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AN ANALYSIS OF A NONVERBAL TRAINING PROGRAM'S
EFFECT UPON BUSINESS COMMUNICATIONS STUDENTS' SENSITIVITY TO
NONVERBAL FACIAL EXPRESSIONS

BY
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Bachelor of Science, University of North Dakota, 1973
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A Dissertation
Submitted to the Graduate Faculty
of the
University of North Dakota
in partial fulfillment of the requirements
for the degree of
Doctor of Philosophy

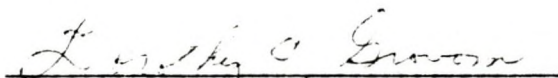
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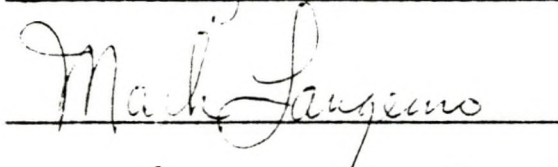
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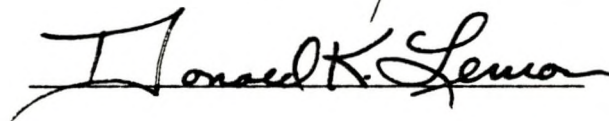
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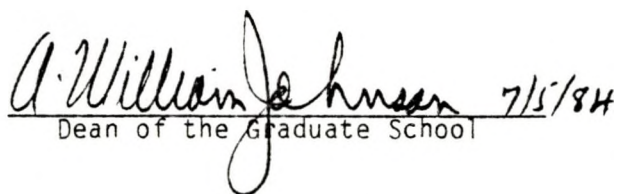








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Department Business and Vocational Education

Degree Doctor of Philosophy

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Signature Larry R. Houl
Date July 5, 1984

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ABSTRACT

Problem

The problem of this study was to determine if a specific training program in nonverbal facial communication for business communications students affects their sensitivity to nonverbal facial cues. A secondary problem was to determine if there was a difference between those groups trained in nonverbal facial communication and their sensitivity to para-language and kinesics (areas that received no formal training) and groups who received no such formal training.

Procedures

The study was conducted during the second semester of the 1982-83 school year. The study involved eight business communications classes, four teachers, and two post-secondary schools.

Of the 202 students who participated in the study, 111 were males and 91 were females. The 110 control students were administered the Profile of Nonverbal Sensitivity Test (PONS) as a pretest and a posttest. The experimental groups were also given the pretest and posttest along with three 45-minute training sessions in nonverbal facial communication.

The data collected from the 220-point PONS pretest and posttest were analyzed using analysis of variance and analysis of covariance. Data collected on a self-ranking score was analyzed using the Spearman Correlation coefficient.

Conclusions

The following conclusions are based on the findings which were presented in chapter 4.

1. It can be concluded that when using the methodology, materials, and population of this study that students trained in nonverbal facial communication showed no significant difference in their sensitivity to kinesic and facial nonverbal cues.

2. It can be concluded that when using the methodology, materials, and population of this study that no matter how a student ranked him/herself in decoding nonverbal cues, he/she did not perform significantly better than those who did not rank themselves as high in decoding nonverbal cues.

3. It can be concluded that when using the methodology, materials, and population of this study that males and females trained in nonverbal facial communication improved significantly in their ability to decode paralanguage cues.

4. It can be concluded that when using the methodology, materials, and population of this study that there was no significant relationship between the ranked scores in sensitivity to nonverbal cues and the PONS posttest scores.

CHAPTER I

INTRODUCTION

Although nonverbal communication plays a central role in human behavior, it remains far from being well understood. Rosenthal (1) said that we have just begun to learn about the ways in which our nonverbal behavior affects other people, about differences among people in their abilities to understand and convey nonverbal messages, and about the ways in which such differences matter to people's lives.

Nonverbal communication is a relatively new area of study. References in periodicals began appearing regularly in the early 1950s, largely as the result of work done in the area of human behavior by psychologists and sociologists. A number of popular books published since that time also indicate a growing awareness of the many different types of nonverbal behavior and their significance in human communication.

Haggblade (2) stressed that while widespread interest in nonverbal communication is a fairly new phenomenon, the implication of exchanging meaning without, or in addition to, the use of words has been suggested since ancient times. Summarized below are statements familiar to a person who has studied human communication:

"Actions speak louder than words" (unknown author).

"One picture is worth a thousand words" (Chinese proverb).

"No mortal can keep a secret. If his lips are silent, he chatters with his fingertips; betrayal oozes out of him at every pore" (Freud).

These early thoughts are being reinforced by present-day scholars. The

following two statements are being quoted in many of the more recent readings in nonverbal communication:

In face-to-face interaction the words spoken account for less than 35 percent of the total meaning produced while the remaining 65 percent is elicited by nonverbal cues (Birdwhistell) (3).

Generalizing, we can say that a person's nonverbal behavior has more bearing than his words on communicating feeling or attitudes to others. . . . Total feeling equals 7 percent verbal feeling, 38 percent vocal feeling, and 55 percent facial feeling (Mehrabian) (4).

Knapp (5) says the theoretical writings and research on nonverbal communication can be subdivided into seven areas: (1) body motion or kinesics, (2) physical characteristics, (3) touching behavior, (4) para-language, (5) proxemics, (6) artifacts, and (7) environment.

An eighth area described by Bruneau (6) is called chronemics--the study of human tempo as it relates to human communication. More specifically, chronemics involves the study of both subjective and objective human tempos as they influence and are interdependent with human behavior.

These eight major dimensions of nonverbal communication study have been emphasized in the fields of sociology and psychology, but the need for knowledge of these areas in the business setting is also starting to receive some promotion. Cooper (7), in his book Nonverbal Communication for Business Success, stated that most people who have attained even moderate success in the business world have some ability to observe and evaluate nonverbal cues.

In many of our communication opportunities in business, face-to-face situations are very common. Knapp (8) emphasized that the face is rich in communicative potential and is the primary site for communication of emotional states. It reflects interpersonal attitudes; it provides nonverbal feedback on the comments of others; and some say, next to human speech, it is the primary source of information.

If the face is next to the human voice in communication, one could conclude that the more knowledge and training one had in encoding and decoding facial cues, the better able one would be to communicate and understand another person.

Business education needs to supplement its present understanding of the role of nonverbal communication in business. Little formal research has been done in the area of nonverbal training. A nonverbal program developed specifically in nonverbal facial, kinesic, and paralanguage decoding may be a positive resource for business communications teachers to implement in their classrooms.

Statement of the Problem

The problem of this study was to determine if a specific training program in nonverbal facial communication for business communications students affects their sensitivity to nonverbal facial cues. A secondary problem was to determine if there was a difference between those groups trained in nonverbal facial communication and their sensitivity to paralanguage and kinesics (areas that received no formal training) and groups who received no such formal training.

Purposes of the Study

This study had the following purposes:

1. To determine if the teaching of nonverbal training in interpreting facial expressions has an effect on business communications students' sensitivity to nonverbal cues.
2. To use a systematic approach to determine whether or not students can increase their abilities to interpret nonverbal cues.
3. To provide business communications teachers with a nonverbal

training program applicable to teaching settings in business communications.

4. To initiate a foundation on which business communications teachers can build and improve the teaching of nonverbal communication in their courses.

5. To provide a basis for future formal research in developing learning modules and approaches for teaching nonverbal communication.

Need for the Study

Rosenthal (9), in his book Sensitivity to Nonverbal Communication, stated that nonverbal communication training has many unanswered questions. The need for formal research to answer these questions is necessary. He said:

To the extent that sensitivity to nonverbal cues can be improved, it may be useful to develop a variety of programs designed to improve sensitivity to nonverbal cues. The benefits to the helping professions of such training programs are obvious, but people in general may be benefited as well by participation in such programs of training. Perhaps improved sensitivity to nonverbal cues could contribute to an improvement in the relationship between the sexes, among ethnic groups and races, and among people in general.

Ekman and Friesen (10), two prominent researchers in nonverbal facial communication, stated in their book, Unmasking the Face, that:

Although there is strong evidence now that the face is the primary signal system for showing the emotions, no one taught you how to read those signals. And there is every reason to believe you were not born with the knowledge. You have to pick it up.

Ekman and Friesen gave six reasons for the importance of learning the communication potential of the face. The six reasons were:

1. To bring attention to what you may already be doing without knowing it.
2. To show what you may be missing entirely.
3. To correct what you may be misinterpreting.

4. To show the subtleties (the families of facial expressions) and the complexities (the blends of two emotions in one facial expression).

5. To alert you to signs of facial control and teach you how to discover when a facial qualifier is used, or when an expression is modulated or falsified.

6. To provide techniques for learning whether you show emotion in your own face in an unusual fashion.

These six needs provide a basis for understanding the need to train students in a business communications class about the power of the face in the communication process.

A statement to emphasize the need for understanding nonverbal communication was written by Rosenblatt (11) in his textbook, Communication in Business, when he said, ". . . make your nonverbal communication work for you and not against you." He also said, "Whether we are aware of it or not, each of us spends a lot of time decoding body language."

Smith (12), in the Special Research Edition of the Journal of Business Communication, emphasized that nonverbal communication is also a weak link in communication research. She concluded that most business communication research centers around theory and writing. Thus, nonverbal communication is an area that needs additional exploration.

A statement by Smith (12), in her article, "Speaking Out: Nonverbal and Verbal Communication Training Modules," emphasized nonverbal training and its place in the business communications classrooms. "Currently, verbal and nonverbal communication skills are covered superficially, if at all, in business communications courses which concentrate upon writing style and written communication." Recent research suggests that

business executives would value training in small group discussion, listening, understanding others, nonverbal messages, and decision-making.

Civiky and Rosenfeld (13), in their book With Words Unspoken--The Nonverbal Experience, stated that "We are usually aware of our verbal messages, but are not as conscious of our nonverbal ones." Yet, nonverbal behavior obviously has great influence in interpersonal encounters. It seems logical to expect, therefore, that by becoming more conscious of our nonverbal messages, we can increase our interpersonal sensitivity and, as a result, increase the probability of effective communication transactions.

One of the goals in business communications classes is to improve these effective communication transactions. The typical procedure to reach these goals is to provide learning modules in written communications, oral communications, and listening. However, another area that is being emphasized as a component of business communications classes is nonverbal communication. In the publication "Business Education into the Eighties" by the Illinois State Board of Education, one of the nine major objectives of a business communications course was for students to "understand the importance of nonverbal communication and interpret nonverbal cues (14)."

Finally, why the need to train students in nonverbal communication and especially facial cues? Both Birdwhistell (3) and Mehrabian (4) stressed the importance of nonverbal communication in our interpersonal communication. Both researchers said that between 65 and 90 percent of our communication is transmitted nonverbally, and that if one studies verbal communication he/she must learn how to interpret nonverbal communication.

Definitions

Terms that have a special meaning for understanding this study are:

Nonverbal communication. Those attributes or actions of humans, other than the use of words themselves, which have socially shared meaning, are intentionally sent or interpreted as intentional, are consciously or unconsciously sent and received, and have the potential for feedback from the receiver.

Channel. Any set of behaviors in a communication which has been systematically denoted by an observer and which is considered by that observer to carry information which can be studied independently of any other co-occurring behaviors. A channel allows a person to study different levels of nonverbal communication such as facial expressions, body movements, and tone of voice.

Nonverbal cue. A signal representing an action, mood, or frame of mind.

Sign language. All forms of communication in which words, numbers, and punctuation have been supplemented or replaced by gestures.

Object language. All intentional and nonintentional display of material things.

Kinesic behavior. (body movements)--Includes gestures, movements of the body, limbs, hands, head, feet and legs, facial expressions, eye behavior, and posture.

Paralanguage. How something is said and not what is said. Examples of paralanguage cues are voice tone, pitch, tempo, and articulation.

Proxemics. The study of a person's use and perception of his personal and social space.

Posttest. This word has been written as one word, a hyphenated word, and two words. This study will use it as one word.

Artifacts. All objects in contact with the interacting persons which can act as nonverbal stimuli.

Physical characteristics. Things which remain relatively unchanged during the period of interaction. Examples are physique or body shape, attractiveness, body and breath odors, height, weight, hair and skin color.

Touching behavior. Various types of physical contact which include hugging, hitting, holding, and kissing.

Environmental factors. All elements that affect communication but are not in contact with the communication (e.g., wall color, temperature, decor, etc.).

Facial Meaning Sensitivity Test. A three-part test composed of a set of photographs of forty different facial expressions.

Profile of Nonverbal Sensitivity (PONS). A standardized test for assessing the ability to decode nonverbal cues in various channels of nonverbal communication.

Limitations of the Study

The study was limited by the researcher's inability to control the following variables:

1. Students' attitudes towards the importance of nonverbal communication behavior.
2. Students' ability to react to visual/vocal cues and select responses on multiple-choice score sheets.
3. The difference in the times of day when the various participating post-secondary classes met.
4. The assignment of males and females to the experimental and control groups.

5. The scholastic aptitude, socioeconomic level, mental set, receptiveness, attitude, reasons for enrolling in the business communications class, and motivation of the individual students.

6. The emotional and physical condition of individual students due to classroom climate during the time period when the training modules were administered.

7. The cultural background of students involved in the study.

8. Teachers' attitudes towards the importance of teaching and learning nonverbal communication.

Delimitations of the Study

The study was delimited to:

1. Business communications students at two universities during the second semester of the 1982-83 academic year.

2. Three 45-minute training modules.

3. Training only in the decoding of nonverbal facial cues.

4. Scores of those students completing all the training modules and testing instruments.

Null Hypotheses

The following null hypotheses were tested for significance at the .05 level:

1. There is no significant difference in sensitivity to nonverbal facial cues between groups receiving training in nonverbal facial communication and those not receiving training when using the facial pretest scores as the covariate.

2. There is no significant difference in sensitivity to nonverbal facial cues between males receiving training in nonverbal facial com-

munication and those not receiving training when using the facial pretest scores as the covariate.

3. There is no significant difference in sensitivity to nonverbal facial cues between females receiving training in nonverbal facial communication and those not receiving training when using the facial pretest scores as the covariate.

4. There is no significant difference in sensitivity to nonverbal facial cues between male and female groups receiving training in nonverbal facial communication and those not receiving training when using the facial pretest scores as the covariate.

5. There is no significant difference in sensitivity to paralinguistic cues between groups receiving training in nonverbal facial communication and those not receiving training when using the paralinguistic pretest scores as the covariate.

6. There is no significant difference in sensitivity to paralinguistic cues between males receiving training in nonverbal facial communication and those not receiving training when using the paralinguistic pretest scores as the covariate.

7. There is no significant difference in sensitivity to paralinguistic cues between females receiving training in nonverbal facial communication and those not receiving training when using the paralinguistic pretest scores as the covariate.

8. There is no significant difference in sensitivity to paralinguistic cues between male and female groups receiving training in nonverbal facial communication and those not receiving training when using the paralinguistic pretest scores as the covariate.

9. There is no significant difference in sensitivity to kinesic cues between groups receiving training in nonverbal facial communication and those not receiving training when using the kinesic pretest scores as the covariate.

10. There is no significant difference in sensitivity to kinesic cues between males receiving training in nonverbal facial communication and those not receiving training when using the kinesic pretest scores as the covariate.

11. There is no significant difference in sensitivity to kinesic cues between females receiving training in nonverbal facial communication and those not receiving training when using the kinesic pretest scores as the covariate.

12. There is no significant difference in sensitivity to kinesic cues between male and female groups receiving training in nonverbal facial communication and those not receiving training when using the kinesic pretest scores as the covariate.

13. There is no significant difference in PONS posttest scores between groups receiving training in nonverbal facial communication and those not receiving training when using the PONS pretest scores as the covariate.

14. There is no significant difference in PONS posttest scores between males receiving training in nonverbal facial communication and those not receiving training when using the PONS pretest scores as the covariate.

15. There is no significant difference in PONS posttest scores between females receiving training in nonverbal facial communication and those not receiving training when using the PONS pretest scores as the covariate.

16. There is no significant difference in PONS posttest scores between male and female groups receiving training in nonverbal facial communication and those not receiving training when using the PONS pretest scores as the covariate.

17. There is no significant difference in self-ranking scores between groups receiving training in nonverbal facial communication and those not receiving training.

18. There is no significant difference in self-ranking scores between males receiving training in nonverbal facial communication and those not receiving training.

19. There is no significant difference in self-ranking scores between females receiving training in nonverbal facial communication and those not receiving training.

20. There is no significant difference in self-ranking scores between males and females receiving training in nonverbal facial communication and those not receiving training.

