a conscious level is basically what is required to change their attitude toward body language.

The module uses three phases which are

I. Developing an interest in body language on the part of the student by using vivid and striking examples of body language in action.

II. Grouping and explaining the gestures and gesture-clusters and explaining the interrelationships among various gesture-clusters to the student. Handout I is provided to give visual representation (p. 38).

III. Allowing time for the class as a group to practice interpreting various body language gestures and gesture-clusters as a group and to have an opportunity to discuss individual questions and/or comments.

Exhibit I is the module of instruction as presented to each teacher. Handout I, which is a part of Exhibit I, is the handout as given to each student participating in the training. The drawings in Handout I were drawn by commercial artist, S. R. Kirkley.

Since the module was to be presented to experienced instructors who have previously taught communications, the module was designed to review and suggest procedures and not to give complete details of the principles, examples and
uses of body language. Further, the module is deliberately conversational in its wording.

Exhibit I

A Module of Instruction in Body Language

The purpose of this module is to favorably influence learner attitudes toward body language. A second important purpose is to teach the key principles of body language usage.

You will find the module is in three phases and you are encouraged to fit the emphasis in each phase to the characteristics and needs of the group being instructed. The three phases are

I. Developing an interest in body language on the part of the student by using vivid and striking examples of body language in action.

II. Grouping and explaining the gestures and gesture-clusters and explaining the interrelationships among the various gesture-clusters to the student. Handout I will provide visual representation of gestures.

III. Allowing time for the class as a group to practice interpreting various gestures and gesture-clusters and to have an opportunity to discuss individual questions and/or comments.

You are encouraged to be as animated as possible in illustrating the gestures in class and to give students adequate time to absorb the material. Translate the examples in this module into your own words. The approximate time required for this module is two hours.
If you wish additional information about body language, you are encouraged to consult one or both of the following references


**Phase One.**—The purpose of this phase is to give striking and vivid examples in body language to develop the student's awareness and interest. The examples which follow are suggested as outstanding, but add others which you know personally.

**Example I, The Elevator.**—There are body language "rules" which apply in an elevator of which most people are not consciously aware. For example, on entering an elevator occupied by one other person, you are allowed to look at the other person for only a split second, and then look away. Looking away means looking straight ahead, usually toward the elevator door. You stand as far away from the other person as possible and this usually means opposite corners. If a third person enters, he goes to a third corner. A fourth person goes to the fourth corner and if a fifth person enters, he stands in the center, equidistant from the other four. This behavior is only appropriate in an elevator.
If you wish to make someone uncomfortable in an elevator just stare at him or stand right next to him when no one else is in the elevator. You can readily tell if people are friends because these rules do not apply.

Example II, The Handshake.—(Address this to male students) Has your father or an uncle ever volunteered to teach you to shake hands like a man? He will usually tell you to grasp the hand firmly and not to pump the other person's hand too many times. Look at the various handshakes (have a student help you demonstrate these). Some people put their hand in your hand like a dead fish. Others pump your hand like a well pump handle, as if they expected water to come out of your mouth. Others try to show their strength and crush your hand.

Example III, The Library.—People will automatically divide the space on a table at which they are sitting without really being consciously aware of it. If you go into the library and sit at a table with several other students, the person next to you will resent it if you put your material across an imaginary line halfway between you on the table. He may even leave if you continue. If there are only two at the table and you sit beside him, he will probably move as if to say "There is a whole table here; why sit at my part?"
Example IV, The Speaker.—A speaker or teacher uses body language to provide feedback from the audience. The talented speaker can tell by various audience gestures who is interested and whether the majority of the audience is responding. He can then change his direction or emphasis if necessary to maintain their attention.

A speaker can even "poll" a group by making a statement which might have a sensitive meaning to the group and estimating how many respond with nervous or uncomfortable gestures.

Phase Two.—The purpose of phase two is to present the principles of body language to the students and to explain the interrelationships among gestures-clusters using Handout I to provide visual representation of the gestures.

The following is a brief discussion of principles which you will want to present in your own words during your discussion of body language. The figures which have descriptions should be presented to the class in this phase.

Body language contains gestures which are single body movements and gesture-clusters which are groups of related gestures. The gesture is like a word in English and the gesture-cluster is like a sentence, and from this idea comes the term body language.

Most body language is used and understood on a subconscious level so that we are not really aware of it.
Studies have shown that body language is used almost continuously by people when they communicate, even if no one else is present as, for example, on the telephone.

Consistency is the key to "reading" or interpreting body language. This idea called congruence means that the gesture is consistent with what is happening and has happened. So if gestures change, look for the reason for the change. Because body language is used on a subconscious level, studies have shown it to be more dependable than the spoken word when there is a conflict. A change in body language usually means a change in attitude.

There are four ways to verify another person's communication and attitude. Examine and watch for consistency in

1. what he says
2. the way he says it
3. body language
4. the situation including the personality of the person who is communicating.

"Reading" body language first requires a look at the individual to be sure a particular gesture is not just a habit or a mannerism. A single gesture usually cannot be interpreted by itself. Changes in gestures are very important as they usually reflect changing attitudes.

As you discuss the handout, describe how gestures can be grouped into related gestures and contrasted by the
change in their meaning. A partial scheme of body language flow is useful so that students know what to expect in gestures. Defensive and open gestures (Figures 3 and 5) are two of the most common. An individual who is defensive may become more open or vice versa.

Defensive gestures may also lead to indifferent gestures (Figure 4) while open gestures may lead to cooperative gestures (Figures 7 and 9). Indifference and cooperation can easily lead to superiority (Figures 15 and 16). Evaluation gestures (Figures 10, 11 and 12) may lead to any of these. These are just guidelines to common relationships. Figure 1 shows these graphically.

![Diagram of body language flow](image-url)

Fig. 1—A partial scheme of body language flow.
Handout I contains forty-one line drawings. The following is a brief description of the meaning of each drawing which may not be self-explanatory.

Figure 1 contains a businessman, a husband, and a boyfriend. Note the erect posture of the businessman, the careless slouch of the husband, and the secrecy of the boyfriend. These gestures are often present whether anyone else is present or not.

Figure 4 demonstrates a commonly misinterpreted gesture of indifference.

Figure 12 emphasizes the difference in evaluation (as in Figures 10 and 11) and a touching the nose gesture which usually indicates the individual is lying.

Figure 13 demonstrates one of many gestures which gain time to evaluate. Other similar gestures are the packing of a pipe and pinching the bridge of the nose.

Figure 14 demonstrates the hand-wringing gesture which indicates the subject is under pressure and in a poorly defensible position.

Figure 15 demonstrates a position which is often misconstrued as comfort and interest where it actually is a gesture which means the individual feels dominant in the situation. Note that the gesture-cluster reveals his feeling of dominance whether or not he really is dominant.
Figure 16 demonstrates a position of superiority which in effect says that I am above all of this. Again this is sometimes interpreted as relaxation.

Figure 20 points out a territorial declaration. The foot of the man in the center is on the table which indicates he is or feels he is the boss which is probably true because the other four men appear comfortable.

Phase Three.—Beginning with Figure 27, the handout contains undescribed illustrations to use for the group to practice. Ask the class to interpret these. Finally, encourage the class to discuss any questions or comments which members have. This following discussion may help in the interpretation process.

Figure 27 demonstrates a salesman and a customer. The customer is confident (hands) and bored (circling his foot). The salesman is leaning forward and emphasizing his point with his hands. He must overcome the customer's unresponsive attitude or not make a sale.