21. There is no significant relationship between self-ranking scores and PONS posttest scores by those not trained in nonverbal facial communication.

22. There is no significant relationship between self-ranking scores and PONS posttest scores by those trained in nonverbal facial communication.

23. There is no significant relationship between self-ranking scores of PONS posttest scores by males involved in the nonverbal facial communication study.

24. There is no significant relationship between self-ranking scores and PONS posttest scores by females involved in the nonverbal facial communication study.

Organization of the Chapters

This study was organized into five chapters. These chapters contain information about the (1) introduction; (2) literature review; (3) methodology; (4) findings; and (5) summary, conclusions, and recommendations.

Chapter 1 presents the statement of the problem, purposes of the study, need for the study, definitions of terms, limitations, delimitations, null hypotheses, and organization of the study.

Chapter 2 consists of a review of literature and research studies directly related to the study.

Chapter 3 is a report of the research methods and procedures used in obtaining and analyzing the data utilized in this study.

Chapter 4 is a summary of the results from administering a pretest, training modules, and a posttest to groups of business communications students.

Chapter 5 includes the summary, conclusions, and recommendations based on the findings presented in chapter 4.

CHAPTER II

LITERATURE REVIEW

Our understanding of the process of communication has been expanded in recent years. Where the early emphasis in the study of communication was on the spoken or written word, there is now an emphasis on the non-verbal. In the words of Montagu and Matson (15):

It is not merely a hidden dimension or a silent language that has been uncovered by the new way of scientific explorers; it is more like a neglected universe of discourse and intercourse. We are becoming aware that the verbal domain is only the tip of the iceberg of communicative experience--that there is more, much more, to human dialog than meets the ear.

Results obtained in numerous experiments and studies support the assumption that gestures, expressions, and other nonverbal behavior convey meaning. We no longer rely on speculation about the versatility of the face for expressing emotion, the communicative value of "body language," the use of personal space for structuring social relationships, or the significance of vocalization for inferring psychological status. Ekman's work on facial expressions; Mehrabian's role-playing experiments on postural cues; work by Argyle, Ellsworth and Exline on visual behavior; Sommer's and Hall's studies on proxemics; and Duncan's work on paralanguage all suggest that nonverbal behavior has considerable psychological significance (16).

The field of nonverbal communication has expanded into more depth in the last ten to fifteen years. The appearance in recent years of literature reviews by Harper, Wiens, and Matarazzo (17) and books of readings by Siegman and Feldstein (18) attest to the various areas of

nonverbal communication being explored. Broad theories that integrate these diverse specialties are beginning to surface and, perhaps most significantly, attention is being paid to applications of nonverbal communication in day-to-day communications.

Approaches to the Study of Nonverbal Communication

Most research that has been completed in the nonverbal area falls into four major categories. These are the "transcription," the "structural," the "external variable," and the "personality-oriented" approaches.

The "transcription" approach. Duncan (19) summarized the research in nonverbal communication historically as involving the development of transcription systems for categorizing nonverbal behaviors. These systems involved the efforts of linguists, such as Trager (20), who described paralanguage as consisting of vocalization and voice qualities; or ethologists, such as Birdwhistell (21), who developed a transcription system for almost every form of human movement. Hall (22) similarly developed a notation system for proxemic behaviors. The development and utilization of these transcription systems led to a series of descriptive studies where interpersonal behaviors were transformed into units of analysis.

The "structural" approach. Structuralists viewed nonverbal communication as roughly similar to verbal communication. Researchers of this type--for example, Birdwhistell (23), Scheflen (24), and Scheflen (25)--sought to uncover the internal rules and units of nonverbal communication much as a linguist would have done in the study of a verbal language. This approach was largely descriptive, relying on observational rather than experimental data. Its major thrust was that nonverbal language is

learned early and is culturally determined, and that a great deal of what transpires between individuals and groups is predetermined in its regularity.

The "external" approach. The external variable approach involved looking for systematic relationships (both within and between persons) between nonverbal behavior and psychological states, or between nonverbal behavior and the perception of meaning (Exline 26; Ekman, Friesen, and Ellsworth 27). Researchers using this approach asked what meanings were conveyed by various facial expressions, how variations in nonverbal behavior (such as eye contact or interpersonal distance) could affect interpersonal relationships, and whether the meanings attributed to different nonverbal behaviors were the same in different cultures.

The "personality-oriented" approach. In a fourth and more recent approach to the study of nonverbal communication, researchers focused primarily on individual differences in nonverbal behavior and, secondarily, on similarities among people or groups. This approach was a more personality-oriented approach, since it looked at aspects of nonverbal behavior--skill or style--that were considered to be somewhat enduring characteristics of a person. This research dealt with individual differences in people's skill at judging the meanings of nonverbal expressions and/or movements.

The study of the decoding of nonverbal cues is not new. Many efforts have been made in the past to assess the accuracy of judgments of nonverbal cues. Research on social intelligence (Walker and Foley 28); empathy (Campbell, Kagan, and Krathwohl 29); judging personality (Cline 30); and person perception (Tagiuri 31) all involved the decoding

of nonverbal cues to varying degrees. Such decoding was often mixed to an unknown extent with other skills and behaviors, such as ability to judge contextual or situational cues, knowledge of personal dispositions, wisdom in choosing one's social responses, and various motivational states. Decoding strictly nonverbal cues also has a long history of study and, in fact, is one of the oldest traditions in social psychology.

Various Descriptions of Nonverbal Communication

Definitions of nonverbal communication range from very broad to very narrow and rigorous statements. Knapp (32), a scholar for many years in nonverbal communication, stated:

Traditionally, educators, researchers, and laymen have used the following definition when discussing nonverbal communication: Nonverbal communication designates all those human responses which are not described as overtly manifested words (either spoken or written).

Harrison (33) commented on the definition of nonverbal communication as follows: The term nonverbal communication has been applied to a broad range of phenomena:

Everything from facial expressions and gestures to fashion and status symbol, from dance and drama to music and mime, from flow of affect to flow of traffic, from territoriality of animals to the protocol of diplomats, from extrasensory perception to analog computers, from the rhetoric of violence to the rhetoric of topless dancers.

Key (34), a linguist, noted that "human communication is a body movement, movement of the vocal apparatus which results in speech, the verbal act, or paralanguage, a nonverbal act."

These various definitions indicate the interdisciplinary effort and excitement this topic area has generated, and it "also reflects a lot of intellectual confusion, particularly when researchers try to move from speculation to investigation" (35).

Nonverbal Communication vs. Nonverbal Behavior

Wiener, Devoe, Rubinow, and Geller (36) dealt with the issue of nonverbal behavior versus nonverbal communication. These authors differentiated two terms that researchers tried to use synonymously. They stressed that nonverbal behavior consisted of signs and communications while the term "nonverbal communication" implied (a) a socially shared signal system, that is, a code; (b) an encoder who makes something public via that code; and (c) a decoder who responds systematically to that code. In contrast, a "nonverbal sign" implied only that a decoder has made an inference concerning a behavior or has attached some "significance" to a behavior. Nothing is implied about what goes on at the encoding end.

Unfortunately, in nonverbal communication research, most studies have involved decoding models where inferences are made concerning certain behavior, following which the inferred meanings of the behaviors are taken as "communications."

Disagreement on the boundary between verbal and nonverbal and the distinction between communicative and noncommunicative behavior still causes problems in nonverbal research. For example, Wiener et al. viewed nonverbal behavior that is communicative as a subset of the larger domain of specifiable nonverbal acts while, in contrast, Barker and Collins (37) stated:

There has been a tendency to use the term nonverbal communication synonymously with the term nonverbal behavior. However, nonverbal communication is much broader than nonverbal behavior. A room devoid of behaving, living things communicates atmosphere and function. Static clothing communicates the personality of the wearer.

In summary, what is meant by the terms nonverbal communication, nonverbal behavior, nonverbal signs or cues, and how they have been used

and classified by different authors are real problems in this area of research. These terms have sometimes been used as if they were interchangeable, though they are not. Nonverbal communication refers to the whole process of communication between two or more persons. In contrast, nonverbal behaviors are simply behaviors or physical acts that may or may not have a particular "meaning." The term nonverbal cue or sign implies that the behavior has some referential meaning beyond the act itself (36).

Although there is no consensual definition at present, many authors limited their consideration of nonverbal phenomena to those that were most important in the structuring and occurrence of interpersonal communication and the moment-to-moment regulation of the interaction. Some authors do not include dress, use of artifacts, and physical characteristics (e.g., appearance, body odor) in their review of nonverbal communication.

Research on Facial Expressions

In many respects the face may be the single most important body area and "channel" of nonverbal communication. In his overview on nonverbal communication, Knapp (38) noted:

The face is rich in communicative potential. It is the primary site for communicating emotional states; it reflects interpersonal attitudes; it provides nonverbal feedback on the comments of others; and some say that, next to human speech, it is the primary source of giving information. For these reasons and because of its visibility, we pay a great deal of attention to what we see in the faces of others.

Dittmann (39) remarked: "Facial expressions of emotion are very specific. . . . In this sense these expressions lie towards the communicative end of the scale."

As Ekman, Friesen, and Ellsworth (27) pointed out:

Although there are only a few words to describe different facial behaviors (smile, frown, furrow, squint, etc.), man's facial

muscles are sufficiently complex to allow more than a thousand different facial appearances; and the action of these muscles is so rapid, that these could all be shown in less than a few hours' time.

Harrison, Cohen, Crouch, Genova, and Steinberg (40), in their review of the nonverbal communication literature, stated the following about the contribution of Ekman, Friesen, and Ellsworth in the state of the art in facial research:

The Ekman, Friesen, Ellsworth volume, Emotion in the Human Face: Guidelines for Research and an Integration of Findings, might well have been titled: "All you ever wanted to know about facial research, and never would have thought to ask." . . . It is a must reading for any instructive reference book for any scholar with a general interest in nonverbal communication.

Though research on facial expression of emotion is currently one of the most important and promising areas in nonverbal communication research, this has only recently been the case. Though many early researchers pursued the notion that the face accurately communicates emotion, most of their research investigation resulted in failure. These unsuccessful efforts led Hebb (41) to conclude: "These studies have led to the conclusion that an emotion cannot be accurately identified by another observer."

Following these early efforts, most researchers left the study of the face as an unproductive venture and turned to other areas. During the 1950s little attention was given to facial research, though Schlosberg (42) continued the interest that he developed in the face while a student of Woodworth and subsequently developed a "dimensional approach" to the study of emotions. This line of research has been continued to the present by several researchers. In actuality, only in the last fifteen years has there been increased interest in the communicative aspects of facial behavior. Researchers have discovered that the face is an

important nonverbal channel because of the amount and kind of information it can convey.

Nonverbal Facial Research Categories and Strategies

Much of the early work on emotion and facial expression dealt with attempts to identify and define either distinct categories of emotion--such as happiness or sadness--or dimensions (e.g., pleasant-unpleasant) that were to describe various emotional categories.

In his review on nonverbal communication, Harrison (43) categorized researchers on the face into "those who are primarily interested in emotion and those who are interested in other factors, e.g., the face as a regulator." Those who are interested in facial effect can be further subdivided into those who employ a "dimensional approach" (Frijda 44) and those who take a "categorical approach" (Ekman, Friesen, and Ellsworth 27).

The categorical approach. The categorical approach makes the assumption that there is a set of basic emotions and, that once identified, these categories cannot be profitably reduced any further. The following passage by Ekman, Friesen, and Ellsworth (45) provides a summary of the categorical approach to studying emotion in the face:

Some theorists have postulated a set of basic emotion categories, or primary affects. Each of these categories includes a set of words denoting related emotions which may differ in intensity, degree of control, or, in minor ways, in denotative meaning. While the principle of inclusion is not always explained, the words within a category are held to be a lot more similar than the words across categories. Presumably though, no theorist has ever fully explicated the exact nature of such differences in facial components.

The typical research strategy to obtain the "categorical" emotions has been to obtain samples of emotional behavior and then have observers label each. Woodworth (46) employed one person enacting ten emotions for

photographs. Observers then rated these photographs using ten emotion words supplied them (those most commonly used from a much larger list of emotion words). Correlations between the poser's intended expression and the observer's judgment constituted the basis for selection of the particular categories. As a result of his work, Woodworth proposed the following categories or sets of categories: love, mirth, happiness, surprise, fear, suffering, anger, determination, disgust, and contempt.

Various other authors used a variety of research procedures to determine emotional categories. For example, Plutchik (47) proposed the following emotional categories: happiness, surprise, fear, sorrow, anger, disgust, anticipation, and acceptance. Tomkins and McCarter (48) emphasized these emotional categories: joy, surprise, fear, distress, anger, disgust, interest, and shame. Osgood (49) stated joy, surprise, fear, despair, determination, disgust, interest, and distrust as key emotional categories. Frijda (44) proposed the following emotional categories: happiness, surprise, fear, sadness, anger, disgust, attention, and skepticism.

In obtaining his emotional categories, Plutchik (47) photographed two stimulus persons instructed to move their facial muscles in every conceivable way rather than to pose emotions. In contrast, Tomkins and McCarter (48) used a large number of stimulus persons who were also photographed portraying various emotions. Osgood (49) had observers rate different subjects posing a total of forty different labels for feeling-states. Finally, Frijda also utilized factor analysis in evaluating observer ratings of still photographs of two persons posing an unspecified number of emotions.

Despite variations in emotional words within categories and some differences in the number of categories obtained, considerable agreement

was seen from these results. As Ekman, Friesen, and Ellsworth (45) noted:

It is a tribute to the robustness of the phenomena that, despite the span of time over which this research was done and the very different theoretical viewpoints of the investigators, the results are by and large consistent.

Based on their own and previous investigations, Ekman, Friesen and Ellsworth (27) proposed happiness, surprise, fear, sadness, anger, disgust-contempt, and interest as the seven major primary affect categories.

The dimensional approach. One approach to demonstrate that observers can reach an agreement on the meaning of a particular facial expression is to have observers consider facial behaviors in terms of traditional emotion labels or categories (happy, sad, fearful). An alternative approach is to assume that behind these categories are some "primary" dimensions on which judgments of emotion are based. Frijda (50) noted:

Recognition of emotion can be conceived of as a process of multidimensional placement rather than as placement in one of a number of unrelated categories. Moreover, the multitude of emotions as distinguished in the language appears to be reducible to combinations of a far smaller number of dimensions.

The dimension researchers attempt to define the fewest number of dimensions needed to describe adequately the facial reactions depicted. Two experimental approaches have typically been employed in dimensional studies. One method required observers to rate facial expressions on experimental preselected scales; the other, known as the similarity approach, requires judges to rate the similarity between pairs of faces.

The importance of a dimensional approach lies in identifying the fewest essential variables needed to define emotions. In his research, Schlosberg (42) defined the dimensions of pleasant-unpleasant, attention-rejection, and sleep-tension. Various other researchers came up with similar dimensions and some added two or three more dimensions. For

example, Osgood (49) employed live performances instead of photographs and obtained pleasant-unpleasant, quiet-intense, and interest-disinterest. Frijda and Philipzoon (51) used a set of thirty pictures in which an actress portrayed a variety of emotions and obtained four dimensions.

Most studies cited from two to seven dimensions. Ekman, Friesen, and Ellsworth (27) suggested that their dimensions are probably common to most studies (pleasant-unpleasant, attentional-activity, and intensity-control), but that at least one more and perhaps two or three more may be necessary to account for the emotions studied. The authors summarized the research on the dimensional approach by stating:

It seems doubtful that consistent findings about dimensions of emotion will be found until investigators utilize stimuli which have been shown by other means to represent a number of different emotion categories, . . . until they sample the behavior of many different persons, and until they select scales which systematically represent all or, at least, many of the aspects of emotion which might be judged from the face--appearance, feeling, action, consequences, etc.

Studies on the Recognition of Facial Expressions

"Confusion" among observers in recognizing facial expressions may lead to discrepant findings. In particular, some emotions may be frequently confused for one another. Tomkins and McCarter (48) described these errors as being "common confusions where a minority of judges are consistent in their rating of facial expression (and where a majority of observers use another emotional category)." For example, fear, surprise, and interest appear related to each other, given that surprise is frequently mistaken for interest and fear for surprise (though fear and interest are rarely confused). Similarly, anger and disgust-contempt are often confused.

A real possibility for many confusions, however, lies in the presence of affect blends which may occur in facial expressions. This important

point was illustrated in a recent study by Kirtz and Ekman (52). Observers who were allowed to indicate an affect blend did so for stimuli which, in other studies, had yielded approximately a 60-40 percent distribution of judgment responses (divided between the two categories making up the blend). The identification of affect blends is particularly important for category research because categories may represent secondary-affect categories based on blends of primary affects.

One of the hindrances to research on facial expression was the finding reported in several early studies (Landis 53; Landis 54; Sherman 55) showing that observers could not identify facial expressions accurately beyond what would be expected by chance. Recently, Ekman and his colleagues carefully reviewed the early research on facial expression and noted important methodological faults that tend to discredit these studies with negative results. The Landis and Sherman experiments, with their questionable negative findings, have had unmerited influence in the investigation of judgment of emotion for facial behavior.

More recent studies investigating observer accuracy in recognition of facial expression have employed various stimuli in the judgment task, including candid photos, posed emotions, and filmed spontaneous behavior. Munn (56) was an early researcher who used these various findings to determine accuracy in decoding facial messages.

Munn employed candid magazine photographs of individuals in spontaneous poses. An immediate problem of any study of this sort concerns the criteria for accuracy. That is, when a person says a facial expression is sad, how do we know he is correct? Munn's answer was to present some observers only the photograph of the face and others the whole

picture (face and social context), the latter judgments serving as the criteria for the accuracy of the former.

To demonstrate an alternative approach, Ekman, Friesen, and Ellsworth took the photographs employed by Munn and two other researchers who employed candid photographs (Hanawalt 57; Vinacke 58) and made up verbal descriptions of the situations. These were then submitted to one set of raters who selected a response from a list of emotion words which they thought best fitted the situation. Descriptions for which there were at least 50 percent agreement as to what emotion was being expressed were compared with observers' ratings of the corresponding photographs. Accuracy, as determined in this fashion, was obtained for photographs rated as depicting happy, surprised, fearful, and sad facial expressions; anger and disgust-contempt stimulus could not be consistently rated.

A second way in which accuracy has been studied in the judgment of facial expressions has been through the use of poser-enacted emotional expressions, either in still photographs or, in some cases, in motion pictures or videotapes. The use of posed or enacted emotional expressions has been criticized because they are obviously not necessarily representative of unposed or spontaneous emotional expressions, but they are experimentally advantageous in that the instructions to enact an emotion in a sense "defines" the criterion of accuracy.

Several early studies (Dusenbury and Knower 59; Kanner 60; and Woodworth 61) employed this procedure, and above-chance accuracy in identifying emotions was obtained. More recently, Thompson and Meltzer (62) had fifty untrained subjects enact ten emotions live before four judges, who attempted to decode the subjects' facial expressions.

Accuracy ranged from 38 to 76 percent, with happiness, fear, love, and determination being more recognized than disgust, contempt, and suffering.

Levitt (63) obtained film reactions of fifty persons enacting different emotions which were then judged by twenty-four observers. Accuracy was above chance, happiness being the easiest to recognize, followed by sadness, anger, fear, disgust-contempt, and surprise. Subsequently, Ekman and Friesen (64) asked six psychiatric patients to describe before a camera how they were feeling. Though not exactly a posed-emotion situation, patients' descriptions of their affect states were regarded as the criteria for accuracy. High agreement was obtained for patient description and observer judgments of happiness and sadness and low agreement for fear and disgust-contempt. In his study noted earlier, Osgood (49) obtained above chance for recognition of all emotions, though for some reason accuracy was only 16 percent for fear and 19 percent for sadness categories (not above chance).

Most recently Zuckerman, Lipets, Koivumaki, and Rosenthal (65) photographed male and female subjects enacting six emotions (i.e., anger, happiness, sadness, fear, surprise, disgust). Subjects were given a card containing each emotion word embedded in an appropriate sentence. Each sentence also contained the word "really" (e.g., "I am really sad") and all subjects' complete body was photographed saying that word. Females tended to be better expressers than males. The positive emotions--happiness and surprise--were the easiest for observers to judge, compared to the "negative" emotions of fear, sadness, anger, and disgust.

These findings for sex differences were recently extended to racial differences. Kozel and Gitter (66) employed Black and Caucasian actresses

to express emotions via motion pictures. Blacks were more accurately perceived in the expression of anger and sadness; whites more accurately communicated happiness and fear.

Finally, a number of judgment studies have utilized samples of spontaneous behavior, generally obtained through some experimental manipulation. Compared to studies of posed emotions, experiments of this type have been generally limited to judgments of positive and negative emotional states rather than special emotional categories. The reason for this is that it is difficult to devise situations that can predictably elicit specific emotions. Indeed, a weakness in this approach is that one cannot always guarantee that the subject's reaction will be the intended one. Nevertheless, studies of this kind are the only ones in which "natural" reactions can be elicited and where some control over the eliciting circumstances is possible. In these studies, the observers were usually asked to identify the emotion aroused, which was compared with the hypothesized effect of the experimental (e.g., to make the subject fearful) or the subject's self-report. In other instances, the observer was asked to name the actual elicited circumstance, based on the subject's facial cues.

Facial Expressions and Their Importance in Depicting Emotion

To date, almost all of the research on facial expression has been directed towards demonstrating that facial expressions do reliably communicate emotional states. Having demonstrated this, investigators have begun to ask whether specific components of facial expression (i.e., particular facial areas) are differentially important in communicating emotional states.

In 1971 Ekman, Friesen, and Tomkins (67) published a report on their Facial Affect Scoring Technique (FAST), which can be used for evaluating either fixed facial expressions or "live" (e.g., videotaped) facial expressions. The FAST technique requires that coders view separate areas of the face (the brows/forehead area; eyelids; lower face including cheeks, nose, and mouth) for observable facial movements which are then compared to FAST still-photographic examples. Coders are first trained in the application of the technique consisting of a careful discussion of each FAST photograph item followed by supervised scoring of practice photographs. The photographic items employed in FAST are carefully selected "to define each of the movements within each area of the face which, theoretically, distinguish among six emotions: happiness, sadness, surprise, fear, anger, and disgust."

In an initial test of their FAST system, pictures of full facial expressions considered to reflect a single emotion were chosen from photograph sets developed by other investigators. Fifty-one such pictures (of twenty-eight different persons) were shown to eighty-two observers who were permitted to choose two emotions from six available categories. Each photograph was scored by the FAST procedure by coders working independently. An emotion was assigned to each photograph based upon the most frequent emotion category assigned to the three separate facial areas. Comparisons were made between the FAST rating and the whole-face judgments by other observers. Agreement was obtained on forty-five of fifty-one photographs including perfect agreement for surprise and anger categories; one disagreement each on sadness, happiness, and disgust pictures; and four on fear.

Today, however, there is considerable evidence that facial expressions of emotion themselves are "universal" though specific norms may

dictate differently how and when they are expressed. The evidence referred to is largely based on the research of Ekman and his associate, Wallace Friesen, who, with some early guidance from Silvan Tomkins, developed their theory of facial expression of emotion.

Their first consideration concerned the goal of the research in methodological considerations. Basically, two kinds of designs have been used. Judgment studies require a decision from an observer on (a) the particular emotion category associated with a facial expression, (b) the nature of the emotion that a subject is experiencing, and (c) the particular eliciting circumstance that the subject is faced with. In judgment studies, the face is treated as a stimulus; in component studies, the facial expression is treated as a response related to an emotion or particular eliciting circumstance. An important assumption necessary for a component study is that there should be agreement among observers that the facial behaviors do reliably differ with the particular emotion or eliciting circumstance. (17)

If observer agreement that whole facial expressions differ cannot be demonstrated, then hypotheses about the relationship of certain emotions or circumstances to differences among parts of the face cannot be logically tested.

However, if there is no observer agreement, one cannot necessarily assume that no information is given from the facial expression. For example, assume that still photographs are used in a task in which observers are to match faces with emotion categories. A lack of observer agreement could be due to the presence of facial affect blends and the absence of appropriate response choices for observers (e.g., the ability to select more than one emotion category for each given stimulus). If a particular stimulus reflects a 60-40 percent blend of fear and anger,

observers can pick only one emotion category to describe the face, then disagreement should occur. If a film or videotape is employed and observers are to match emotion descriptions with the film segment, disagreement could occur as a function of observers using different facial cues as a basis for their judgments (17).

Thus, in designing an experiment, the researcher must carefully consider how encoding of facial behavior is to be achieved and then how decoding shall occur. Errors in either part may account for an inconclusive experiment.

Careful specification of the decoding task is important. The kinds of responses an observer can make are crucial to the judgment process. Free responses or a wide range of responses are required if the question is the "meaning" of a particular facial behavior (especially when affect blends are likely) (17).

Finally, a variable that has just emerged as an important factor in facial affect studies is the sampling of subjects, both encoders and decoders. A range of encoders is important not only to control for the effect of idiosyncratic facial appearances but also to control for differences in encoding ability. Buck, Miller, and Caul (68); Buck, Savin, Miller, and Caul (69); Buck, Savin, Miller, and Caul (70); Lanzetta and Kleck (71); and Snyder (72) stressed that individual differences in encoding abilities are now a focus of research. Further investigation will undoubtedly reveal differences in decoding abilities, as already suggested by the reports of Lanzetta and Kleck (71), Ekman and Friesen (73), and Zuckerman, Lipets, Koivumaki, and Rosenthal (65).

In particular, some important tools for future research investigations are found in two publications by Ekman and his colleagues. One,

Unmasking the Face (73), has practical implications since it is designed to make clinicians as well as researchers more sensitive to the recognition of facial expressions through the use of written discussion, pictorial examples, and exercises. The other publication will consist of a "Facial Atlas"--the first of its kind--by which a researcher should be able to measure facial expressions on the basis of comparison of facial components with Atlas photographs. Emotion predictions are then possible from the composite readings; much as has been accomplished with the FAST system. In particular, when this latter publication is made available, sophisticated research on the face will become a real possibility for more and more researchers.

These are the types of the most common emotions that research investigations have studied: (1) interest-excitement, (2) enjoyment-joy, (3) surprise-startle, (4) fear-terror, (5) distress-anguish, (6) shame-humiliation, (7) anger-rage, and (8) contempt-disgust. Usually, subjects are asked to identify these emotions in photographs. Studies have usually found that humans cannot discriminate emotions without considerable error.

Research on Paralanguage

The voice accounts for as much as 38 percent of the total meaning of a message. So, while we normally think of the face as the primary means of communicating emotion, the voice is also a powerful channel. In fact, the percentage of information carried by the voice alone may be much higher when we are dealing with messages of emotion (74).

One of the major questions facing researchers interested in studying how the voice communicates emotion has been how to determine which vocalic qualities are associated with which emotion. The voice is every bit as

complex a channel as the face. The research method of determining judgments of facial expressions is rather straightforward--photographs containing the cues are used. But the construction of a voice tape that contains the right properties when we are not sure what those properties are in the first place has been a key concern in paralanguage research.

In 1972, Scherer (75) conducted what many regard as the seminal work in this area. He relied on a product of our electronic age--the Moog synthesizer. Scherer first identified five vocalic qualities fundamental to the display of affect. These qualities were pitch variation, amplitude variation, pitch level, amplitude level, and tempo.

Davitz and Davitz (76) raised the question of how accurately we can transmit and interpret vocalic cues of emotion. Their findings indicate that there is quite a range of accuracy both in the encoding and decoding of vocalic cues. When given the task of creating a vocal expression of a particular emotion, individuals varied somewhere between 23 and 55 percent accuracy. When given the task of associating an emotion with a tape recording of a voice, people varied somewhere between 20 and 48 percent accuracy. In other words, people vary dramatically in their ability to send and receive accurate vocalic cues of emotion. Two possible factors account for these differences: the nature of the emotion and people variables (such as sex, intelligence, experience, physiology of the communicator).

Davitz and Davitz (76) identified ten emotions detected from judging emotion through vocal cues. These emotions were (1) anger, (2) nervousness, (3) sadness, (4) happiness, (5) sympathy, (6) satisfaction, (7) fear, (8) jealousy, (9) love, and (10) pride. Anger was most easily identified through the voice alone. At the other extreme, pride generated the lowest accuracy level. The emotion itself can account for much

of the difficulty or ease with which expressions are understood. The research by Davitz and Davitz also indicated that much of our difficulty in detecting an emotional expression from the voice is due to the similarity between certain emotions. For example, while fear is correctly identified only 25 percent of the time, 20 percent of the time it is mistaken for sadness, and another 17 percent of the time it is thought to be nervousness. Love, which also had an accuracy rate of 25 percent, is misclassified as sadness 23 percent of the time and identified as sympathy 20 percent of the time. Apparently, some emotions are consistently misclassified as some other emotion almost as often as they are correctly identified. Research has also found that when subjects hear highly intense emotional messages, their scores are likely to improve.

Females are slightly superior to males in sending, interpreting, and judging vocalic expressions of affect. Females are slightly more accurate than males in decoding cues. Also, intelligence seems to be a factor in judging and transmitting vocalic expressions of emotion, just as it influences the assessment of facial displays. The more intelligent the individual, the more likely he or she is to be accurate in encoding and decoding emotional messages. Research has demonstrated that individuals with greater experience simply do better on such tasks. With relatively little effort and exposure to the kinds of nonverbal cues that indicate emotion, you can significantly improve your ability to identify the emotional meaning of a message (31).

Surprisingly enough, research on vocalic cues of emotion has revealed a consistency between overall encoding and decoding ability. Individuals who can transmit vocal expressions accurately also do quite

well in judging emotions from voice tapes. Various researchers have suggested that some people are skilled at sending emotional cues while others are able to interpret emotional expressions but do not transmit them particularly well, though this does not seem to be the case when the voice is the lone channel for communication. There also seems to be some ground for believing that a person's encoding ability is relatively consistent for all nonverbal channels. Those who are able to display emotions accurately with the face also do well in transmitting vocal cues (31).

Starkweather (77) summarized a series of studies that attempted to specify the relationship between the voice and judgments of emotion. His conclusion reiterated the frequent finding in studies of personality judgments from vocal cues--consistent agreement among the judges. He stated:

Studies of content-free speech indicate that the voice alone can carry information about the speaker. Judges agree substantially, both when asked to identify the emotion being expressed and when given the task of estimating the strength of the feeling. Judgments appear to depend on significant changes in pitch, rate, volume and other physical characteristics of the voice, but untrained judges cannot describe these qualities accurately.

While most of the major studies of vocalic communication support the notion that emotions can be communicated at levels of accuracy that far exceed chance expectations, it is obvious that some emotions are more difficult to communicate than others. Consequently, some emotions are more readily confused with each other than other emotions. For example, although fear was correctly identified sixty times, it was mistakenly identified as nervousness forty-one times and as sadness forty-eight times. Similarly, love was correctly identified sixty times, but mistakenly identified as sadness fifty-four times and as sympathy forty-seven

times. Pride was correctly identified fifty times, but mistakenly identified as satisfaction forty-eight times and as happiness thirty-seven times (76).

Three years later, Davitz (78) seemed to suggest that such judgments are not only reliable but also valid: "Regardless of the technique used, all studies of adults thus far reported in the literature agree that emotional meaning can be communicated accurately by vocal expression." In the broadest perspective, the next questions asked by researchers were which meanings can be communicated accurately by vocal cues, whether there are individual differences in vocalic communication ability and, if so, whether an individual can improve the quality of his vocalic communication of emotions by practice. Certainly the discussion of relevant research to this point demonstrates clearly that a significant number of emotions can be communicated with such accuracy that there is only one chance in a thousand with the stronger emotions that their identification could be due to chance. Even one of the most skeptical critics of the potential of vocalic communication, Starkweather (79), agrees that judges "agree substantially when asked to identify emotions being expressed and the strength of feeling."

While the accuracy of identification of a particular emotion depends on the decoding skill of the listener, it seems safe to conclude that contempt, indifference, grief, anger, anxiety, sadness and happiness, as well as a number of other meanings or emotions, can be communicated with rather high degrees of accuracy. The accuracy with which given emotions are identified from one experiment to another has varied somewhat, but considering the variety of experimental techniques and procedures employed, the results are amazingly consistent. Generally speaking, emotions such as contempt and indifference are communicated at very high

levels of accuracy. Emotions like sympathy and satisfaction are moderately difficult to identify and fear and love are extremely difficult to identify by relying solely on vocal cues.

Several other methods have been used to eliminate or control the verbal information that usually accompanies vocal cues. Accuracy may vary depending on the method used. Some studies attempt to use what is assumed to be "meaningless content." This usually takes the form of having the speaker say numbers or letters while trying to convey various emotional states. Other studies have attempted to control the verbal cues by using "constant content." In other words, a speaker reads a standard passage while attempting to simulate different emotional states. The assumption underlying this technique is that the passage selected is neutral in emotional tone. Some of the more recent studies have used electronic filtering to eliminate verbal content. A low-pass filter holds back the higher frequencies of speech upon which word recognition depends, so that the finished product sounds much like a mumble you might hear through a wall. One common problem with electronically filtered techniques is that some of the nonverbal cues may be eliminated in the process, creating an artificial stimulus. Another method called random splicing eliminates the continuity and rhythm of the speaking voice, but still maintains the method. The voice is recorded on tape, cut into short segments, and pasted back together in random order to mask the speech content (80).