Figure 28 contains a bore (who is gesturing superiority) and his hapless victim.

Figure 30 contains a preening (nervous courting gesture) male and a relaxed female.

Figure 32 tells a body language story. Part A, the older man is the boss and says come into my office. Part B he reprimands the subordinate who is receptive to what is
being said. Part C, the subordinate leans over the table and forcefully objects. Part D, the boss is surprised (facial expression and glasses on the table) and the subordinate is defensive.

Figure 33 contains a court room scene with a pompous lawyer (left) and a ready and waiting lawyer (right).

The possible jurors are:

1. defensive - reject
2. confident - check why
3. cooperative - accept
4. self controlled - check why
5. superior - check why
6. ready - accept him.

Figure 34 demonstrates a boss standing over the subordinate. Clearly, the man standing is the boss because the man seated is comfortable.

Figure 35 demonstrates a man (with the glass in hand) who is trying to suppress a gesture of confidence.

Throughout your explanation, emphasize that to "read" body language, the student must look at the consistency of all the gestures made and consider the person who is gesturing and the situation at the time.
Fig. 1.

Businessman

Husband

Boyfriend

Introspective

Fig. 2.

Friendly

Broad

Fig. 2—Handout I.
Very Defensive
Fig. 3.

Indifferent
Fig. 4.

Open
Fig. 5.

What should I do?
Fig. 6.

Cooperative
Fig. 7.

Honesty
Fig. 8.
Cooperative
Fig. 9.

Critically evaluating
Fig. 10.

Evaluating
Fig. 11.

Lying
Fig. 12.

Gaining time to evaluate
Fig. 13.
Under pressure and worried
Fig. 14.

Feels dominant
Fig. 15.

Feels Superior
Fig. 16.

Confident
Fig. 17.
Pride in Ownership
Fig. 18.

Authority
Fig. 19.

Who is boss.
Fig. 20.

Boredom
Fig. 21.

Astonishment
Fig. 22.
Fig. 23. Strutting
Fig. 24. Energetic
Fig. 25. Preoccupied
Fig. 26. Down on his luck

Fig. 27.

Fig. 28.
This one's mine

Fig. 29.

This one's mine

Fig. 30.

Fig. 31.
Fig. 32.

Fig. 33.
CHAPTER BIBLIOGRAPHY


CHAPTER IV

METHODS AND PROCEDURES

The purpose of this chapter is to present a detailed description of the subjects and the measurement instrument, to explain the procedures used for the collection of data, and to describe the methods employed to analyze and the statistical treatment of the data.

Selection of the Subjects

Subjects for this study were students at an East Texas junior college which has an enrollment of approximately nine thousand students. The subjects were divided into two groups: those taking a freshman mid-management course in human relations and those taking a freshman course in speech. The experimental subjects were eighty-three mid-management and seventy-six speech students for a total of one hundred fifty-nine. These students were in day and night classes.

The study was conducted in conjunction with the communication segment of the mid-management and speech courses. The students were assigned randomly to various sections of each course. Certain sections were randomly selected to not have a pretest in accordance with the Solomon four-group design used.
Research Design

The research design used was the randomized Solomon four-group design (14). Intact class groups were used, but these classes were formed by random assignment. The writer was allowed to follow the assignment process to be sure no major deviation from random procedure occurred.

One group was pretested, treated (i.e., taught the module on body language) and posttested. A second group was treated and posttested. A third group was pretested, not treated and posttested. The fourth group was tested concurrently with the other groups, having had no treatment. Using 0 for a test and X as the treatment, this would be graphically illustrated as:

\[
\begin{align*}
R_0 & \quad X_1 \quad 0_2 \\
R & \quad X_2 \quad 0_3 \\
R_0 & \quad 0_4 \\
R & \quad 0_6
\end{align*}
\]

This design was used for the experimental and control groups. As discussed in control procedures, there are several control and comparison features in the Solomon design.
Experimental Variables

The experimental variables were the scores on the instrument in Appendix A. The two subdivisions of the test are: the attitude or affective score reflected by sections I and III; and the cognitive score as reflected by sections II and IV.

The data sheet in Appendix B recorded the demographic data at the time the posttest was taken. The data sheet provided information for demographic comparisons.

Control Procedures

The Solomon design was proposed to eliminate difficulties in generalizing results which are faced in other designs (14). This design controls selection, history, maturation, testing, statistical regression, and experimental mortality (14).

The total control group contained one hundred ninety-one students from three subject areas. The first group was a class in mid-management which contained fourteen students similar in background to the experimental group but who did not take the human relations course. The second group contained ninety-three students in an introduction to business class which contains mid-management and academic majors. The third group contained eighty-four students in government which normally contains only academic students since
government is not required of vocational-technical students at this institution.

Instrumentation

The test instrument in Appendix A was developed specifically for this study by the author. This instrument is divided into the affective or attitude sections I and III, and the cognitive sections II and IV.

The affective sections were developed using the methods of Likert for the measurement of attitude (10). Several other references were consulted during the process of test construction (2, 3, 4, 7, 9, 11, 12, 15). Section III does incorporate the uncertain category used by Likert into the "no" category. This section of the test is, therefore, more conservative because there is less chance of detecting a difference.

The cognitive sections are simply multiple choice questions with five possible responses and only one correct answer. Section IV contains drawings to be interpreted.

The basic concepts of the test are from Birdwhistell (1), Nierenberg (13), Past (5), and Knapp (8). In the cognitive drawings, three are relatively easy while the others require a basic working knowledge of body language.

In order to establish content validity, the test was presented to three junior college instructors teaching communications, and, specifically, body language. They gave
unanimous agreement that the instrument does test for the key principles of body language (14).

The test was also presented to two North Texas State University professors in the field of instrument design and no objection was voiced as to its structure and scaling.

Finally, the test was presented to a group of twenty junior college students and they were asked to evaluate it as to readability and clarity (14).

A maximum administration time of nine minutes was adequate, so there is a minimum of time devoted to test taking. This insures maximum time for the module of instruction. In order to match tests in the pretest and posttest, but not identify individuals, each student wrote the last four digits of his social security number and the first initial of his last name. This allowed matching of tests, but the individual did not sign his name. The pretest and posttest were administered at least fourteen days apart, as is called for in test administration theory (14).

Procedures for Collection of the Data

The experimental group contained four classes in mid-management and four classes in speech. Of the four instructors involved, one was the writer who taught in both speech and mid-management. Table I, page 53, gives a breakdown of the mid-management (MG) and speech (SPH) experimental groups.
TABLE I
DESCRIPTION OF THE EXPERIMENTAL CLASS
AND SECTION ARRANGEMENT

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course</th>
<th>Pretest</th>
<th>Section</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MG</td>
<td>Yes</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>1</td>
<td>MG</td>
<td>No</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>MG</td>
<td>Yes</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>4</td>
<td>MG</td>
<td>Yes</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>1</td>
<td>SPH</td>
<td>Yes</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>SPH</td>
<td>No</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>1</td>
<td>SPH</td>
<td>Yes</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>5</td>
<td>SPH</td>
<td>No</td>
<td>1</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total 159</td>
</tr>
</tbody>
</table>

The control group contained one mid-management class, five classes in introduction to business (IB), and four classes in government (GV). The mid-management control class was tested by instructor number one who taught in the experimental group. Table II, page 54, gives a breakdown of the control groups.