Kramer (81), in one of the most comprehensive reviews of studies in the area of paralinguistics, concluded that the following characteristics may be accurately judged from vocal cues alone: a speaker's age (although estimates appeared to center in the thirties), height, overall appearance

and body type, and whether the speaker has a specific form of brain damage.

Nerbonne (82) confirmed the conclusion concerning age when he found that listeners could accurately differentiate between twenty- to thirty-year-old, forty- to fifty-year-old, and sixty- to seventy-year-old speakers. The same confirmation came for height and body type: listeners accurately distinguished "big" from "small" speakers. Other personal attributes which Nerbonne found could be identified included race (listeners could differentiate Black from Caucasian speakers); education (speakers with less than a high school diploma and a college education could be differentiated); and dialect region (whether a speaker was from the eastern, southern, or general American dialect regions).

An important personal attribute which listeners ascribe to a speaker, and which affects interpersonal behavior, is status. Two studies indicate that accurate judgments of status can be made on the basis of vocal cues alone. Harms (83) presented subjects with a 40- to 60-second sample of content-free speech and asked them to judge each speaker's status and credibility. Both speakers and subjects were objectively classified as high, middle, or low status, using the Hollingshead Two-Factor Index of Status Position (which considers education and occupation). Harms concluded that subjects, regardless of their own status, differentiated among speakers according to status levels, and that these distinctions were in accordance with the Hollingshead measure. Also, speaker status and credibility were positively correlated, again regardless of the listener's own status.

Research in Kinesics

Most researchers in the area of nonverbal communication consider body movements, or kinesics, as a basic area of nonverbal research.

Knapp (84), in his book Nonverbal Communication in Human Interaction, stated that "body motions, or kinesic behavior, typically includes gestures, movements of the body, limbs, hands, head, feet and legs, facial expressions (smiles), eye behavior (blinking, direction and length of gaze, and pupil dilation) and posture." This definition is in general agreement with those of other major nonverbal communication researchers (Birdwhistell 3; Duncan 19).

More popularly known as "body language," kinesics includes gestures, postural shifts, and movements of the hands, head, feet, and legs. The subject of several classification systems, kinesics has been defined in a variety of ways. Whether defined in terms of Birdwhistell's kinemes, kinemorphs, and allokinemes; Ekman's emblems, illustrators, regulators, and adaptors; or Mehrabian's forward/sideways leans, arm or leg position asymmetry, trunk swivel movements, and gesticulations, the system is designed to assign meaning to movements and to provide a framework for research. These systems have developed from conceptual categories to coding rules, and each of these investigators has produced results that enhance our understanding of the role of kinesics in communication.

Facial expressions are usually a part of kinesic behavior but are singled out of most research of kinesics for two reasons: (1) because of the large volume of work conducted on facial expressions alone; and (2) because facial expressions are thought to deal with expressions of emotions, perhaps direct expression, a possibility which gives them a slightly different status than other forms of body movements.

Kinesic behaviors include movements of the head (excluding facial expressions and change in direction of gaze or eye contact), hands, feet and limbs (arms and legs), and body trunk. The most common physical

actions representing these body areas include head nods and head turning, gestures (hands and arms), and postural shift. Movements can serve different purposes and functions and can have different meanings. With the exception of movements such as head nods and certain well-understood gestures, few body movements can be considered discrete, (having high message information and the need for great decoder attention) most being continuous (low message information and least decoder attention required) in nature. As such, given the expressive nature of movements, kinesics as a channel of communication possesses relatively low channel capacity (compared to speech and facial expression). These characteristics should not, however, belittle the role that body movements play in the total communication process (17).

Matarazzo, Saslow, Wiens, Weitman, and Allen (85) gave examples of the various functions that kinesic behavior may play in an interpersonal communication situation: repeating, contradicting, substituting, complementing, accessing, and relating and regulating. Pointing in the same direction as one is describing verbally would be an example of the repetitive function of nonverbal communication. A person who moves about in intense and jerky movements would be nonverbally contradicting any concurrent verbal claim that he was not upset. A person who holds his hand out palm up as it begins raining may substitute that action for the comment, "It's beginning to rain." One can complement the threat, "I'm going to hit you," by drawing back one's fist. Pointing to or grasping different fingers in sequence with the other hand can serve to accent a spoken list of terms. Finally, regulation of verbal communication is accomplished by many body movements. For example, nodding is one of the most important ways in which a conversational partner's speech is reinforced.

Approaches to the scientific study of body motion have varied with the researcher. Birdwhistell (21), a pioneer in body movement research, favors a detailed description of body motion as part of the entire communication situation. Other researchers like Kendon (86) and Dittmann (87) have followed a descriptive model (in contrast to the experimental study of body movements and their effects), studying the synchronization between the speech and body movements of a speaker. Research that mixes descriptive and experimental concerns (Schefflen)(88), considers body language as a control mechanism which monitors the ongoing interaction.

In contrast to Birdwhistell and other descriptive researchers, Ekman (89) and his associates were concerned with the experimental study of the relationship between nonverbal behavior, inner feelings, and the interpretation of these feelings. Rather than focusing on the structural analysis of communication situations described in great detail by Birdwhistell, the experimentalists looked at the psychological dimensions of the communication of emotion. Using a framework similar to Ekman's, Mehrabian (90) conducted studies of body orientation according to social relationships, status, and that of verbal and nonverbal messages.

Birdwhistell devoted his research career to the study of human communication. He first elaborated his theories in 1952 with the publication, Introduction of Kinesics: An Annotation System for Analysis of Body Motion and Gestures, although, for many years thereafter, he studied body movement in relative isolation since few other researchers were interested in that field. However, it is largely due to his contributions that there has been a resurgence of interest in kinesics and nonverbal communication. Birdwhistell's influence has been greatest in the nonexperimental areas of psychiatry and communications research. His 1970

book, Kinesics and Context, edited by Barton Jones, provided a review of his work. Important reviews of Birdwhistell's work were written by Kendon (91) and Dittmann (92).

Birdwhistell has taken an essentially descriptive approach to studying human communications. As Kendon noted, Birdwhistell views communication as a system with a structure that can be described independently of the behavior of the particular participants. This is a "systematic" view of communication and it assumes that all interpersonal behavior, that is, behavior that occurs and is detectable by another person, must be presumed to be socially learned and communicative until proven otherwise. Verbal and nonverbal communication are integral and inseparable parts of the total communication system.

Knapp quoted Birdwhistell as saying that "studying nonverbal communication is like studying noncardiac physiology." It is not meaningful or useful to talk about a distinction between verbal and nonverbal communication. From this point of view, one cannot focus on one part of the total pattern of verbal and nonverbal interaction and expect to understand the significance, for example, of individual movements. In describing the difference between Birdwhistell's structural approach and Ekman's research, Weitz (93) noted:

Ekman . . . is not trying to establish a grammar or body language or even to study the communication process per se, as Birdwhistell is. Rather, his concern is the relationship of nonverbal behavior to inner feeling states and the decoding of these states by others. Ekman also does not integrate the verbal and nonverbal spheres, a primary goal of the Birdwhistell school. Ekman is concerned with the psychological problem of the communication of emotional state, rather than the structural one of the nature of the communication system itself.

Much of Ekman's work was done with experimental interview situations in which subjects would decode nonverbal behaviors shown to them. One

experimental manipulation involved subjects receiving stress and catharsis interviews. Photographs of subjects during each phase were shown to observers for various ratings. In one study, Ekman hypothesized that head cues primarily provided information about the particular affect (e.g., happiness, anger) while intensity was expressed by body cues. Subjects rated face-only, body-only, and whole photos of interviewees on Schlosberg's pleasant-unpleasant and sleep-tension dimensions. The former dimension was considered related to emotion while sleep-tension was more consistent for the body than the face, whereas judgments of pleasant-unpleasant were more consistent for the face than the body (94).

In a subsequent study, Ekman and Friesen (95) repeated their experimental procedure, but this time judgments of the face and body cues were made in terms of emotion categories. As predicted, there was more agreement for head than body cues for the emotion categories. Further analysis of the body-only photographs revealed that encoders showed an apparent act (movement) rather than a static position. This finding led to a reformulation of their affect-intensity relationship. Specifically, they proposed that emotions can be judged from head cues and body acts whereas body position and head orientation convey strong affective states. Further, the intensity of affect can be conveyed through head and body cues. Body acts generally convey moderate to high intensity ranges of emotion while body positions can reflect a full range of intensity.

Finally, it is appropriate to consider how body movements differ with groups of people as a function of social or cultural variables. Michael and Willis (96) investigated transmission and interpretation of gestures for children of different age, social class, and education

levels. The gestures studied all corresponded to Ekman and Friesen's emblems: gestures signifying such messages as "go away," "come here," "how many," and the like. The children were first asked to transmit (encode) all the gestures, and then to interpret (decode) them when the interviewer performed them. The results showed that middle-class children were more accurate in transmitting and interpreting the gestures than were lower-class children. Children with one year of school were better than children with no prior school, and boys were more accurate than girls. Unfortunately, age and differences in verbal intelligence and race were not evaluated, thus not ruling out the possibility that these findings were possible covariates of these unstudied variables.

In summary, most body movements are primarily expressive. As communication channels, kinesics are continuous rather than discrete, and as messages they are low in communicative specificity. Behaviors of this sort are thus most suitable for indicative studies, where one hopes to correlate body movements with a psychological state or psychological characteristic. Unfortunately, most researchers have studied body movement in relation to the particular psychological variables they are interested in, rather than attempting to identify psychological variables in relation to designated body movements. Ekman, Duncan, Dittmann, and Freedman and their colleagues, who have focused directly on body movements as their primary interests, are the exceptions. Their research clearly stands out as having more organization and continuity compared to others engaged in external-variable research. The importance of such organized, continuing research projects is especially evident when one deals with nonverbal behaviors that cannot be readily decoded into discrete, specific messages.

Summary of Recent Research in Nonverbal Communication

Harrison et al. (97) summarized the recent research in nonverbal communication with the following statement:

Sharp changes have taken place in the nonverbal communication literature, in the past decade, and in particular, in the last two years. A decade ago, few books existed; and the early works tended to be speculative, anecdotal, and tentative. Recently, a flurry of popular books have caught the attention of the layman. Perhaps somewhat unfortunately, these books have drawn largely on the early anecdotal state of knowledge. But behind this popular fad is a growing body of solid research literature. Major works are now emerging which, on the one hand, organize and synthesize the existing data from a variety of fields. Research programs extending over a number of years are now culminating and the results are becoming available. Theoretical issues have become classified, and a range of active theories vie for support. Finally, methodological problems are being examined--and, frequently they are being solved. . . . The amount of knowledge has now reached a critical mass--and a general availability--so that even more exciting things may be ahead.

CHAPTER III

METHODOLOGY

The problem of this study was to determine if a specific training program in nonverbal facial communication for business communications students affects their sensitivity to nonverbal facial cues. A secondary problem was to determine if there was a difference between those groups trained in nonverbal facial communication and their sensitivity to para-language and kinesics (areas that received no formal training) and groups who received no such formal training. This chapter is organized into five sections:

1. Preliminary Procedures
2. Selection of Universities/Participants
3. Design of the Experiment
4. Collection and Handling of the Data
5. Statistical Treatment

Preliminary Procedures

This study was initiated at the University of North Dakota during the spring semester of 1982. A preliminary investigation was made of the research completed in nonverbal communication. The sources reviewed included Business Education Index, Educational Resource Information Center--ERIC, Dissertation Abstracts, and Reader's Guide to Periodical Literature.

The ERIC center at the library of the University of North Dakota provided the researcher with invaluable lists of articles written in various

periodicals. Dissertations and theses were ordered through inter-library loan at the University of North Dakota.

Selection of Universities/Participants

The study was conducted during the second semester of the 1982-83 academic school year. The participants for this study were comprised of 248 business communications students at the University of North Dakota and the University of Wisconsin-Eau Claire.

One criterion used in the selection of schools was based on the schools having at least four sections of Business Communications each semester. Another criterion was that the schools had to be on a semester basis because of the time commitment needed to complete the experimental portion of the study. Once two schools were willing to participate in the study, the selection process was completed.

Design of the Experiment

The experiment was comprised of three major parts: (1) pretest, (2) three 45-minute training modules, and (3) posttest. The pretest involved administering the Profile of Nonverbal Sensitivity (PONS) test to all participants. See Appendix A for a complete description of the PONS test. Also included in this first pretest was a self-rating form (see Appendix B) that required the student to rate him/herself on his/her sensitivity to nonverbal communication.

The second part of the experiment involved the training of students in the recognition of facial nonverbal cues. This training component of the study consisted of four parts. They were:

(1) First, students were shown a film called "Communication--The Nonverbal Agenda" by Ziff-Davis Publishing Company marketed through McGraw-Hill film company. This 1974 color film ran thirty minutes.

(2) Second, an instrument called the Facial Meaning Sensitivity Test (FMST) developed by Dale G. Leathers of the University of Georgia was used to assist in the development of facial sensitivity. This three-part test included a set of pictures (developed into slides by the researcher) depicting ten different facial expressions.

Part I of the test contained ten photographs (in slide format) representing ten basic classes of facial meaning--disgust, interest, happiness, sadness, bewilderment, contempt, surprise, determination, anger, and fear. Students were shown each slide for five seconds and then had five seconds to respond via a multiple-choice answer sheet (see Appendix C). Once the students had completed the ten slides, they were shown the ten slides again before the correct answers were shown to the student via answer-sheet transparency by the instructor.

Part II of the FMST had the student viewing ten five-slide sets of facial emotions. After viewing each set for a total of twenty-five seconds (five seconds/slide), there was a ten-second break before the same set of five slides were shown again. After the second viewing, students recorded their answers on a multiple-choice answer sheet (see Appendix C). After the second showing and recording of the answers, the correct answers were shown to the students via answer-sheet transparency by the instructor.

Part III of the FMST allowed the students to perform a very specific discriminatory task. The students attempted to correctly identify very specific kinds of facial meaning. Again, the students identified three specific kinds of facial meaning (via slides) depicted by each facial cue from each set of three slides. Each slide was on the screen for five seconds. The students recorded on a multiple-choice answer sheet (see Appendix C) the correct facial cue for each slide. The students were

allowed to see the set of three slides twice before having to respond. Once all sets of slides were viewed twice, the correct answers were shown to the students via answer-sheet transparency by the instructor.

(3) The third part of the experiment was the viewing of a slide series of fifty-four facial pictures (developed by Paul Ekman and Wallace V. Friesen in Unmasking the Face 8) and having the students identify the emotion displayed. Each slide was shown for five seconds with a five-second time frame during which to respond on the multiple-choice answer sheet (see Appendix D). This procedure was used for the remaining fifty-three slides. After all fifty-four slides were shown, the students viewed the complete set and responded again to each slide. The students were then shown the correct answers via answer-sheet transparency by the instructor.

(4) The last part of the training program required the students to identify the facial cues via a videotape. Mr. Barry Brode, Production Manager of UND-TV, made a presentation on August 3, 1982, to a group of business communications students at the University of North Dakota. During his 45-minute talk on nonverbal communication classification systems, Mr. Brode interjected the eight facial emotions of bewilderment, determination, happiness, surprise, fear, anger, sadness, and disgust. After the taping, Mr. Brode edited the tape, implemented visual and auditory cues to assist the students in responding to the facial cues, and duplicated the tape.

The instructions on how to view and respond to the videotape were given to the students by their instructor prior to the beginning of the showing of the tape. The tape informed the students (through various visual and auditory cues) when to be ready to respond to a cue, when to respond, and when to return to viewing the videotape. Each facial

emotion was given once during the presentation and the student responded via a multiple-choice answer sheet (see Appendix E). After viewing the videotape, students were given the correct answers via answer sheet transparency by their instructor.

The third part of the experiment had both experimental and control groups repeat the pretest. During this part of the experiment, the groups did not complete the self-rating form from the pretest. Otherwise, the same procedures were followed.

In all three parts--pretest, training modules, and posttest--the instructors were given written instructions to be read to the class prior to each part of the experiment. Class discussion was limited to clarification of these instructions.