Each instructor administered the instrument to his classes. The minimum time between the tests and/or the module and the posttest was to be ten days. In
TABLE II
DESCRIPTION OF THE CONTROL CLASS AND SECTION ARRANGEMENT

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course</th>
<th>Pretest</th>
<th>Section</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MG</td>
<td>Yes</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>6</td>
<td>IB</td>
<td>Yes</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>IB</td>
<td>Yes</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>6</td>
<td>IB</td>
<td>Yes</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>6</td>
<td>IB</td>
<td>No</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>6</td>
<td>IB</td>
<td>No</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>8</td>
<td>GV</td>
<td>No</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>8</td>
<td>GV</td>
<td>No</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>GV</td>
<td>Yes</td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>8</td>
<td>GV</td>
<td>Yes</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>Total 191</td>
</tr>
</tbody>
</table>

In fact, the elapsed time varied from fourteen to nineteen days.

Each student gave the last four digits of his social security number and the first initial of his last name to be used to match tests on pretest and posttest groups. The data sheet in Appendix B was completed after the posttest.
Procedures for the Analysis of Data

Since the instrument used for collecting data was developed by the writer, the first procedure was to test the instrument for reliability, including stability, internal consistency, and item-test correlation. The experimental and control groups were combined except for the stability test which was made with only the pretest-posttest control sections. These procedures are in addition to those discussed in the instrumentation section of this chapter.

The validity of the control group was tested to verify that no significant differences were present in either the affective or cognitive tests scores.

The experimental group was tested statistically by using the pretest-posttest scores or the appropriate comparison group for sections with a posttest only. The total pretest and posttest groups were used in comparing the speech and mid-management groups. The demographic data were tested using the entire experimental group and sorting for each characteristic.

Statistical Treatment

The treatment in each case was on the affective and cognitive sections separately. In order to test the stability of the instrument the Pearson product-moment
correlation was performed on the combined pretest-posttest control group classes (6). Internal consistency was tested through Cronbach's alpha index and item-test correlation on the combined experimental and control groups.

The \( t \)-test for correlated groups was performed on the scores of the pretest-posttest sections. The uncorrelated \( t \)-test was performed on the scores of the control sections with a posttest only (6). A closely related group was selected for comparison with each control section with a posttest only.

The \( t \)-test for correlated groups was performed on the scores of the pretest-posttest experimental sections. The uncorrelated \( t \)-test was performed on the scores of the experimental sections with a posttest only. A closely related group was selected for comparison with each experimental section with a posttest only.

For demographic comparisons, the uncorrelated \( t \)-test was performed after sorting the total experimental group for each characteristic. The demographic data were taken from the data sheet (See Appendix B).

The comparisons of students twenty years old or younger versus twenty-five years old or older and two years or less of work experience versus five years or more were chosen as extreme situations. A difference would have led to additional comparisons.
CHAPTER BIBLIOGRAPHY


CHAPTER V

PRESENTATION AND ANALYSIS
OF DATA

The purpose of this chapter is to present the statistical testing of the measuring instrument, the data from the study and the statistical analysis of the data. The statistical computations in this study were performed by the North Texas State University Computer Center. The statistical techniques employed were the $t$-test for correlated and uncorrelated groups, the Pearson product-moment correlation, the item-test correlation and the Cronbach's alpha index.

The statistical treatment of the affective test scores and the demographic comparisons were tested for mean differences using the .05 level of significance for retaining or rejecting the hypothesis. The cognitive test because of its shorter length and the possible influence of random guessing, was tested for mean differences using the .01 level of significance.

Statistical Testing of the Instrument

The instrument utilized in this study was developed by the writer. The data from the instrument, therefore, were tested statistically to determine the instrument's acceptability in test construction.
Internal consistency was measured using Cronbach's alpha index for all the test scores in the study. The results of the statistical computation are recorded in Table III.

**TABLE III**

**CRONBACH'S ALPHA INDICES FOR THE TEST INSTRUMENT**

<table>
<thead>
<tr>
<th>Source</th>
<th>Number</th>
<th>Alpha Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affective scores</td>
<td>559</td>
<td>0.826</td>
</tr>
<tr>
<td>Affective projected to 100 items</td>
<td>. .</td>
<td>0.937</td>
</tr>
<tr>
<td>Cognitive scores</td>
<td>559</td>
<td>0.638</td>
</tr>
<tr>
<td>Cognitive projected to 100 items</td>
<td>. .</td>
<td>0.941</td>
</tr>
</tbody>
</table>

The alpha index for the affective scores is acceptable while the alpha index on the cognitive scores is lower than is desirable. When the alpha index for the cognitive scores is projected to one hundred items, the result is excellent. This indicates the major problem lies in its length of only eleven items.

The item-test correlations were computed for the affective and cognitive tests. The results of this statistical computation for the affective scores are recorded in
### TABLE IV

**ITEM-TEST CORRELATIONS FOR THE AFFECTIVE SCORES**

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Item Test Correlation (N = 559)</th>
<th>Item Number</th>
<th>Item Test Correlation (N = 559)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.393</td>
<td>17</td>
<td>0.227</td>
</tr>
<tr>
<td>2</td>
<td>0.383</td>
<td>18</td>
<td>0.331</td>
</tr>
<tr>
<td>3</td>
<td>0.505</td>
<td>19</td>
<td>0.373</td>
</tr>
<tr>
<td>4</td>
<td>0.393</td>
<td>20</td>
<td>0.239</td>
</tr>
<tr>
<td>5</td>
<td>0.535</td>
<td>21</td>
<td>0.339</td>
</tr>
<tr>
<td>6</td>
<td>0.435</td>
<td>22</td>
<td>0.280</td>
</tr>
<tr>
<td>7</td>
<td>0.373</td>
<td>23</td>
<td>0.211</td>
</tr>
<tr>
<td>8</td>
<td>0.425</td>
<td>24</td>
<td>0.102</td>
</tr>
<tr>
<td>9</td>
<td>0.444</td>
<td>25</td>
<td>0.073</td>
</tr>
<tr>
<td>10</td>
<td>0.444</td>
<td>26</td>
<td>0.187</td>
</tr>
<tr>
<td>11</td>
<td>0.529</td>
<td>27</td>
<td>0.259</td>
</tr>
<tr>
<td>12</td>
<td>0.111</td>
<td>28</td>
<td>0.305</td>
</tr>
<tr>
<td>13</td>
<td>0.540</td>
<td>29</td>
<td>0.266</td>
</tr>
<tr>
<td>14</td>
<td>0.445</td>
<td>30</td>
<td>0.239</td>
</tr>
<tr>
<td>15</td>
<td>0.367</td>
<td>31</td>
<td>0.252</td>
</tr>
<tr>
<td>16</td>
<td>0.387</td>
<td>32</td>
<td>0.234</td>
</tr>
</tbody>
</table>
Table IV, page 61, while for the cognitive scores, the results are recorded in Table V.

**TABLE V**

ITEM-TEST CORRELATIONS FOR THE COGNITIVE SCORES

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Item-test Correlation (N = 559)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.278</td>
</tr>
<tr>
<td>2</td>
<td>0.182</td>
</tr>
<tr>
<td>3</td>
<td>0.145</td>
</tr>
<tr>
<td>4</td>
<td>0.183</td>
</tr>
<tr>
<td>5</td>
<td>0.188</td>
</tr>
<tr>
<td>6</td>
<td>0.344</td>
</tr>
<tr>
<td>7</td>
<td>0.500</td>
</tr>
<tr>
<td>8</td>
<td>0.396</td>
</tr>
<tr>
<td>9</td>
<td>0.336</td>
</tr>
<tr>
<td>10</td>
<td>0.324</td>
</tr>
<tr>
<td>11</td>
<td>0.337</td>
</tr>
</tbody>
</table>

The level of significance for item-test correlation with an N of five hundred and fifty-nine is 0.100. Based on these item-test correlations, the only item in the affective test of the instrument which fails to reach the significance level
is item twenty-five. Thirty-one of the thirty-two item-test correlations are above the minimum level of significance.