Collection and Handling of the Data

From January 25 to February 4, 1983, the University of North Dakota conducted the experiment. On Day 1 of the experiment, all groups (two control and two experimental) were given the PONS test (pretest). Also, all four groups completed the self-rating form. This part of the study lasted forty-five minutes--if the classes were seventy-five minutes in length, the instructors were asked to dismiss the class. From this test, group scores were calculated in the areas of facial, paralanguage, and kinesic sensitivity.

On Day 2 both control groups (one for each instructor) were taught material other than in the area of nonverbal communication. The experimental groups commenced with their training modules in nonverbal communication. Days 2, 3, 4* (*for a fifty-minute class) were utilized in administering the training modules. On Day 4 or 5* (*for a fifty minute class), the PONS posttest was given to both the experimental and control

groups. Again, from this test, group scores were gathered on facial, paralanguage, and kinesic sensitivity.

Once all the scores were gathered from the pretest and posttest, breakdowns were made by male and female, individual ranking scores, and experimental and control scores. Scores were used only from those students who participated in all aspects of the experiment. If they missed one day, their scores were not used. Fourteen control and thirty-two experimental students were dropped from the study because they did not participate in all days of the experiment.

From March 7 to March 21, 1983, the University of Wisconsin-Eau Claire (UWEC) conducted the experiment. The exact procedures in the administration of the experiment were followed by both the UWEC and the North Dakota instructors.

Statistical Treatment

The data for this study were analyzed using the Statistical Package for the Social Sciences (SPSS). These computer programs permitted simple and convenient processing of the data. For more specific information about this source, consult Statistical Package for the Social Sciences (Nie et al., 1975).

The analysis of variance and two-way analysis of covariance were the statistical treatments applied to the group scores. The Spearman Correlation Coefficient was used between the self-ranking scores and the PONS posttest scores.

The analysis of covariance was used to test the significance of the difference in achievement between the groups as a whole, between the two groups when classified by sex, and between the two groups when classified by a self-ranking score. The analysis of variance produced an F value

to statistically test the differences between the means of the two groups to determine if the means were statistically different.

The Spearman Correlation Coefficient was used to test for a significant relationship between the self-ranking score and the PONS posttest score by group and sex. The .05 and .01 levels of significance were used for all statistical treatments administered.

Criteria used to select statistical tests. The preceding tests were used in the analysis because they met the following criteria needed to analyze the data to test the hypotheses:

1. The results of the analysis of sample data were projected to the population from which the sample was selected.
2. The values of the dependent variables were measured on at least an interval scale.
3. The analysis involved one independent variable representing two or more groups. In addition, at least one independent variable was used as the covariate.
4. Two or more independent samples were used in the study.
5. Two factors were used to analyze the dependent variable.

CHAPTER IV

FINDINGS

The purpose of this study was to determine if the teaching of non-verbal communication in interpreting facial expressions has an effect on business communications students' sensitivity to nonverbal cues.

Treatment groups were established at two post-secondary schools; the University of North Dakota and the University of Wisconsin-Eau Claire. A pretest, four training modules, and a posttest were administered to the experimental groups while the control groups were given both the pretest and posttest.

Both the pretest and posttest scores were derived from the Profile of Nonverbal Sensitivity Test (PONS). The 220-point PONS test was comprised of three parts--a facial score (120 points), a kinesic score (60 points), and a paralanguage score (40 points).

An analysis of covariance was done by groups on the posttest scores using the pretest scores as the covariates. An analysis of variance was performed on the posttest scores and self-ranking scores of group and sex.

The data were further analyzed by the analysis of covariance to determine if there was a significant difference in sensitivity to non-verbal cues between males and females. Also, the self-ranking score was statistically analyzed via the Spearman Correlation Coefficient to determine if those who had ranked themselves higher in sensitivity to nonverbal communications did better on their total PONS score.

The results of the statistical analyses are presented in tabular form in this chapter. The chapter is organized so that the results are presented in the same order in which the hypotheses were presented in chapter 1.

Number and Sex of Students Who
Participated in the Study

Two hundred and two students from eight different classes taught by four different teachers participated in this study. There were twenty more males than females in this study as can be seen in Table 1.

TABLE 1
NUMBER AND SEX OF PARTICIPANTS IN NONVERBAL COMMUNICATION
TRAINING STUDY CLASSIFIED BY GROUP

	Males	Females	TOTAL
Control	58	52	110
Experimental	53	39	92
TOTAL	111	91	202

Analysis of Covariance of Facial Test
Scores by Group and Sex

The first four hypotheses were analyzed using the analysis of covariance of facial test scores by group and sex. This analysis determined whether a significant difference existed in students' sensitivity to nonverbal facial cues.

Hypothesis 1. There is no significant difference in sensitivity to nonverbal facial cues between groups receiving training in nonverbal facial communication and those not receiving training when using the facial pretest scores as the covariate.

Table 2 presents the results of the analysis to test this hypothesis.

TABLE 2
ANALYSIS OF COVARIANCE OF FACIAL POSTTEST SCORES WHEN
FACIAL PRETEST SCORES OF THE GROUPS WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	1373.779	1	1373.779	48.032	0.000
Facial Pretest	1373.779	1	1373.779	48.032	0.000
Main Effects	28.576	1	28.576	0.999	0.319
Group	28.576	1	28.576	0.999	0.319
Explained	1402.355	2	701.177	24.516	0.000
Residual	5691.626	199	28.601		
Total	7093.980	201	35.293		

Covariate	Raw Regression Coefficient	Group Facial Means	
Facial Pre	0.375	Post Control	107.36
		Post Experimental	108.78
		Grand Mean	108.01

When analyzing the facial posttest scores of the groups, an F score of .999 was not significant at the .05 level. Since an F score of 3.84 was needed for significance at the .05 level, Hypothesis 1 was retained. This F score of .999 shows that there was no significant difference in facial posttest scores of students who were trained in nonverbal facial communication and those who were not trained when using the facial pretest scores as the covariate. With an F ratio of 48.032, the facial pretest was significant at the .001 level as a covariate.

The adjusted means of the independent variables show that the trained group did better than those not trained in nonverbal facial

communication. Table 3 shows a Multiple R Squared of .198 indicating that about 20 percent of the variation in the facial posttest scores is explained by the variation in the group facial pretest scores.

TABLE 3
MULTIPLE CLASSIFICATION ANALYSIS OF FACIAL POSTTEST SCORES
BY STUDY GROUP WITH FACIAL PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation Beta	Adjusted for Independents & Covariates Deviation Beta
Group			
Untrained	110	-0.65	-0.35
Trained	92	0.77	0.41
		0.12	0.060
Multiple R Squared			0.198
Multiple R			0.445

Hypothesis 2. There is no significant difference in sensitivity to nonverbal facial cues between males receiving training in nonverbal facial communication and those not receiving training when using the facial pretest scores as the covariate. Table 4 presents the results of the analysis to test this hypothesis.

The facial pretest was a significant covariate at the .001 level with its F score of 17.942. An F score of 3.94 was needed for significance at the .05 level to show significance between male groups. With an F score of 1.25 between groups, Hypothesis 2 was retained. This F score of 1.25 shows that there was no significant difference in facial posttest scores of male students who were trained in nonverbal facial communication and those who were not trained when using the facial pretest scores as the covariate.

TABLE 4

ANALYSIS OF COVARIANCE OF FACIAL POSTTEST SCORES WHEN
FACIAL PRETEST SCORES OF THE MALES WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	708.568	1	708.568	17.942	0.000
Facial Pretest	708.568	1	708.568	17.942	0.000
Main Effects	49.375	1	49.375	1.250	0.266
Group	49.375	1	49.375	1.250	0.266
Explained	757.943	2	378.972	9.596	0.000
Residual	4265.156	108	39.492		
Total	5023.099	110	45.665		

Covariate	Raw Regression Coefficient	Group Facial Means
Facial Pre	0.364	Post Control 105.98
		Post Experimental 107.72
		Grand Mean 106.91

In Table 5, the adjusted means of the independent variables show that the experimental male group did better than those not trained in nonverbal facial communication. The Multiple R Squared of .151 indicates that about 15 percent of the variation in the facial posttest scores was attributed to the variation in the male groups' facial pretest scores.

Hypothesis 3. There is no significant difference in sensitivity to nonverbal facial cues between females receiving training in nonverbal facial communication and those not receiving training when using the facial pretest scores as the covariate. Table 6 presents the results of the analysis to test this hypothesis.

TABLE 5

MULTIPLE CLASSIFICATION ANALYSIS OF FACIAL POSTTEST SCORES
BY MALES WITH FACIAL PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation Beta	Adjusted For Independents & Covariates Deviation Beta
Group			
Untrained	58	-0.93	-0.64
Trained	53	1.01	0.70
		0.14	0.100
Multiple R Squared			0.151
Multiple R			0.388

TABLE 6

ANALYSIS OF COVARIANCE OF FACIAL POSTTEST SCORES WHEN
FACIAL PRETEST SCORES OF THE FEMALES WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	529.582	1	529.582	37.551	0.000
Facial Pretest	529.582	1	529.582	37.551	0.000
Main Effects	2.104	1	2.104	0.149	0.700
Group	2.104	1	2.104	0.149	0.700
Explained	531.685	2	265.843	18.850	0.000
Residual	1241.061	88	14.103		
Total	1772.747	90	19.697		

Covariate	Raw Regression Coefficient	Group Facial Means
Facial Pre	0.354	Post Control
		Post Experimental
		Grand Mean
		108.90
		109.95
		109.35

The facial pretest was a significant covariate at the .001 level with its F score of 37.551. An F score of 3.94 was needed for signifi-

cance at the .05 level to show significance between female groups. Table 6 shows an F score of .149 between female groups, thus Hypothesis 3 was retained. This F score of .149 shows that there was no significant difference in facial posttest scores of female students who were trained in nonverbal facial communication and those who were not trained when using the facial pretest scores as the covariate.

Table 7 shows the adjusted means when taking into consideration the independent variables and covariate. The experimental female groups did better when taking into consideration the independent variables and covariate of the facial pretest scores. The Multiple R Squared of .300 indicates that 30 percent of the variation in the facial posttest scores is attributed to the variation in the female groups' facial pretest scores.

TABLE 7

MULTIPLE CLASSIFICATION ANALYSIS OF FACIAL POSTTEST SCORES
BY FEMALE GROUPS WITH FACIAL PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation Beta	Adjusted for Independents & Covariates Deviation Beta
Group			
Untrained	52	-0.45	-0.13
Trained	39	0.60	0.18
		0.12	0.030
Multiple R Squared			0.300
Multiple R			0.548

Hypothesis 4. There is no significant difference in sensitivity to nonverbal facial cues between male and female groups receiving training in nonverbal facial communication and those not receiving training when

using the facial pretest scores as the covariate. Table 8 presents the results of the analysis to test this hypothesis.

TABLE 8
ANALYSIS OF COVARIANCE OF FACIAL POSTTEST SCORES WHEN FACIAL
PRETEST SCORES OF THE GROUPS AND SEX WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	1373.779	1	1373.779	49.151	0.000
Facial Pretest	1373.779	1	1373.779	49.151	0.000
Main Effects	200.687	2	100.344	3.590	0.029
Group	38.420	1	38.420	1.375	0.242
Sex	172.112	1	172.112	6.158	0.014
2-Way Interaction	13.291	1	13.291	0.476	0.491
Group Sex	13.291	1	13.291	0.476	0.491
Explained	1587.757	4	396.939	14.202	0.000
Residual	5506.223	197	27.950		
Total	7093.980	201	35.293		

Covariate	Raw Regression Coefficient
Facial Pre	0.375

Table 8 shows that there was no significant difference between males and females in sensitivity to nonverbal facial cues for those receiving training in nonverbal facial communication and those not receiving training when using the facial pretest scores as the covariate. An F score of 3.84 was needed to show significance at the .05 level with 1 and 201 degrees of freedom. With an F score of .476, Hypothesis 4 was retained.

Table 9 shows that both the experimental and female groups did better on their facial posttest scores than the control and male groups. The difference in the adjusted means between the males (.84) and females

(1.03) shows a significant difference at the .05 level, indicating that females improved significantly more than males in their facial posttest scores. The Multiple R Squared of .222 indicates that about 22 percent of the variation in the facial posttest scores is explained by the variation in the independent variables of groups and sex.

TABLE 9

MULTIPLE CLASSIFICATION ANALYSIS OF FACIAL POSTTEST
SCORES BY STUDY GROUP AND SEX OF STUDENT WITH FACIAL
PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation Beta	Adjusted for Independents & Covariates Deviation Beta
Group			
Untrained	110	-0.65	-0.40
Trained	92	0.77	0.48
		0.12	0.070
Sex			
Male	111	-1.10	-0.84
Female	91	1.34	1.03
		0.21	0.160
Multiple R Squared			0.222
Multiple R			0.471

Analysis of Covariance of Paralanguage Test
Scores by Group and Sex

Hypotheses five through eight were analyzed using the analysis of covariance of paralanguage test scores by group and sex. This analysis determined whether a significant difference existed in students' sensitivity to nonverbal paralanguage cues by either the group the students were in or the sex of the student.

Hypothesis 5. There is no significant difference in sensitivity to paralanguage cues between groups receiving training in nonverbal facial

communication and those not receiving training when using the paralan-
guage pretest scores as the covariate. Table 10 presents the results of
the analysis to test this hypothesis.

TABLE 10
ANALYSIS OF COVARIANCE OF PARALANGUAGE POSTTEST SCORES WHEN
PARALANGUAGE PRETEST SCORES OF THE GROUPS WERE
USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	242.674	1	242.674	27.253	0.000
Paralanguage Pretest	242.674	1	242.674	27.253	0.000
Main Effects	0.042	1	0.042	0.005	0.945
Group	0.042	1	0.042	0.005	0.945
Explained	242.716	2	121.358	13.629	0.000
Residual	1771.962	199	8.904		
Total	2014.678	201	10.023		

Covariate	Raw Regression Coefficient	Group Paralanguage Means
ParaPre	0.382	Post Control 26.58
		Post Experimental 27.05
		Grand Mean 26.80

When analyzing the paralanguage posttest scores of the groups, an F score of .005 was not significant at the .05 level. Since an F score of 3.84 was needed for significance at the .05 level, Hypothesis 5 was retained. This F score of .005 shows that there was no significant difference in paralanguage posttest scores of students who were trained in nonverbal facial communication and those who were not trained in nonverbal facial communication, when using the paralanguage pretest scores as the covariate. With an F score of 27.253, the paralanguage pretest was significant at the .001 level as a covariate.

TABLE 11

MULTIPLE CLASSIFICATION ANALYSIS OF PARALANGUAGE
POSTTEST SCORES BY STUDY GROUP WITH PARALANGUAGE
PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation Beta	Adjusted for Independents & Covariates Deviation Beta
Group			
Untrained	110	-0.22	-0.01
Trained	92	0.26	0.02
		0.07	0.000
Multiple R Squared			0.120
Multiple R			0.347

The adjusted means of the independent variables show that the experimental group did better in paralinguistic posttest scores than those not trained in nonverbal facial communication. Table 11 shows a Multiple R Squared of .120 which indicates that 12 percent of the variation in the paralinguistic scores is explained by the variation in the groups' paralinguistic pretest scores.

Hypothesis 6. There is no significant difference in sensitivity to paralinguistic cues between males receiving training in nonverbal facial communication and those not receiving training when using the paralinguistic pretest scores as the covariate. Table 12 presents the results of the analysis to test this hypothesis.

The paralinguistic pretest was a significant covariate at the .001 level with its F score of 14.480. An F ratio of 3.94 was needed to show significance at the .05 level between male groups. With an F score of 3.059, there was no significant difference in paralinguistic posttest scores of male students who were trained in nonverbal facial communica-

tion and those not trained when using the paralanguage pretest scores as the covariate. Thus, Hypothesis 6 was retained.

TABLE 12

ANALYSIS OF COVARIANCE OF PARALANGUAGE POSTTEST SCORES WHEN PARALANGUAGE PRETEST SCORES OF THE MALES WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	129.494	1	129.494	14.480	0.000
Paralanguage Pretest	129.494	1	129.494	14.480	0.000
Main Effects	27.358	1	27.358	3.059	0.083
Group	27.358	1	27.358	3.059	0.083
Explained	156.853	2	78.426	8.770	0.000
Residual	965.850	108	8.943		
Total	1122.703	110	10.206		

Covariate	Raw Regression Coefficient	Group Paralanguage Means
ParaPre	0.383	Post Control 25.41
		Post Experimental 26.87
		Grand Mean 26.11

In Table 13, the adjusted means of the independent variables show that the experimental male group did better than those not trained in nonverbal facial communication. The Multiple R Squared of .140 indicates that 14 percent of the variation in the paralanguage posttest scores is attributed to the variation in the male groups' paralanguage pretest scores.