For the cognitive test of the instrument, all item-test correlations are above the minimum level of significance.

The coefficient of stability was calculated for the pretest-posttest control groups on the affective and cognitive tests. The Pearson product-moment correlation coefficients were computed and are recorded in Table VI, page 64, with the means and standard deviations of these groups. The maximum scores are one hundred forty-three for the affective test and eleven for the cognitive.

The correlation coefficient of the affective test is acceptable. The lower coefficient for the cognitive test is a reflection of its shorter length.

**Statistical Treatment of the Data**

The acceptability of the use of the \( t \)-test in this study was verified by testing the significance of the differences in the variance for the groups. The results of the statistical computation are recorded in Table VII, page 65.

There are no significant differences in the variance of the control or experimental groups which establishes the acceptability of the use of the \( t \)-test.

The selection of \( t \)-test comparison groups utilized in the study were validated by computing multiple \( t \)-test
TABLE VI
THE PEARSON PRODUCT-MOMENT CORRELATION
COEFFICIENTS FOR THE INSTRUMENT

<table>
<thead>
<tr>
<th>Test</th>
<th>Pearson Product-Moment</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Maximum Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affective</td>
<td>0.819</td>
<td>Mean: 114.8</td>
<td>Mean: 116.2</td>
<td>143</td>
</tr>
<tr>
<td></td>
<td>Standard Deviation: 9.9</td>
<td>Standard Deviation: 9.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive</td>
<td>0.569</td>
<td>Mean: 3.8</td>
<td>Mean: 4.2</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Standard Deviation: 1.9</td>
<td>Standard Deviation: 1.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>Test</td>
<td>Pretest Variance</td>
<td>Posttest Variance</td>
<td>t Value</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Experimental Affective</td>
<td>76.39</td>
<td>104.69</td>
<td>3.76</td>
<td>1.37</td>
</tr>
<tr>
<td>Experimental Cognitive</td>
<td>4.73</td>
<td>97.61</td>
<td>3.10</td>
<td>1.68</td>
</tr>
<tr>
<td>Control Affective</td>
<td>85.75</td>
<td>3.64</td>
<td></td>
<td>0.25</td>
</tr>
<tr>
<td>Control Cognitive</td>
<td>3.10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*No significant difference.*
comparison of the experimental pretest and posttest means for each instructor. The results of this computation are in Table VIII, page 67.

The abbreviation NSD means no significant difference or if there is a significant difference, the significance is stated.

A detailed examination of the pretest results of the instructor comparisons indicated that the pretest mean for the speech group was significantly higher than the pretest scores of the other groups. Investigation indicated that the random selection process for pretest sections inadvertently selected two sections with a high percentage of students majoring in speech and drama who had a more favorable attitude than the other sections. This necessitated using the pretest scores of the introduction to business and government sections to compare with one of the speech sections.

An examination of the posttest means indicated that the group which instructor two taught produced the only mean significantly different from the other instructors' posttest means and, in turn, was not significantly different compared to its pretest mean. This significant difference was for the affective test only. This is substantiated in a later comparison by the failure of instructor two to produce a significant difference on the affective test mean,
**TABLE VIII**

MULTIPLE t-VALUE COMPARISONS FOR INSTRUCTORS ON THE EXPERIMENTAL PRETEST

<table>
<thead>
<tr>
<th>Pretest/Posttest</th>
<th>Test</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t-Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>Affective</td>
<td>89</td>
<td>117.74</td>
<td>10.31</td>
<td>3.22</td>
<td>.05</td>
</tr>
<tr>
<td>Pretest</td>
<td>Cognitive</td>
<td>89</td>
<td>4.25</td>
<td>2.17</td>
<td>.24</td>
<td>NSD*</td>
</tr>
<tr>
<td>Posttest</td>
<td>Affective</td>
<td>159</td>
<td>123.53</td>
<td>8.78</td>
<td>7.69</td>
<td>.00</td>
</tr>
<tr>
<td>Posttest</td>
<td>Cognitive</td>
<td>159</td>
<td>7.34</td>
<td>1.94</td>
<td>11.21</td>
<td>.00</td>
</tr>
</tbody>
</table>

*No significant difference.
although he did so on the cognitive test. The cognitive
test had two sections which were significantly different
compared to other posttests, but both sections were also
significantly different from their respective pretests.

Testing the Control Group

The control group should produce no significant
differences in the test means to assure that the Solomon
four-group design is controlling for the extraneous influ-
ences. The correlated and uncorrelated t values for each
of the ten control groups are presented in Table IX, pages
69 and 70. The comparisons are for mid-management (MG),
introduction to business (IB) and government (GV) on the
affective and cognitive tests.

The t values for all sections of the control group
show no significant difference in the mean scores. Thus,
there is no adjustment required to the experimental group
for history, maturation, testing, instrumentation, statisti-
tical regression, or experimental mortality.

Hypothesis 1

Hypothesis 1 states that there will be a significant
difference in the mean scores on the affective test after
students are taught the body language module than before.
The results of the statistical computation to test hypothesis
1 are recorded in Table X, page 71.
### TABLE IX

**t VALUES FOR THE MEAN DIFFERENCES OF THE CONTROL GROUP COMPARISONS**

<table>
<thead>
<tr>
<th>Instructor/Course</th>
<th>Test</th>
<th>Section</th>
<th>Number</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>t Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/MG</td>
<td>A*</td>
<td>3</td>
<td>14</td>
<td>2.29</td>
<td>8.28</td>
<td>1.03</td>
<td>27</td>
<td>NSD***</td>
</tr>
<tr>
<td>1/MG</td>
<td>C**</td>
<td>3</td>
<td>14</td>
<td>-0.21</td>
<td>1.71</td>
<td>-0.46</td>
<td>27</td>
<td>NSD</td>
</tr>
<tr>
<td>6/IB</td>
<td>A</td>
<td>1</td>
<td>15</td>
<td>2.47</td>
<td>6.09</td>
<td>1.57</td>
<td>29</td>
<td>NSD</td>
</tr>
<tr>
<td>6/IB</td>
<td>C</td>
<td>1</td>
<td>15</td>
<td>-0.07</td>
<td>2.08</td>
<td>-0.12</td>
<td>29</td>
<td>NSD</td>
</tr>
<tr>
<td>6/IB</td>
<td>A</td>
<td>2</td>
<td>23</td>
<td>0.78</td>
<td>4.51</td>
<td>0.83</td>
<td>45</td>
<td>NSD</td>
</tr>
<tr>
<td>6/IB</td>
<td>C</td>
<td>2</td>
<td>23</td>
<td>0.52</td>
<td>1.53</td>
<td>1.63</td>
<td>45</td>
<td>NSD</td>
</tr>
<tr>
<td>6/IB</td>
<td>A</td>
<td>3</td>
<td>23</td>
<td>1.48</td>
<td>5.25</td>
<td>1.35</td>
<td>45</td>
<td>NSD</td>
</tr>
<tr>
<td>6/IB</td>
<td>C</td>
<td>3</td>
<td>23</td>
<td>0.82</td>
<td>1.90</td>
<td>2.09</td>
<td>45</td>
<td>NSD</td>
</tr>
<tr>
<td>6/IB</td>
<td>A</td>
<td>4</td>
<td>21</td>
<td>3.22</td>
<td>8.73</td>
<td>2.11</td>
<td>75</td>
<td>NSD</td>
</tr>
<tr>
<td>6/IB</td>
<td>C</td>
<td>4</td>
<td>21</td>
<td>1.65</td>
<td>1.76</td>
<td>4.19</td>
<td>75</td>
<td>NSD</td>
</tr>
<tr>
<td>6/IB</td>
<td>A</td>
<td>5</td>
<td>17</td>
<td>1.83</td>
<td>9.40</td>
<td>0.49</td>
<td>71</td>
<td>NSD</td>
</tr>
<tr>
<td>6/IB</td>
<td>C</td>
<td>5</td>
<td>17</td>
<td>1.00</td>
<td>1.70</td>
<td>4.70</td>
<td>71</td>
<td>NSD</td>
</tr>
</tbody>
</table>
TABLE IX--Continued