Hypothesis 7. There is no significant difference in sensitivity to paralanguage cues between females receiving training in nonverbal facial communication and those not receiving training when using the paralanguage pretest scores as the covariate. Table 14 presents the results of the analysis to test this hypothesis.

TABLE 13

MULTIPLE CLASSIFICATION ANALYSIS OF PARALANGUAGE POSTTEST SCORES
BY MALES WITH PARALANGUAGE PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation Beta	Adjusted for Independents & Covariates Deviation Beta
Group			
Untrained	58	-0.69	-0.49
Trained	53	0.76	0.53
		0.23	0.160
Multiple R Squared			0.140
Multiple R			0.374

TABLE 14

ANALYSIS OF COVARIANCE OF PARALANGUAGE POSTTEST SCORES WHEN
PARALANGUAGE PRETEST SCORES OF THE FEMALES WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	77.761	1	77.761	10.108	0.002
Paralanguage Pretest	77.761	1	77.761	10.108	0.002
Main Effects	20.263	1	20.263	2.634	0.108
Group	20.263	1	20.263	2.634	0.108
Explained	98.024	2	49.012	6.371	0.003
Residual	677.008	88	7.693		
Total	775.033	90	8.611		

Covariate	Raw Regression Coefficient	Group Paralanguage Means
ParaPre	0.320	Post Control 27.87
		Post Experimental 27.31
		Grand Mean 27.64

The paralanguage pretest was a significant covariate at the .01 level with an F score of 10.108. An F score of 3.96 was needed for sig-

nificance at the .05 level to show a significant difference between female groups. With an F score of 2.634 between groups, Hypothesis 7 was retained. This F score of 2.634 shows that there was no significant difference in paralinguistic posttest scores of female students who were trained in nonverbal facial communication and those who were not trained when using the paralinguistic pretest scores as the covariate.

In table 15, the adjusted means of the independent variables show that the untrained female students did better than those who were trained

TABLE 15

MULTIPLE CLASSIFICATION ANALYSIS OF PARALINGUISTIC POSTTEST SCORES
BY FEMALE STUDENTS WITH PARALINGUISTIC PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation	Beta	Adjusted for Independents & Covariates Deviation	Beta
Group					
Untrained	52	0.25		0.42	
Trained	39	-0.33		-0.56	
			0.10		0.160
Multiple R Squared					0.126
Multiple R					0.356

in nonverbal facial communication. The Multiple R Squared of .126 indicates that about 13 percent of the variation in the paralinguistic posttest scores can be attributed to the variation in the female groups' paralinguistic pretest scores.

Hypothesis 8. There is no significant difference in sensitivity to paralinguistic cues between male and female groups receiving training in nonverbal facial communication and those not receiving training when

using the paralanguage pretest scores as the covariate. Table 16 presents the results of the analysis to test this hypothesis.

TABLE 16
ANALYSIS OF COVARIANCE OF PARALANGUAGE POSTTEST SCORES
WHEN PARALANGUAGE PRETEST SCORES OF THE
GROUPS AND SEX WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	242.674	1	242.674	29.099	0.000
Paralanguage Pretest	242.674	1	242.674	29.099	0.000
Main Effects	80.673	2	40.336	4.837	0.009
Group	0.791	1	0.791	0.095	0.758
Sex	80.631	1	80.631	9.668	0.002
2-Way Interaction	48.440	1	48.840	5.808	0.017
Group Sex	48.440	1	48.840	5.808	0.017
Explained	371.787	4	92.947	11.145	0.000
Residual	1642.891	197	8.340		
Total	2014.678	201	10.023		

Covariate	Raw Regression Coefficient
ParaPre	0.382

Table 16 shows that there was a significant difference between males and females in sensitivity to paralanguage posttest scores of those receiving training in nonverbal facial communication and those not receiving training when using the paralanguage pretest scores as the covariate. An F ratio of 5.808 shows a significant difference at the .05 level indicating that trained males and females did significantly better than untrained males and females on the paralanguage posttest scores. Since an F score of 3.89 was needed to show significance, Hypothesis 8 is rejected.

TABLE 17

MULTIPLE CLASSIFICATION ANALYSIS OF PARALANGUAGE
 POSTTEST SCORES BY STUDY GROUP AND SEX OF STUDENT WITH
 PARALANGUAGE PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation	Beta	Adjusted for Independents & Covariates Deviation	Beta
Group					
Untrained	110	-0.22		-0.06	
Trained	92	0.26		0.07	
			0.07		0.020
Sex					
Male	111	-0.69		-0.58	
Female	91	0.84		0.71	
			0.24		0.200
Multiple R Squared					0.160
Multiple R					0.401

Table 17 shows that both the experimental and female groups did better on their paralinguistic posttest scores than the control and male groups. The difference of 1.29 between the adjusted means of the male and female groups indicated females improved significantly better at the .001 level. The Multiple R Squared of .16 indicates that 16 percent of the variation in the paralinguistic posttest scores is explained by the variation in the independent variables of group and sex.

Analysis of Covariance of Kinesic Test
 Scores by Group and Sex

Hypotheses nine through twelve were analyzed using the analysis of covariance of kinesic test scores by group and sex. This analysis determined whether a significant difference existed in students' sen-

sitivity to nonverbal kinesic cues by either the group the students were in or their sex.

Hypothesis 9. There is no significant difference in sensitivity to kinesic cues between groups receiving training in nonverbal facial communication and those not receiving training when using the kinesic pretest scores as the covariate. Table 18 presents the results of the analysis to test this hypothesis.

TABLE 18
ANALYSIS OF COVARIANCE OF KINESIC POSTTEST SCORES WHEN KINESIC
PRETEST SCORES OF THE GROUPS WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	504.097	1	504.097	41.817	0.000
Kinesic Pretest	504.097	1	504.097	41.817	0.000
Main Effects	4.897	1	4.897	0.406	0.525
Group	4.897	1	4.897	0.406	0.525
Explained	508.995	2	254.497	21.112	0.000
Residual	2398.926	199	12.055		
Total	2907.921	201	14.467		

Covariate	Raw Regression Coefficient	Group Kinesic Means	
KinPre	0.380	Post Control	49.80
		Post Experimental	50.28
		Grand Mean	50.02

When analyzing the kinesic posttest scores of the groups, an F score of .406 was not significant at the .05 level. Since an F score of 3.84 was needed for significance at the .05 level, Hypothesis 9 was retained. This F score of .406 shows that there was no significant difference in kinesic posttest scores of students who were trained in nonverbal facial communication and those who were not trained when using

the kinesic pretest scores as the covariate. With an F score of 41.817, the kinesic pretest was significant at the .01 level as a covariate.

TABLE 19

MULTIPLE CLASSIFICATION ANALYSIS OF KINESIC POSTTEST SCORES
BY STUDY GROUP WITH KINESIC PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation Beta	Adjusted for Independents & Covariates Deviation Beta
Group			
Untrained	110	-0.22	-0.14
Trained	92	0.26	0.17
		0.06	0.040
Multiple R Squared			0.175
Multiple R			0.418

The adjusted means of the independent variable show that the experimental groups did slightly better than those not trained in non-verbal facial communication. Table 19 shows a Multiple R Squared of .175 indicating that about 18 percent of the variation in the kinesic posttest scores is explained by the variation in the groups' kinesic pretest scores.

Hypothesis 10. There is no significant difference in sensitivity to kinesic cues between males receiving training in nonverbal facial communication and those not receiving training when using the kinesic pretest scores as the covariate. Table 20 presents the results of the analysis to test this hypothesis.

The kinesic pretest was a significant covariate at the .001 level with its F score of 16.783. An F score of 3.94 was needed for significance at the .05 level to show significance between male groups. With

TABLE 20

ANALYSIS OF COVARIANCE OF KINESIC POSTTEST SCORES WHEN
KINESIC PRETEST SCORES OF THE MALES WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	248.567	1	248.567	16.783	0.000
Kinesic Pretest	248.567	1	248.567	16.783	0.000
Main Effects	4.469	1	4.469	0.302	0.584
Group	4.469	1	4.469	0.302	0.584
Explained	253.036	2	126.518	8.543	0.000
Residual	1599.522	108	14.810		
Total	1852.559	110	16.841		

Covariate	Raw Regression Coefficient	Group Kinesic Means
KinPre	0.370	Post Control 48.76
		Post Experimental 49.40
		Grand Mean 49.06

an F score of .302 between male groups, Hypothesis 10 was retained. This F score of .302 shows that there was no significant difference in kinesic posttest scores of male students who were trained in nonverbal facial communication and those not trained when using the kinesic pretest scores as the covariate.

In Table 21, the adjusted means of the independent variables show that the experimental male group did better in kinesic posttest scores than those not trained in nonverbal facial communication. The Multiple R Squared of .137 indicates that about 14 percent of the variation in the kinesic posttest scores can be attributed to the variation in the male groups' kinesic pretest scores.

Hypothesis 11. There is no significant difference in sensitivity to kinesic cues between females receiving training in nonverbal facial

TABLE 21

MULTIPLE CLASSIFICATION ANALYSIS OF KINESIC POSTTEST SCORES
BY MALES WITH KINESIC PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation Beta	Adjusted for Independents & Covariates Deviation Beta
Group			
Untrained	58	-0.30	-0.19
Trained	53	0.33	0.21
		0.08	0.050
Multiple R Squared			0.137
Multiple R			0.370

communication and those not receiving training when using the kinesic pretest scores as the covariate. Table 22 presents the results of the analysis to test this hypothesis.

The kinesic pretest was a significant covariate at the .001 level with its F score of 21.578. An F ratio of 11.68 was needed with 1 and 90 degrees of freedom to show significance at the .001 level.

With an F score of .494 between groups, Hypothesis 11 was retained because this F score of .494 shows that there was no significant difference in kinesic posttest scores of female students who were trained in nonverbal facial communication and those who were not trained when using the kinesic pretest scores as the covariate.

In Table 23, the adjusted means of the independent variables show that the experimental male groups did better on their kinesic posttest scores than those who were not trained in nonverbal facial communication. The Multiple R Squared value of .201 shows that about 20 percent of the variation in the kinesic posttest scores is attributed to the variation in the female groups' kinesic pretest scores.

TABLE 22

ANALYSIS OF COVARIANCE OF KINESIC POSTTEST SCORES WHEN
KINESIC PRETEST SCORES OF THE FEMALES WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	162.677	1	162.677	21.578	0.000
Kinesic Pretest	162.677	1	162.677	21.578	0.000
Main Effects	3.725	1	3.725	0.494	0.484
Group	3.725	1	3.725	0.494	0.484
Explained	166.402	2	83.201	11.036	0.000
Residual	663.422	88	7.539		
Total	829.824	90	9.220		

Covariate	Raw Regression Coefficient	Kinesic Posttest Means
KinPre	0.321	Post Control 50.96
		Post Experimental 51.49
		Grand Mean 51.19

TABLE 23

MULTIPLE CLASSIFICATION ANALYSIS OF KINESIC POSTTEST SCORES
BY FEMALE GROUPS WITH KINESIC PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation	Beta	Adjusted for Independents & Covariates Deviation	Beta
Group					
Untrained	52	-0.23		-0.18	
Trained	39	0.30		0.23	
			0.09		0.070
Multiple R Squared					0.201
Multiple R					0.448

Hypothesis 12. There is no significant difference in sensitivity to kinesic cues between male and female groups receiving training in non-verbal facial communication and those not receiving training when using the kinesic pretest scores as the covariate. Table 24 presents the results of the analysis to test this hypothesis.

TABLE 24

ANALYSIS OF COVARIANCE OF KINESIC POSTTEST SCORES WHEN KINESIC PRETEST SCORES OF THE GROUPS AND SEX WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	504.097	1	504.097	43.847	0.000
Kinesic Pretest	504.097	1	504.097	43.847	0.000
Main Effects	138.986	2	69.493	6.045	0.003
Group	8.348	1	8.348	0.726	0.395
Sex	134.089	1	134.089	11.663	0.001
2-way Interaction	0.004	1	0.004	0.000	0.986
Group Sex	0.004	1	0.004	0.000	0.986
Explained	643.087	4	160.772	13.984	0.000
Residual	2264.834	197	11.497	13.984	
Total	2907.921	201	14.467		

Covariate	Raw Regression Coefficient
KinPre	0.380

Table 24 shows that there was no significant difference between males and females in kinesic posttest scores for those receiving training in nonverbal facial communication and those not receiving training when using the kinesic pretest scores as the covariate. An F score of 3.84 was needed to show significance at the .05 level with 1 and 201 degrees of freedom. With an F score of .000, Hypothesis 12 was retained.

Table 25 shows that the experimental and female groups did better on their kinesic posttest scores than the control and male groups. The difference between the adjusted means of the males (-.75) and the females (.91) shows a significant difference at the .001 level. This adjusted means difference of 1.66 indicates that females improved significantly more than males in their kinesic posttest scores. The Multiple R Squared of .221 indicates that about 22 percent of the variation in the kinesic posttest scores is explained by the variation in the independent variables of groups and sex.

TABLE 25

MULTIPLE CLASSIFICATION ANALYSIS OF KINESIC POSTTEST
SCORES BY STUDY GROUPS AND SEX OF STUDENTS WITH
KINESIC PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted		Adjusted for	
		Deviation	Beta	Independents & Covariates Deviation	Beta
Group					
Untrained	110	-0.22		-0.19	
Trained	92	0.26		0.22	
			0.05		0.050
Sex					
Male	111	-0.96		-0.75	
Female	91	1.17		0.91	
			0.28		0.220
Multiple R Squared					0.221
Multiple R					0.470

Analysis of Covariance of PONS Test
Scores by Group and Sex

Hypotheses thirteen through sixteen were analyzed using the analysis of covariance of PONS test scores by group and sex. This analysis deter-

mined whether a significant difference existed in students' sensitivity to nonverbal facial cues by either the group the students were in or their sex.

Hypothesis 13. There is no significant difference in PONS posttest scores between groups receiving training in nonverbal facial communication and those not receiving training when using the PONS pretest scores as the covariate. Table 26 presents the results of the analysis to test this hypothesis.

TABLE 26
ANALYSIS OF COVARIANCE OF PONS POSTTEST SCORES WHEN
PONS PRETEST SCORES OF THE GROUPS WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariates	5730.768	1	5730.768	65.349	0.000
PONS Pretest	5730.768	1	5730.768	65.349	0.000
Main Effects	37.467	1	37.467	0.427	0.514
Group	37.467	1	37.467	0.427	0.514
Explained	5768.235	2	2884.118	32.888	0.000
Residual	17451.310	199	87.695		
Total	23219.545	201	115.520		
Covariate	Raw Regression Coefficient		PONS Posttest Means		
PONSPre	0.452		Post Control	183.77	
			Post Experimental	186.14	
			Grand Mean	184.85	

When analyzing the PONS posttest scores of the groups, an F score of .427 was not significant at the .05 level. Since an F score of 3.84 was needed for significance at the .05 level, Hypothesis 13 was retained. The F score of .427 shows that there was no significant difference in

PONS posttest scores of students who were trained in nonverbal facial communication and those who were not trained when using the PONS pretest scores as the covariate. With an F score of 65.349, the PONS pretest was significant at the .001 level as a covariate.

In Table 27, the adjusted means of the independent variables show that the experimental group did better than those not trained in nonverbal facial communication. Table 27 also shows a Multiple R Squared of .248 which indicates that about 25 percent of the variation in the PONS posttest scores is explained by the variation in the groups' PONS pretest scores.

TABLE 27

MULTIPLE CLASSIFICATION ANALYSIS OF PONS POSTTEST SCORES
BY STUDY GROUP WITH PONS PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation Beta	Adjusted for Independents & Covariates Deviation Beta
Group			
Untrained	110	-1.08	-0.40
Trained	92	1.29	0.48
		0.11	0.040
Multiple R Squared			0.248
Multiple R			0.498

Hypothesis 14. There is no significant difference in PONS posttest scores between males receiving training in nonverbal facial communication and those not receiving training when using the PONS pretest scores as the covariate. Table 28 presents the results of the analysis to test this hypothesis.