<table>
<thead>
<tr>
<th>Instructor/Course</th>
<th>Test</th>
<th>Section</th>
<th>Number</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>t Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/GV</td>
<td>A</td>
<td>1</td>
<td>24</td>
<td>0.53</td>
<td>9.25</td>
<td>0.05</td>
<td>68</td>
<td>NSD</td>
</tr>
<tr>
<td>8/GV</td>
<td>C</td>
<td>1</td>
<td>24</td>
<td>0.36</td>
<td>1.91</td>
<td>0.58</td>
<td>68</td>
<td>NSD</td>
</tr>
<tr>
<td>8/GV</td>
<td>A</td>
<td>2</td>
<td>15</td>
<td>4.60</td>
<td>9.41</td>
<td>2.77</td>
<td>59</td>
<td>NSD</td>
</tr>
<tr>
<td>8/GV</td>
<td>C</td>
<td>2</td>
<td>15</td>
<td>0.69</td>
<td>2.01</td>
<td>1.33</td>
<td>59</td>
<td>NSD</td>
</tr>
<tr>
<td>8/GV</td>
<td>A</td>
<td>3</td>
<td>23</td>
<td>1.47</td>
<td>5.25</td>
<td>1.35</td>
<td>45</td>
<td>NSD</td>
</tr>
<tr>
<td>8/GV</td>
<td>C</td>
<td>3</td>
<td>23</td>
<td>0.83</td>
<td>1.90</td>
<td>2.09</td>
<td>45</td>
<td>NSD</td>
</tr>
<tr>
<td>8/GV</td>
<td>A</td>
<td>4</td>
<td>22</td>
<td>-0.27</td>
<td>4.35</td>
<td>-0.29</td>
<td>43</td>
<td>NSD</td>
</tr>
<tr>
<td>8/GV</td>
<td>C</td>
<td>4</td>
<td>22</td>
<td>0.05</td>
<td>1.43</td>
<td>0.15</td>
<td>43</td>
<td>NSD</td>
</tr>
</tbody>
</table>

*A = Affective.

**C = Cognitive.

***NSD = No significant difference.
<table>
<thead>
<tr>
<th>Instructor/Course</th>
<th>Section</th>
<th>Number</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>t Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/MG</td>
<td>1</td>
<td>20</td>
<td>10.65</td>
<td>7.77</td>
<td>6.12</td>
<td>39</td>
<td>.00</td>
</tr>
<tr>
<td>1/MG</td>
<td>2</td>
<td>18</td>
<td>7.94</td>
<td>8.98</td>
<td>9.01</td>
<td>37</td>
<td>.00</td>
</tr>
<tr>
<td>2/MG</td>
<td>1</td>
<td>23</td>
<td>7.35</td>
<td>10.57</td>
<td>1.06</td>
<td>45</td>
<td>NSD*</td>
</tr>
<tr>
<td>4/MG</td>
<td>1</td>
<td>22</td>
<td>9.45</td>
<td>7.92</td>
<td>5.60</td>
<td>43</td>
<td>.00</td>
</tr>
<tr>
<td>1/SPH</td>
<td>1</td>
<td>11</td>
<td>7.55</td>
<td>7.20</td>
<td>3.47</td>
<td>21</td>
<td>.00</td>
</tr>
<tr>
<td>1/SPH</td>
<td>2</td>
<td>19</td>
<td>8.13</td>
<td>8.80</td>
<td>14.11</td>
<td>63</td>
<td>.00</td>
</tr>
<tr>
<td>1/SPH</td>
<td>3</td>
<td>13</td>
<td>6.33</td>
<td>9.09</td>
<td>2.87</td>
<td>25</td>
<td>.04</td>
</tr>
<tr>
<td>5/SPH</td>
<td>1</td>
<td>33</td>
<td>3.97</td>
<td>8.28</td>
<td>4.58</td>
<td>77</td>
<td>.04</td>
</tr>
</tbody>
</table>

*No significant difference.
In the comparisons in Table X, page 71, there is a significant difference in every section except instructor two who taught mid-management. Instructor two agreed to participate in the study, but chose to accept and use only Handout I because he felt that he had enough experience to teach body language without the other material. Seven of the eight sections did show significant differences, therefore, hypothesis 1 was accepted.

Hypothesis 2

Hypothesis 2 states that there will not be a significant difference in the mean scores on the affective pretest of students in mid-management and speech. The results of the statistical computation to test hypothesis 2 are recorded in Table XI, page 73.

The affective pretest comparison of the mid-management and speech groups produced no significant difference, thus hypothesis 2 was accepted.

Hypothesis 3

Hypothesis 3 states that there will not be a significant difference in the mean scores on the affective posttest of students in mid-management and speech. The results of the statistical computation to test hypothesis 3 are recorded in Table XI, page 73.
### TABLE XI

\begin{center}
\textbf{t VALUES FOR THE MEAN DIFFERENCES FOR THE MID-MANAGEMENT AND SPEECH EXPERIMENTAL GROUPS ON THE AFFECTIVE TEST}
\end{center}

\begin{tabular}{|c|c|c|c|c|c|}
\hline
Pretest/Posttest & Mean Difference & Standard Deviation & \textit{t} Value & Degrees of Freedom & Significance \\
\hline
Pretest & 4.88 & 10.31 & 2.14 & 75 & NSD* \\
Posttest & 2.18 & 8.77 & 2.34 & 145 & NSD \\
\hline
\end{tabular}

*No significant difference.
The affective posttest comparison of mid-management and speech student produced no significant difference, thus, hypothesis 3 was accepted.

Hypothesis 4

Hypothesis 4 states that there will be a significant difference in the mean scores for the affective pretest of students with any prior exposure to the principles of body language and those with no prior exposure. The results of the statistical computation to test hypothesis 4 is presented in Table XII, page 75.

The affective pretest comparison of students with any prior experience and those with no prior exposure produced a significant difference, thus, hypothesis 4 was accepted.

Hypothesis 5

Hypothesis 5 states there will be a significant difference in the mean scores for the affective posttest of students with any prior exposure to the principles of body language and those with no prior exposures. The results of the statistical computation to test hypothesis 5 are recorded in Table XII, page 75.

The affective posttest comparison of students with any prior exposure to the principles of body language and those
<table>
<thead>
<tr>
<th>Pretest/Posttest</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>( t ) Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>9.41</td>
<td>10.31</td>
<td>10.06</td>
<td>75</td>
<td>.00</td>
</tr>
<tr>
<td>Posttest</td>
<td>7.39</td>
<td>8.78</td>
<td>13.89</td>
<td>145</td>
<td>.00</td>
</tr>
</tbody>
</table>
with no prior exposure, produced a significant difference, thus, hypothesis 5 was accepted.

**Hypothesis 6**

Hypothesis 6 states there will be a significant difference in the mean scores on both the affective pretest and posttest of students twenty-five years old or older and those twenty years old or younger. The results of the statistical computation to test hypothesis 6 are recorded in Table XIII, page 77.

The affective pretest and posttest comparison of students twenty-five years old or older and those twenty years old or younger produced no significant difference, thus, hypothesis 6 was rejected.

**Hypothesis 7**

Hypothesis 7 states there will be a significant difference in the mean scores on both the affective pretest and posttest of students with five years or more of business experience and those with two years or less. The results of the statistical computation to test hypothesis 7 are recorded in Table XIV, page 78.

The affective pretest and posttest comparisons of students with five years or more of business experience and those with two years or less produced no significant difference, thus, hypothesis 7 was rejected.
<table>
<thead>
<tr>
<th>Pretest/Posttest</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>t Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>4.51</td>
<td>10.25</td>
<td>1.37</td>
<td>67</td>
<td>NSD*</td>
</tr>
<tr>
<td>Posttest</td>
<td>2.92</td>
<td>8.88</td>
<td>3.56</td>
<td>132</td>
<td>NSD</td>
</tr>
</tbody>
</table>

*No significant difference
TABLE XIV

\( t \) VALUE FOR THE MEAN DIFFERENCES FOR BUSINESS EXPERIENCE ON THE AFFECTIVE TEST

<table>
<thead>
<tr>
<th>Pretest/Posttest</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>( t ) Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>3.66</td>
<td>10.56</td>
<td>1.48</td>
<td>62</td>
<td>NSD*</td>
</tr>
<tr>
<td>Posttest</td>
<td>2.10</td>
<td>9.01</td>
<td>1.75</td>
<td>128</td>
<td>NSD</td>
</tr>
</tbody>
</table>

*No significant difference
Hypothesis 8

Hypothesis 8 states that there will be no significant difference in the mean scores on either the affective pre-test or posttest of male and female students. The results of the statistical computation to test hypothesis 8 are recorded in Table XV, page 80.

The affective pretest and posttest comparison of male and female students produced no significant difference, thus, hypothesis 8 was accepted.

Hypothesis 9

Hypothesis 9 states that there will be a significant difference in the mean scores on the cognitive test after students are taught the body language module than before. The results of the statistical computation to test hypothesis 9 are recorded in Table XVI, page 81.

In the comparisons in Table XVI, page 81, there is a significant difference in every section, therefore, hypothesis 9 was accepted.

Hypothesis 10

Hypothesis 10 states that there will be no significant difference in the mean scores on the cognitive pretest of students in mid-management and speech. The results of the statistical computation to test hypothesis 10 are recorded in Table XVII, page 82.
TABLE XV

\( t \) VALUES FOR THE MEAN DIFFERENCES FOR MALE AND FEMALE STUDENTS ON THE AFFECTIVE TEST

<table>
<thead>
<tr>
<th>Pretest/Posttest</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>( t ) Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>0.88</td>
<td>10.31</td>
<td>0.06</td>
<td>75</td>
<td>NSD*</td>
</tr>
<tr>
<td>Posttest</td>
<td>2.93</td>
<td>8.79</td>
<td>3.10</td>
<td>143</td>
<td>NSD</td>
</tr>
</tbody>
</table>

*No significant difference
## TABLE XVI

**t VALUES FOR THE MEAN DIFFERENCES FOR THE EXPERIMENTAL SECTIONS ON THE COGNITIVE TEST**

<table>
<thead>
<tr>
<th>Instructor/Course</th>
<th>Section</th>
<th>Number</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>t Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/MG</td>
<td>1</td>
<td>20</td>
<td>4.40</td>
<td>3.07</td>
<td>6.41</td>
<td>39</td>
<td>.00</td>
</tr>
<tr>
<td>1/MG</td>
<td>2</td>
<td>18</td>
<td>4.01</td>
<td>2.88</td>
<td>35.95</td>
<td>37</td>
<td>.00</td>
</tr>
<tr>
<td>2/MG</td>
<td>1</td>
<td>23</td>
<td>1.70</td>
<td>2.60</td>
<td>3.13</td>
<td>45</td>
<td>.00</td>
</tr>
<tr>
<td>4/MG</td>
<td>1</td>
<td>22</td>
<td>3.23</td>
<td>1.82</td>
<td>8.30</td>
<td>43</td>
<td>.00</td>
</tr>
<tr>
<td>1/SPH</td>
<td>1</td>
<td>11</td>
<td>4.36</td>
<td>1.20</td>
<td>12.00</td>
<td>21</td>
<td>.00</td>
</tr>
<tr>
<td>1/SPH</td>
<td>2</td>
<td>19</td>
<td>4.36</td>
<td>2.74</td>
<td>70.68</td>
<td>63</td>
<td>.00</td>
</tr>
<tr>
<td>1/SPH</td>
<td>3</td>
<td>13</td>
<td>3.54</td>
<td>2.11</td>
<td>6.05</td>
<td>25</td>
<td>.00</td>
</tr>
<tr>
<td>5/SPH</td>
<td>1</td>
<td>33</td>
<td>2.54</td>
<td>2.32</td>
<td>31.56</td>
<td>77</td>
<td>.00</td>
</tr>
</tbody>
</table>
TABLE XVII

\( t \) VALUES FOR THE MEAN DIFFERENCES FOR THE MID-MANAGEMENT AND SPEECH EXPERIMENTAL GROUPS ON THE COGNITIVE TEST

<table>
<thead>
<tr>
<th>Pretest/Posttest</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>( t ) Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>0.50</td>
<td>2.17</td>
<td>0.50</td>
<td>75</td>
<td>NSD*</td>
</tr>
<tr>
<td>Posttest</td>
<td>0.46</td>
<td>1.95</td>
<td>2.04</td>
<td>145</td>
<td>NSD</td>
</tr>
</tbody>
</table>

*No significant difference*
The cognitive pretest comparison of the mid-management and speech groups produced no significant difference, thus, hypothesis 10 was accepted.

Hypothesis 11

Hypothesis 11 states that there will not be a significant difference in the mean scores on the cognitive posttest of students in mid-management and speech. The results of the statistical computation to test hypothesis 11 are recorded in Table XVII, page 82.

The cognitive posttest comparison of the mid-management and speech groups produced no significant difference, thus, hypothesis 11 was accepted.

Hypothesis 12

Hypothesis 12 states that there will be a significant difference in the mean scores on the cognitive pretest of students with any prior exposure to the principles of body language and those with no prior exposure. The results of the statistical computation to test hypothesis 12 are recorded in Table XVIII, page 84.

The cognitive pretest comparison of students with any prior exposure to the principles of body language and those with no prior exposure produced a significant difference, thus, hypothesis 12 is accepted.
<table>
<thead>
<tr>
<th>Pretest/Posttest</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>t Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>1.83</td>
<td>2.16</td>
<td>8.48</td>
<td>75</td>
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<tr>
<td>Posttest</td>
<td>1.49</td>
<td>1.95</td>
<td>11.31</td>
<td>145</td>
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</table>
Hypothesis 13

Hypothesis 13 states that there will be a significant difference in the mean scores on the cognitive posttest for students with any prior exposure to body language and those with no prior exposure. The results of the statistical computation to test hypothesis 13 are recorded in Table XVIII, page 84.