The PONS pretest was a significant covariate at the .001 level with its F score of 26.960. An F ratio of 3.94 was needed to show a signifi-

TABLE 28

ANALYSIS OF COVARIANCE OF PONS POSTTEST SCORES WHEN
PONS PRETEST SCORES OF THE MALES WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	3116.068	1	3116.068	26.960	0.000
PONS Pretest	3116.068	1	3116.068	26.960	0.000
Main Effects	163.235	1	163.235	1.412	0.237
Group	163.235	1	163.235	1.412	0.237
Explained	3279.303	2	1639.651	14.186	0.000
Residual	12482.931	108	115.583		
Total	15762.234	110	143.293		

Covariate	Raw Regression Coefficient	PONS Posttest Means
PONSPre	0.462	Post Control 180.21
		Post Experimental 184.23
		Grand Mean 182.13

cant difference at the .05 level between male groups. With an F score of 1.412, there was no significant difference in PONS posttest scores of male students who were trained in nonverbal facial communication and those who were not trained when using the PONS pretest scores as the covariate. Thus, Hypothesis 14 was retained.

In Table 29, the adjusted means of the independent variables show that the experimental male group did better than those not trained in nonverbal facial communication. The Multiple R Squared of .208 indicates that about 21 percent of the variation in the PONS posttest scores was attributed to the variation in the male groups' PONS pretest scores.

Hypothesis 15. There is no significant difference in PONS posttest scores between females receiving training in nonverbal facial communication and those not receiving training when using the PONS pretest scores

TABLE 29

MULTIPLE CLASSIFICATION ANALYSIS OF PONS POSTTEST SCORES
BY MALE GROUPS WITH PONS PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation Beta	Adjusted for Independents & Covariates Deviation Beta
Group			
Untrained	58	-1.92	-1.17
Trained		2.10	1.28
		0.17	0.100
Multiple R Squared			0.208
Multiple R			0.456

as the covariate. Table 30 presents the results of the analysis to test this hypothesis.

The PONS pretest was a significant covariate at the .001 level with its F score of 40.674. An F score of 3.96 was needed to show a significant difference at the .05 level between female groups. This F score of .064 shows that there was no significant difference in PONS posttest scores of female students who were trained in nonverbal facial communication and those who were not trained when using the PONS pretest scores as the covariate. Thus, Hypothesis 15 was retained.

In Table 31, the adjusted means of the independent variables show that the control female group did better than those trained in nonverbal facial communication. The Multiple R Squared of .316 shows that about 32 percent of the variation in the PONS posttest scores is attributed to the variation in the female groups' PONS pretest scores.

Hypothesis 16. There is no significant difference in PONS posttest scores between male and female groups receiving training in nonverbal facial communication and those not receiving training when using the

TABLE 30

ANALYSIS OF COVARIANCE OF PONS POSTTEST SCORES WHEN
PONS PRETEST SCORES OF THE FEMALES WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	1777.865	1	1777.865	40.674	0.000
PONS Pretest	1777.865	1	1777.865	40.674	0.000
Main Effects	2.817	1	2.817	0.064	0.800
Group	2.817	1	2.817	0.064	0.800
Explained	1780.682	2	890.341	20.369	0.000
Residual	3846.505	88	43.710		
Total	5627.187	90	62.524		

Covariate	Raw Regression Coefficient	PONS Posttest Means
PONSPre	0.375	Post Control 187.75
		Post Experimental 188.74
		Grand Mean 188.18

TABLE 31

MULTIPLE CLASSIFICATION ANALYSIS OF PONS POSTTEST SCORES
BY FEMALE GROUPS WITH PONS PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation	Beta	Adjusted for Independents & Covariates Deviation	Beta
Group					
Untrained	52	-0.43		0.15	
Trained	39	0.57		-0.21	
			0.06		0.020
Multiple R Squared					0.316
Multiple R					0.563

PONS pretest scores as the covariate. Table 32 presents the results of the analysis to test this hypothesis.

TABLE 32

ANALYSIS OF COVARIANCE OF PONS POSTTEST SCORES WHEN PONS
PRETEST SCORES OF THE GROUPS AND SEX WERE USED AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Covariate	5730.768	1	5730.768	69.008	0.000
PONS Pretest	5730.768	1	5730.768	69.008	0.000
Main Effects	1013.610	2	506.805	6.103	0.003
Group	70.808	1	70.808	0.853	0.357
Sex	976.143	1	976.143	11.754	0.001
2-Way Interaction	115.374	1	115.374	1.389	0.240
Group Sex	115.374	1	115.374	1.389	0.240
Explained	6859.752	4	1714.938	20.651	0.000
Residual	16359.793	197	83.045		
Total	23219.545	201	115.520		

Covariate	Raw Regression Coefficient
PONSPre	0.452

Table 32 shows that there was no significant difference between males and females in PONS scores for those receiving training in nonverbal facial communication and those not receiving training when using the PONS pretest scores as the covariate. An F score of 3.84 was needed to show significance at the .05 level with 1 and 201 degrees of freedom. With an F score of .389, Hypothesis 16 was retained.

Table 33 shows that both the experimental and female groups did better on their PONS posttest scores than the control and male groups. The difference between the adjusted means of the males (-2.02) and females (2.47) shows a significant difference at the .001 level showing that females improved significantly more than males in their PONS posttest scores. The Multiple R Squared of .29 indicates that 29 percent of

the variation in the PONS posttest score is explained by the variation in the independent variables of group and sex.

TABLE 33

MULTIPLE CLASSIFICATION ANALYSIS OF PONS POSTTEST SCORES BY STUDY GROUP AND SEX OF STUDENT WITH PONS PRETEST SCORES AS THE COVARIATE

Variable & Category	N	Unadjusted Deviation	Beta	Adjusted for Independents & Covariates Deviation	Beta
Group					
Untrained	110	-1.08		-0.55	
Trained	92	1.29		0.66	
			0.11		0.060
Sex					
Male	111	-2.73		-2.02	
Female	91	3.32		2.47	
			0.28		0.210
Multiple R Squared					0.290
Multiple R					0.539

Analysis of Self-Ranking Scores
By Group and Sex

Hypotheses seventeen through twenty were analyzed using the analysis of variance of self-ranking scores by group and sex. This analysis determined whether a significant difference existed in students' self-ranking scores and their sensitivity to nonverbal cues by either the group the students were in or their sex.

Hypothesis 17. There is no significant difference in self-ranking scores between groups receiving training in nonverbal facial communication and those not receiving training.

Hypothesis 18. There is no significant difference in self-ranking scores between males receiving training in nonverbal facial communication and those not receiving training.

Hypothesis 19. There is no significant difference in self-ranking scores between females receiving training in nonverbal facial communication and those not receiving training.

Hypothesis 20. There is no significant difference in self-ranking scores between males and females receiving training in nonverbal facial communication and those not receiving training.

Table 34 presents the results of the analysis to test these four hypotheses.

TABLE 34
ANALYSIS OF VARIANCE OF SELF-RANKING SCORES BY GROUP AND SEX

Source of variation	Sum of Squares	DF	Mean Square	F	Signif of F
Main Effects	2.550	2	1.275	1.796	0.169
Group	0.729	1	0.729	1.027	0.312
Sex	1.931	1	1.931	2.721	0.101
2-Way Interaction	0.112	1	0.112	0.158	0.691
Group Sex	0.112	1	0.112	0.158	0.691
Explained	2.662	3	0.887	1.250	0.293
Residual	140.524	198	0.710		
Total	143.186	201	0.712		

With an F score of 1.027, there was no significant difference in self-ranking scores between groups receiving training in nonverbal facial communication and those not receiving training. An F score of 3.84 was needed to show significance at the .05 level between males and

females; the F score of .158 shows that there was no significant difference in self-ranking scores between males and females receiving training in nonverbal communication and those not receiving training. Thus, all four hypotheses were retained.

TABLE 35
MULTIPLE CLASSIFICATION ANALYSIS OF SELF-RANKING SCORES
BY STUDY GROUP AND SEX OF STUDENT

Variable & Category	N	Deviation	Beta	Adjusted for Independents Deviation	Beta
Group					
Untrained	110	-0.05		-0.05	
Trained	92	0.06		0.07	
			0.07		0.070
Sex					
Male	111	-0.09		-0.09	
Female	91	0.10		0.11	
			0.11		0.120
Multiple R Squared					0.018
Multiple R					0.133

In Table 35, the adjusted means for the groups and sex show that the experimental and female groups ranked themselves higher than the control and male groups. The difference in the adjusted means of the groups and sex was not significant at the .05 level. The Multiple R Squared of .018 indicated that less than 2 percent of the variation in the final posttest scores of the groups was explained by the variation in the independent variables.

Correlation Between Self-Ranking and Pons Posttest
Scores by Group and Sex of Student

Hypotheses twenty-one through twenty-four were analyzed by deter-

mining if a correlation between self-ranking scores and the PONS posttest scores existed. This analysis determined whether a significant relationship existed in students' self-ranking scores in sensitivity to nonverbal communication and their PONS posttest scores. Through this analysis, it was determined whether those who ranked themselves higher in sensitivity to nonverbal communication also did better on their PONS posttest scores.

Hypothesis 21. There is no significant relationship between self-ranking scores and PONS posttest scores by those not trained in nonverbal communication.

Hypothesis 22. There is no significant relationship between self-ranking scores and PONS posttest scores by those trained in nonverbal facial communication.

Table 36 presents the results of the analysis to test these two hypotheses.

TABLE 36
CORRELATION ANALYSIS BETWEEN SELF-RANKING AND
PONS POSTTEST SCORES BY GROUP

	Correlation (R)	Significance
Control	.042	.331
Experimental	-.045	.333

With a correlation (R) of only .042 for the control group, there was only a very weak relationship between the control groups' self-ranking scores and the PONS posttest scores. Also, with a correlation (R) of -.045 there was a slight negative relationship between the experimental

groups' self-ranking scores and their PONS posttest performance. In both the control and experimental groups, there was no significant relationship between self-ranking scores and PONS posttest scores.

Therefore, both hypotheses 21 and 22 were retained.

Hypothesis 23. There is no significant relationship between self-ranking scores of PONS posttest scores by males involved in the nonverbal facial communication study.

Hypothesis 24. There is no significant relationship between self-ranking scores and PONS posttest scores by females involved in the nonverbal facial communication study.

Table 37 presents the results of the analysis to test these two hypotheses.

TABLE 37
CORRELATION ANALYSIS BETWEEN SELF-RANKING AND
PONS POSTTEST SCORES BY SEX OF STUDENT

	Correlation (R)	Significance
Male	-.029	.378
Females	.014	.445

With a correlation (R) of $-.029$ for the males, there was a slight negative relationship between the male groups' self-ranking scores and their PONS posttest scores. Also, with a correlation (R) of $.014$ for the females, there was a slight positive relationship between the female groups' self-ranking scores and their PONS posttest performance. In both the male and female groups, there was no significant relationship between the self-ranking scores and their PONS posttest scores, thus, Hypotheses 23 and 24 were retained.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study was conducted to determine if a specific training program in nonverbal facial communication for business communications students affects their sensitivity to nonverbal cues. A secondary problem was to determine if there was a difference between those groups trained in nonverbal facial communications and their sensitivity to paralanguage and kinesics (areas that received no formal training) and groups who received no such training.

The study was conducted during the second semester of the 1982-83 academic school year. The participants for this study were comprised of 202 business communication students at the University of North Dakota and the University of Wisconsin-Eau Claire. There were two control and two experimental groups at each school. Each instructor taught one control and one experimental class. There were four 50-minute classes (two experimental and two control) and four 75-minute classes (two control and two experimental).

The 110 students who formed the control group received the PONS pretest on Day 1 and the PONS posttest on Day 4 or 5* (*50-minute class) depending on whether they were in a 50- or 75-minute period. Days 2, 3, and 4* (*50-minute class) were used in training the business communications students via a film, slides, and a videotape.

The training material used in the experiment was organized by the researcher utilizing a film by McGraw-Hill Publishing Company; the Facial Meaning Sensitivity Test developed by Dale G. Leathers of the University of Georgia; facial pictures (developed into slides by the researcher) by Paul Ekman and Wallace V. Friesen, authors of Unmasking the Face; and a videotape on various facial cues produced by the researcher. These training materials were developed into three training modules for the experimental groups.

The analysis of variance and two-way analysis of covariance were the statistical treatments applied to the group scores. The Spearman Correlation Coefficient was used between the self-ranking scores and the PONS posttest scores. Data were also collected on a self-ranking score completed by both the control and experimental groups prior to the PONS pretest. The PONS test was broken down into four categories: a 220-point overall score, a 120-point facial score, a 60-point kinesic score, and a 40-point paralanguage score.

The analysis of covariance was used to test the significance of the difference in achievement in sensitivity to nonverbal communication between the groups as a whole, between the two groups when classified by sex, and between the two groups when classified by a self-ranking score. The Spearman Correlation was used to determine if there was a significant relationship between the self-ranking score and the PONS posttest score by group and sex.

The analysis of covariance of the groups showed that no significant differences existed at the .05 level between the groups on the total PONS score, the facial score, the kinesic score, or the paralanguage score using the pretest score as the covariate.

The analysis of covariance between the males and females showed that the females did significantly better at the .05 level in facial posttest scores. Females also did significantly better at the .01 level when the analysis of covariance was conducted on the total PONS score, the kinesic score, and the paralanguage score using the pretest score as the covariate.

The self-ranking score and PONS posttest score were analyzed to determine if there was any correlation with the self-ranking score and the performance of the total PONS score. There was no significance at the .05 level between the self-ranking scores and the PONS posttest scores using the Spearman Correlation Coefficient.

The following hypotheses results are based on the findings which were presented in chapter 4.

1. There is no significant difference in sensitivity to nonverbal facial cues between groups, males, and females receiving training in nonverbal facial communication and those not receiving training when using the facial pretest scores as the covariate.

2. There is no significant difference in sensitivity to nonverbal facial cues between males and females receiving training in nonverbal facial communication and those not receiving training when using the facial pretest scores as the covariate.

3. There is no significant difference in sensitivity to paralanguage cues between groups, males, and females receiving training in nonverbal facial communication and those not receiving training when using the paralanguage pretest scores as the covariate.

4. There is a significant difference in paralanguage cues between males and females receiving training in nonverbal facial communication

and those not receiving training when using the facial pretest scores as the covariate. The trained males and females did significantly better at the .05 level with an F score of 5.808.

5. There is no significant difference in sensitivity to kinesic cues between groups, males, and females receiving training in nonverbal facial communication and those not receiving training when using the kinesic pretest scores as the covariate.

6. There is no significant difference in sensitivity to kinesic cues between males and females receiving training in nonverbal facial communication and those not receiving training when using the kinesic pretest scores as the covariate.

7. There is no significant difference in PONS posttest scores between groups, males, and females receiving training in nonverbal facial communication and those not receiving training when using the PONS pretest scores as the covariate.

8. There is no significant difference in PONS posttest scores between males and females receiving training in nonverbal facial communication and those not receiving training when using the PONS pretest scores as the covariate.

9. There is no significant difference in self-ranking scores between groups, males, females, and males and females receiving training in nonverbal facial communication and those not receiving training.

10. There is no significant relationship between self-ranking scores and PONS posttest scores by those trained, not trained, males, and females.

11. The students trained in nonverbal facial communication did better, but not significantly better, on all posttest scores except on

the paralanguage and PONS posttest scores. The trained females did not score as high on these two posttest scores as those females who were not trained when comparing the adjusted means.

Conclusions

The following conclusions are based on the findings reported in chapter 4 of this research study. Based on the findings of this study:

1. It can be concluded that when using the methodology, materials, and population of this study that students trained in nonverbal facial communication showed no significant difference in their sensitivity to kinesic and facial nonverbal cues.

2. It can be concluded that when using the methodology, materials, and population of this study that no matter how a student ranked him/herself in decoding cues, he/she did not perform significantly better than those who did not rank themselves as high in decoding nonverbal cues.

3. It can be concluded that when using the methodology, materials, and population of this study that males and females trained in nonverbal facial communication improved significantly in their ability to decode paralanguage cues.

4. It can be concluded that when using the methodology, materials, and population of this study that there was no significant relationship between the ranked scores in sensitivity to nonverbal cues and the PONS posttest scores.

Recommendations

Based on the findings and observations made by the writer of the study, careful consideration should be given to the following recommen-

dations relevant to the training of nonverbal facial communication. The following recommendation is made for implementing the findings of this study.

1. Teachers of business communications should not implement this specific training program in an attempt to train students in sensitivity to nonverbal facial communication.

Based on the findings of this study, the following recommendations for further research are presented.

1. That researchers repeat this study with an effort to include more time for the training process because the experimental groups showed improvement, but not significant improvement, in their posttest scores.

2. Additional training programs should be developed, tested, modified, and implemented within the business communications classroom to determine a specific program that will have a positive effect on students' abilities to decode nonverbal cues.

3. Since the Profile of Nonverbal Sensitivity Test (PONS) is still the only valid and reliable measuring instrument to validate nonverbal sensitivity, researchers should continue to use this instrument to determine a program to increase nonverbal sensitivity. This instrument also proved to improve students' nonverbal sensitivity because all groups' posttest means were better, but not significantly better, than their pretest means.