The cognitive posttest comparison of students with any prior exposure to the principles of body language and those with no prior exposure produced a significant difference, thus, hypothesis 13 was accepted.

Hypothesis 14

Hypothesis 14 states that there will be a significant difference in the mean scores on both the cognitive pretest and posttest of students twenty-five years old or older and those twenty years old or younger. The results of the statistical computation to test hypothesis 14 are recorded in Table XIX, page 86.

The cognitive pretest and posttest comparisons of students twenty-five years old or older and twenty years old or younger produced no significant difference, thus, hypothesis 14 was rejected.
<table>
<thead>
<tr>
<th>Pretest/Posttest</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>t Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>0.35</td>
<td>2.24</td>
<td>1.37</td>
<td>67</td>
<td>NSD*</td>
</tr>
<tr>
<td>Posttest</td>
<td>0.60</td>
<td>1.95</td>
<td>3.14</td>
<td>132</td>
<td>NSD</td>
</tr>
</tbody>
</table>

*No significant difference
Hypothesis 15

Hypothesis 15 states that there will be a significant difference in the mean scores on both the cognitive pretest and posttest of students with five years or more of business experience and those with two years or less. The results of the statistical computation to test hypothesis 15 are recorded in Table XX, page 88.

The cognitive pretest and posttest comparisons of students with five years or more business experience and those with two years or less produced no significant difference, thus, hypothesis 15 was rejected.

Hypothesis 16

Hypothesis 16 states that there will not be a significant difference in the mean scores on either the cognitive pretest or posttest of male and female students. The results of the statistical computation to test hypothesis 16 are recorded in Table XXI, page 89.

The cognitive pretest and posttest comparisons of male and female students produced no significant difference, thus, hypothesis 16 was accepted.
TABLE XX

t VALUES FOR THE MEAN DIFFERENCES FOR BUSINESS EXPERIENCE ON THE COGNITIVE TEST

<table>
<thead>
<tr>
<th>Pretest/Posttest</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>t Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>0.00</td>
<td>2.16</td>
<td>0.00</td>
<td>62</td>
<td>NSD*</td>
</tr>
<tr>
<td>Posttest</td>
<td>0.64</td>
<td>2.00</td>
<td>3.38</td>
<td>128</td>
<td>NSD</td>
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</table>

*No significant difference
<table>
<thead>
<tr>
<th>Pretest/Posttest</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>t Value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>0.64</td>
<td>2.17</td>
<td>0.74</td>
<td>75</td>
<td>NSD*</td>
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<td>Posttest</td>
<td>0.28</td>
<td>1.95</td>
<td>0.56</td>
<td>143</td>
<td>NSD</td>
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</table>

*No significant difference
CHAPTER VI

SUMMARY, CONCLUSIONS AND
RECOMMENDATIONS

This study was an investigation into assessing and influencing the attitude and knowledge of post-secondary vocational and academic students concerning body language. The investigation was conducted utilizing a measuring instrument and a module of instruction both of which were developed by the writer. This chapter contains a summary of the background and purposes of the study, a summary of the methods and procedures used to obtain the data, a review of the structure and purpose of the module, the statistical findings, the conclusions and the recommendation of the study.

Summary of the Background and Purposes

This study was based on the need for improved person-to-person communication skill in students enrolled in mid-management which is a post-secondary vocational education program. Students enrolled in speech classes were included in the study to provide a basis for comparison of the attitude and knowledge of vocational and academic students concerning body language.
A review of the literature revealed no measuring instrument suitable for assessing student attitude and knowledge concerning body language. No module of instruction was available to serve as a basis to teach the principles of body language in post-secondary classes.

The purposes of the study were:

1. To develop an instrument which will assess post-secondary students as to:
   a. their attitude toward body language.
   b. their knowledge of body language.

2. To develop a module of instruction in body language for use with post-secondary students to:
   a. influence their attitude toward body language.
   b. teach a fundamental knowledge of the use of body language.

Summary of Methods and Procedures

This study was conducted in an East Texas junior college with an enrollment of approximately nine thousand students. The subjects were from mid-management and speech classes, which included a segment on communication. There were eighty-three mid-management and seventy-six speech students who were taught the principles of body language in the communication segment of their course.

The research design was the Solomon four-group design with random student assignment and random selection as to which sections were pretested and which were not. The
The experimental variables were the affective and cognitive test scores from the instrument in Appendix A. The data sheet in Appendix B provided the demographic data. There was a large control group comprised of sections from mid-management, introduction to business, and government classes.

The instrument in Appendix A was developed using the techniques of Likert for the affective test. The cognitive test was developed using the concepts of Birdwhistell, Nierenberg, Fast and Knapp and included line drawings to be interpreted. Preliminary tests for content validity, structure, readability, and clarity were made before the study began.

The data were collected using the instrument in Appendix A in eight experimental and ten control sections. The scores on the affective and cognitive tests were recorded separately. The validity of the research design and the control groups were tested with Fisher's $t$-test for differences in the mean scores. The instrument was tested for internal consistency, item-test correlations, and stability.

Sixteen hypotheses were formulated to predict whether significant differences would or would not occur and these hypotheses were tested using Fisher's $t$-test for correlated and uncorrelated samples. Equal variance in the comparison
groups, which is required for the \( t \)-test, was verified prior to using the \( t \)-test. The affective and demographic comparisons were checked at the .05 level of significance while the cognitive test was checked at the .01 level because of its short length (eleven items) and the possible influence of random guessing.

Included were two hypotheses to test the effect of age and business experience. The comparisons of young (twenty-years old or younger) versus older (twenty-five years old and older) student scores and inexperienced (two years or less) versus experienced (more than five years) student scores were included.

Review of the Structure and Purpose of the Module of Instruction

The module was designed for use by teachers with experience in teaching communication. The basis of the module of instruction is that body language is used and understood on subconscious or intuitive level. The module was designed to bring that understanding to a conscious level.

The module is divided into three phases which are:

I. Developing an interest in body language on the part of the student by using vivid and striking examples of body language in action.

II. Grouping and explaining the gestures and gesture-clusters and the interrelationships among various gesture-clusters. Included as
a visual aid is a handout for the students which contains line drawings of various gesture situations.

III. Allowing time for the class as a group to practice interpreting various body language gestures and gesture-clusters and to have an opportunity to discuss individual questions and/or comments.

Statistical Findings

The findings can be divided into three areas which are: (1) testing of the instrument, (2) testing the validity of the research design, and (3) testing the hypotheses.

Testing of the Instrument

The instrument was tested for internal consistency, stability and item-test correlations. The test for internal consistency produced acceptable Cronbach's alpha indices. The item-test correlations revealed only one item in the affective test which did not reach the minimum level of significance.

Testing the Validity of the Research Design

A $t$-test for comparison of the variance of the pretest and posttest scores for the control and experimental groups revealed no significant differences in the variance. A multiple $t$-test for significance in the mean differences of the groups taught by each instructor revealed only one
pretest group with a significant difference in its pretest mean. The control sections, tested using the Fisher's t-test, produced no significant differences in the means of the affective or cognitive test.

Testing the Hypotheses

Testing the sixteen hypotheses produced the following findings listed by hypothesis:

1. There was a significant difference in the mean scores on the affective test after students were taught the module than before.

2. There was no significant difference in the mean scores on the affective pretest of students in mid-management and speech classes.

3. There was no significant difference in the mean scores on the affective posttest of students in mid-management and speech classes.

4. There was a significant difference in the mean scores for the affective pretest of students with any prior exposure to the principles of body language and those with no prior exposure.

5. There was a significant difference in the mean scores on the affective posttest of students with any prior exposure to the principles of body language and those with no prior exposure.
6. There was no significant difference in the mean differences on the affective pretest or posttest of students twenty-five years old or older and twenty years old or younger.

7. There was no significant difference in the mean scores on the affective pretest or posttest of students with five years or more of business experience and those with two years or less.

8. There was no significant difference in the mean scores on the affective pretest or posttest of male and female students.

9. There was a significant difference in the mean scores on the cognitive test after students were taught the module than before.

10. There was no significant difference in the mean scores on the cognitive pretest of students in mid-management and speech classes.

11. There was no significant difference in the mean scores on the cognitive posttest of students in mid-management and speech classes.

12. There was a significant difference in the mean scores on the cognitive pretest of students with any prior exposure to the principles of body language and those with no prior exposure.

13. There was a significant difference in the mean scores on the posttest of students with any prior exposure
to the principles of body language and those with no prior exposure.

14. There was no significant difference in the mean scores on the pretest or posttest of students twenty-five years old and older and twenty years old or younger.

15. There was no significant difference in the mean scores on the pretest or posttest of students with five or more years of business experience and those with two years or less.

16. There was no significant difference in the mean scores on the pretest or posttest of male and female students.

Conclusions

Several conclusions can be drawn from this study. These conclusions are:

1. The instrument in Appendix A seems to be acceptable for assessing the attitude and knowledge of post-secondary students concerning body language.

2. The module of instruction in body language, seems to be acceptable as a basis for influencing the attitude and knowledge of post-secondary students concerning body language.

3. The mid-management and speech students were comparable in attitude and knowledge concerning body language before and after being taught the module.
4. Any prior exposure to the principles of body language seemed to favorably influence student's attitude and knowledge concerning body language both before and after they were taught.

5. The age and business experience of students produced no apparent influence on student attitude and knowledge of body language.

6. The sex of the student seemed to produce no apparent influence on student attitude and knowledge of body language.

Recommendations

Three recommendations are offered for future research in view of the findings of this study. These recommendations are:

1. Further research should be conducted on the possibility of expanding and modifying the instrument in Appendix A and developing a profile of its measurement properties.

2. Further research should be conducted correlating the scores on the instrument and vocational success.

3. Further research should be conducted on the effectiveness of using the module of instruction presented in this study in other vocational programs.
APPENDIX A

Section I

DIRECTIONS: Circle the statement which most nearly agrees with your feelings on each of the following.

1. Body Language is almost continuously used by people to communicate.
   a. strongly agree
   b. agree
   c. uncertain
   d. disagree
   e. strongly disagree

2. Body Language is of little use to anyone.
   a. strongly agree
   b. agree
   c. uncertain
   d. disagree
   e. strongly disagree

3. Understanding and using Body Language can help anyone in any job.
   a. strongly agree
   b. agree
   c. uncertain
   d. disagree
   e. strongly disagree

4. Understanding and using Body Language is really usable only in certain jobs.
   a. strongly agree
   b. agree
   c. uncertain
   d. disagree
   e. strongly disagree

5. Understanding and using Body Language will make you much more sensitive to other people.
   a. strongly agree
   b. agree
   c. uncertain
   d. disagree
   e. strongly disagree
6. If you have a choice, the Body Language of a person is more dependable than his words which are spoken at the same time.

   a. strongly agree
   b. agree
   c. uncertain
   d. disagree
   e. strongly disagree

7. Most Body Language that people use is on a subconscious level.

   a. strongly agree
   b. agree
   c. uncertain
   d. disagree
   e. strongly disagree

8. A gesture in Body Language is like a word in speaking.

   a. strongly agree
   b. agree
   c. uncertain
   d. disagree
   e. strongly disagree


   a. strongly agree
   b. agree
   c. uncertain
   d. disagree
   e. strongly disagree

10. A change in Body Language usually signals a change in the person's attitude.

    a. strongly agree
    b. agree
    c. uncertain
    d. disagree
    e. strongly disagree

11. If we were all more sensitive to each other's Body Language, there would be a lot more understanding among people.

    a. strongly agree
    b. agree
12. Observing and becoming aware of gestures is one thing, but interpreting them is something else.

a. strongly agree
b. agree
c. uncertain
d. disagree
e. strongly disagree

13. Body Language may be interesting, but it is hardly worth studying.

a. strongly agree
b. agree
c. uncertain
d. disagree
e. strongly disagree

14. Body Language can play an important role in feedback to a speaker.

a. strongly agree
b. agree
c. uncertain
d. disagree
e. strongly disagree

15. Using body language, a speaker can tell who is listening or interested and who is not.

a. strongly agree
b. agree
c. uncertain
d. disagree
e. strongly disagree
Section II

DIRECTIONS: Circle the letter of the best answer to the following questions.

16. The key to successful use of Body Language in business is
   a. simplicity
   b. memorizing all the gestures
   c. knowing the gestures and looking for consistency in people
   d. look for the gestures you expect
   e. don't know

17. A gesture-cluster is
   a. a consistent grouping of related movements
   b. an isolated grouping of movements
   c. several movements
   d. several people in a group giving the same signal
   e. don't know

18. Congruence of a gesture means it is
   a. lost in a group
   b. not meaningful
   c. not just a mannerism
   d. just a mannerism
   e. don't know

Section III

DIRECTIONS: Circle "Yes" if you agree with a statement and "No" if you disagree or are not sure. We want your first impression.

UNDERSTANDING AND USING BODY LANGUAGE:

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20. Has unlimited possibilities.</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>21. Will solve some of humanities greatest problems.</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>22. Will be an influence for improved living.</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>23. Is sure to be effective.</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>24. Is a practical basis for future action.</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>25. Places great emphasis on dealing with</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Yes</td>
<td>No</td>
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<td>No</td>
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<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
35. Number 1 is
   a. the boss
   b. the subordinate
   c. a friend
   d. a close friend
   e. don't know

36. The man is
   a. sneaky
   b. bored
   c. sleepy
   d. evaluating
   e. don't know

37. He is being
   a. shy
   b. reluctant
   c. honest
   d. dishonest
   e. don't know

38. This man is
   a. feeling superior
   b. relaxed
   c. bored
   d. lost
   e. don't know
40. This man is
   a. relaxed
   b. sleepy
   c. open
   d. indifferent
   e. don't know

41. This man is
   a. lost
   b. open
   c. unresponsive
   d. unconcerned
   e. don't know

42. This man is
   a. lying
   b. scratching his nose
   c. sleepy
   d. tired
   e. don't know

43. This man is
   a. tired
   b. evaluating
   c. critically evaluating
   d. bored
   e. don't know
APPENDIX B

DATA SHEET

LAST 4 DIGITS OF YOUR SS NUMBER PLUS
1ST INITIAL OF YOUR LAST NAME ________________________________

INSTRUCTOR _____________________________________________

COURSE _________________________________________________

DATE ___________________________________________________

1. Have you read a book about or had training in body language?

______________________ Yes ________________________________ No

If yes, explain.

2. Male _______ Age _______ Single______

Female______ Married______

Divorced____

3. What type of work do you do?

(1) Retail Sales
(2) Industrial Sales
(3) Production
   (a) Supervision
   (b) Hourly
(4) Management
(5) Other___________________________

4. How many years of college or technical training do you have?

(1) Zero to one
(2) One to two
(3) _________________________(fill in)

5. How many years of business experience do you have?

Full time ________________

Part time ________________

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6. How long have you had your present job? _____

7. Are you a veteran? ______ Yes ______ No.
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