4. Since the writer's training program was not effective, researchers should review the procedures conducted to make modifications in time, population size, and methodology that may prove positive in developing sensitivity to nonverbal communication.

5. Since the training program utilized a combination of slides, films, and videotapes, researchers should isolate each area to determine the media that may be the most effective in training students in nonverbal communication.

6. Research should be conducted to determine if training in paralinguistic cues has an effect on students' sensitivity to paralinguistic, facial, and kinesic cues.

7. Research should be conducted to determine if training in kinesic cues has an effect on students' sensitivity to kinesic, paralinguistic, and facial cues.

APPENDICES

APPENDIX A

DESCRIPTION OF THE PROFILE OF NONVERBAL SENSITIVITY TEST (PONS)

PONS--PROFILE OF NONVERBAL SENSITIVITY

The PONS test is a standardized test for assessing the ability to decode nonverbal cues in various channels of communication. It has taken eleven years to develop into a valid and reliable measuring instrument of nonverbal communication.

The PONS test is a 220-item presentation of two-second clips of three visual "channels" (face, body, and face-plus-body) and two voice-tone channels (scrambled speech and electronically filtered speech). Twenty scenarios portrayed by a young woman comprise the content of these clips; the task consists of viewing or listening to each clip (or both), and choosing the correct description of the scenario from two response alternatives, one of which is correct.

The PONS test isolates eleven nonverbal channels. Three of these are "pure" visual channels: (1) the face; (2) the body from the neck to the knees; (3) the entire figure (face and body down to the knees). An additional two channels are "pure" auditory channels that use two very different techniques to disguise the words spoken, but preserve other aspects of "paralanguage," such as tone of voice, pitch, and affect; (4) randomized-spliced voice, a random scrambling of the speaker's taped voice; and (5) content-filtered voice, an electronic treatment that removes the high frequencies that help identify specific words. These two auditory channels make it impossible to tell exactly what a person is saying but still makes it possible for some decoders to tell the way it is said--friendly, hostile, soft, loud, etc.

In addition to these five pure channels, the PONS film contains an additional six channels. These extra channels are paired combinations

of a single visual channel with a single auditory channel; (6) face and randomized-spliced voice; (7) face and content-filtered voice; (8) body and randomized-spliced voice; (9) body and content-filtered voice; (10) figure and randomized-spliced voice; and (11) figure and content-filtered voice.

The encoder in the PONS test is shown expressing 20 different affective or emotional situations. These scenes cover a wider range of affects, ranging from relatively subtle emotions (e.g., "expressing motherly love") to more dramatic affect (e.g., "threatening someone"). Each of the 20 scenes appears 11 times in the PONS film, once in each of the 11 PONS channels. This creates a total of 220 scenes, which occur in random order in the film.

A person being tested with the PONS watches and/or hears each item and then tries to identify or decode it. This is done using a multiple-choice format on a thirteen-page answer sheet. The viewer chooses from two alternate descriptions of the item just seen and/or heard, one of which is correct. For a given item, for example, the test-taker is asked to choose between two descriptions of what the person in the picture is doing--e.g., (A) nagging a child, or (B) expressing jealous anger.

One important feature of the test is its division of the same non-verbal behavior into different channels. The channels make it possible to assess the accuracy of a person on different nonverbal channels, as well as their general decoding ability on the entire PONS test. This enables us to compare individuals (or entire groups) not only on their total accuracy but also on the people "profile" of their accuracy on the eleven PONS channels. For example, three people with the same PONS total score could have quite different decoding abilities: one person

might be most accurate in reading faces, the second person might be poor at reading faces but very good at decoding bodies, and the third person might be a poor judge of visual behavior but a very accurate judge of voices.

APPENDIX B
SELF-RATING FORM

YOUR SELF-RATING SCORE

Please judge yourself on each of the following scales. Circle the number between 1 and 9 which you think best describes yourself. For example, on the "understanding other people's feelings" score, you would check 1 if you thought you did not understand people's feeling very well; 9 if you thought yourself to understand people's feelings very well; 5 if you thought yourself to be exactly midway between these two extremes; or whatever other number seems most appropriate for you.

1. How well do you think you understand other people's feelings?
not very well at all 1 2 3 4 5 6 7 8 9 very well
2. How well do you think you can tell when someone has mixed feelings about something?
not very well at all 1 2 3 4 5 6 7 8 9 very well
3. How well do you think you can tell when someone is trying to hide an emotion?
not very well at all 1 2 3 4 5 6 7 8 9 very well
4. How well do you think you can judge other people's sincerity?
not very well at all 1 2 3 4 5 6 7 8 9 very well
5. How often do you think about other people's nonverbal behavior?
very seldom 1 2 3 4 5 6 7 8 9 very often
6. Do you ever simply watch people without really listening to what they are saying?
very seldom 1 2 3 4 5 6 7 8 9 very often
7. How closely do you normally attend to other persons' voices?
not very closely at all 1 2 3 4 5 6 7 8 9 very closely
8. How closely do you normally attend to other persons' faces?
not very closely at all 1 2 3 4 5 6 7 8 9 very closely
9. How closely do you normally attend to other persons' bodies?
not very closely at all 1 2 3 4 5 6 7 8 9 very closely

APPENDIX C
ANSWER SHEETS FOR THE
FACIAL MEANING SENSITIVITY TEST

FACIAL MEANING SENSITIVITY TEST (PART 1)

CLASS OF FACIAL MEANING	NUMBER OF EXPRESSION Trial #1	NUMBER OF EXPRESSION Trial #2
Disgust	_____	_____
Happiness	_____	_____
Interest	_____	_____
Sadness	_____	_____
Bewilderment	_____	_____
Contempt	_____	_____
Surprise	_____	_____
Anger	_____	_____
Determination	_____	_____
Fear	_____	_____

FACIAL MEANING SENSITIVITY TEST (PART 2)

CLASS OF FACIAL MEANING	EXPRESSIONS THAT ARE PART OF EACH CLASS
Disgust	_____ (8, 12, 11, 3, 30)
Happiness	_____ (10, 9, 26, 1, 2)
Interest	_____ (6, 2, 30, 15, 23)
Sadness	_____ (5, 7, 14, 4, 29)
Bewilderment	_____ (28, 17, 5, 18, 4)
Contempt	_____ (6, 24, 29, 13, 27)
Surprise	_____ (19, 7, 26, 3, 16)
Anger	_____ (1, 20, 28, 8, 25)
Determination	_____ (11, 22, 9, 24, 25)
Fear	_____ (10, 12, 27, 15, 21)

FACIAL MEANING SENSITIVITY TEST (PART 3)

SPECIAL KIND OF FACIAL MEANING		CHOOSE FROM AMONG THE FOLLOWING EXPRESSIONS	
Aversion	_____	Repugnance	_____ (8, 12, 30)
Amazement	_____	Flabbergasted	_____ (3, 16, 19)
Rage	_____	Hate	_____ (1, 20, 28)
Confusion	_____	Doubt	_____ (4, 17, 18)
Terror	_____	Anxiety	_____ (10, 21, 27)
Disdain	_____	Arrogance	_____ (13, 24, 29)
Laughter	_____	Love	_____ (2, 9, 26)
Disappointment	_____	Distress	_____ (5, 7, 14)
Attention	_____	Anticipation	_____ (6, 15, 23)
Stubborn	_____	Resolute	_____ (11, 22, 25)

APPENDIX D

ANSWER SHEETS FOR
EKMAN'S AND FRIESEN'S FACIAL PHOTOS

THIRD MODULE ANSWER SHEET (PARTS 1 and 2)

PHOTO NUMBER	1st JUDGMENT	2nd JUDGMENT
1	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
2	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
3	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
4	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
5	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
6	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
7	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
8	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
9	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
10	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
11	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
12	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
13	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
14	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
15	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust

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PHOTO NUMBER	1st JUDGMENT	2nd JUDGMENT
16	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
17	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
18	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
19	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
20	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
21	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
22	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
23	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
24	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
25	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
26	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
27	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
28	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
29	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
30	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
31	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust

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PHOTO NUMBER	1st JUDGMENT	2nd JUDGMENT
32	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
33	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
34	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
35	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
36	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
37	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
38	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
39	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
40	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
41	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
42	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
43	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
44	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
45	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
46	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust

Third Module Answer Sheet

Page 4

PHOTO NUMBER	1st JUDGMENT	2nd JUDGMENT
47	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
48	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
49	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
50	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
51	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
52	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
53	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust
54	Happy, Sad, Fear, Anger, Surprise, Disgust	Happy, Sad, Fear, Anger, Surprise, Disgust

APPENDIX E

ANSWER SHEET FOR NONVERBAL VIDEOTAPE

MODULE 4 --- VIDEOTAPE

DIRECTIONS: As you view the videotape on Nonverbal Communication, please respond to the eight "RESPOND" situations that are identified within the film. Each "RESPOND" situation falls into one of the following facial emotions:

- | | | |
|-----------------|------------------|------------|
| 1) Anger | 2) Surprise | 3) Sadness |
| 4) Bewilderment | 5) Happiness | 6) Disgust |
| 7) Fear | 8) Determination | |

Please circle the response that best depicts the facial emotion displayed by the speaker. The answers will be given to you at the completion of your viewing the videotape.

- | | | | | | |
|-------------|---------|----------|---------------|--------------|-----------|
| RESPONSE #1 | Anger | Surprise | Sadness | Bewilderment | Happiness |
| | Disgust | Fear | Determination | | |
| RESPONSE #2 | Anger | Surprise | Sadness | Bewilderment | Happiness |
| | Disgust | Fear | Determination | | |
| RESPONSE #3 | Anger | Surprise | Sadness | Bewilderment | Happiness |
| | Disgust | Fear | Determination | | |
| RESPONSE #4 | Anger | Surprise | Sadness | Bewilderment | Happiness |
| | Disgust | Fear | Determination | | |
| RESPONSE #5 | Anger | Surprise | Sadness | Bewilderment | Happiness |
| | Disgust | Fear | Determination | | |
| RESPONSE #6 | Anger | Surprise | Sadness | Bewilderment | Happiness |
| | Disgust | Fear | Determination | | |
| RESPONSE #7 | Anger | Surprise | Sadness | Bewilderment | Happiness |
| | Disgust | Fear | Determination | | |
| RESPONSE #8 | Anger | Surprise | Sadness | Bewilderment | Happiness |
| | Disgust | Fear | Determination | | |

APPENDIX F
PONS ANSWER SHEET

PONS ANSWER SHEET ID# _____

INSTRUCTIONS: Please circle the letter (A or B) next to the label which best describes the scene you have just seen and/or heard.

SAMPLE ANSWER: Scene 1. A. admiring a baby
B. applying for a job

- Scene 1. A. expressing jealous anger
B. talking to a lost child
- Scene 2. A. talking to a lost child
B. admiring nature
- Scene 3. A. talking about the death of a friend
B. talking to a lost child
- Scene 4. A. leaving on a trip
B. saying a prayer
- Scene 5. A. criticizing someone for being late
B. expressing gratitude
- Scene 6. A. helping a customer
B. expressing gratitude
- Scene 7. A. criticizing someone for being late
B. leaving on a trip
- Scene 8. A. talking about one's wedding
B. expressing gratitude
- Scene 9. A. helping a customer
B. talking about one's divorce
- Scene 10. A. talking about the death of a friend
B. trying to seduce someone
- Scene 11. A. talking to a lost child
B. helping a customer
- Scene 12. A. admiring nature
B. expressing motherly love
- Scene 13. A. expressing deep affection
B. nagging a child
- Scene 14. A. expressing motherly love
B. asking for forgiveness

PONS Answer Sheet
Page 2

- Scene 15. A. admiring nature
B. helping a customer
- Scene 16. A. admiring nature
B. helping a customer
- Scene 17. A. nagging a child
B. admiring nature
- Scene 18. A. nagging a child
B. criticizing someone for being late
- Scene 19. A. asking forgiveness
B. leaving on a trip
- Scene 20. A. expressing gratitude
B. leaving on a trip
- Scene 21. A. leaving on a trip
B. returning a faulty item to a store
- Scene 22. A. returning a faulty item to a store
B. talking about one's divorce
- Scene 23. A. expressing jealous anger
B. talking about one's divorce
- Scene 24. A. talking about the death of a friend
B. threatening someone
- Scene 25. A. expressing deep affection
B. trying to seduce someone
- Scene 26. A. expressing deep affection
B. trying to seduce someone
- Scene 27. A. nagging a child
B. expressing motherly love
- Scene 28. A. leaving on a trip
B. ordering food in a restaurant
- Scene 29. A. helping a customer
B. expressing jealous anger
- Scene 30. A. criticizing someone for being late
B. expressing gratitude
- Scene 31. A. threatening someone
B. talking about one's wedding

PONS ANSWER SHEET

Page 3

- Scene 32. A. admiring nature
B. expressing strong dislike
- Scene 33. A. ordering food in a restaurant
B. criticizing someone for being late
- Scene 34. A. leaving on a trip
B. talking about one's wedding
- Scene 35. A. talking to a lost child
B. expressing a strong dislike
- Scene 36. A. trying to seduce someone
B. expressing jealous anger
- Scene 37. A. expressing strong dislike
B. expressing deep affection
- Scene 38. A. leaving on a trip
B. threatening someone
- Scene 39. A. expressing deep affection
B. talking about the death of a friend
- Scene 40. A. talking to a lost child
B. criticizing someone for being late
- Scene 41. A. ordering food in a restaurant
B. expressing gratitude
- Scene 42. A. expressing motherly love
B. threatening someone
- Scene 43. A. expressing strong dislike
B. ordering food in a restaurant
- Scene 44. A. expressing motherly love
B. talking to a lost child
- Scene 45. A. expressing deep affection
B. nagging a child
- Scene 46. A. asking forgiveness
B. saying a prayer
- Scene 47. A. expressing motherly love
B. helping a customer
- Scene 48. A. admiring nature
B. expressing strong dislike

PUNS Answer Sheet

Page 4

- Scene 49. A. expressing motherly love
B. leaving on a trip
- Scene 50. A. talking about one's divorce
B. ordering food in a restaurant
- Scene 51. A. asking forgiveness
B. nagging a child
- Scene 52. A. admiring nature
B. expressing motherly love
- Scene 53. A. returning a faulty item to a store
B. criticizing someone for being late
- Scene 54. A. talking about one's wedding
B. expressing deep affection
- Scene 55. A. expressing strong dislike
B. ordering food in a restaurant
- Scene 56. A. admiring nature
B. ordering food in a restaurant
- Scene 57. A. returning a faulty item to a store
B. helping a customer
- Scene 58. A. expressing strong dislike
B. expressing gratitude
- Scene 59. A. expressing deep affection
B. expressing gratitude
- Scene 60. A. saying a prayer
B. threatening someone
- Scene 61. A. saying a prayer
B. ordering food in a restaurant
- Scene 62. A. admiring nature
B. asking forgiveness
- Scene 63. A. talking to a lost child
B. expressing gratitude
- Scene 64. A. talking about one's wedding
B. saying a prayer
- Scene 65. A. talking to a lost child
B. threatening someone

PUNS Answer Sheet
Page 5

- Scene 66. A. expressing motherly love
B. nagging a child
- Scene 67. A. expressing motherly love
B. returning a faulty item to a store
- Scene 68. A. expressing gratitude
B. expressing strong dislike
- Scene 69. A. expressing strong dislike
B. talking about one's wedding
- Scene 70. A. helping a customer
B. asking forgiveness
- Scene 71. A. threatening someone
B. expressing motherly love
- Scene 72. A. nagging a child
B. talking to a lost child
- Scene 73. A. talking to a lost child
B. criticizing someone for being late
- Scene 74. A. talking about one's divorce
B. trying to seduce someone
- Scene 75. A. expressing jealous anger
B. helping a customer
- Scene 76. A. talking about one's divorce
B. expressing deep affection
- Scene 77. A. expressing gratitude
B. talking to a lost child
- Scene 78. A. expressing deep affection
B. asking forgiveness
- Scene 79. A. threatening someone
B. nagging a child
- Scene 80. A. talking about the death of a friend
B. trying to seduce someone
- Scene 81. A. talking about one's wedding
B. talking about one's divorce
- Scene 82. A. trying to seduce someone
B. criticizing someone for being late

PUNS Answer Sheet
Page 6

- Scene 83. A. helping a customer
B. admiring nature
- Scene 84. A. returning a faulty item to a store
B. nagging a child
- Scene 85. A. nagging a child
B. leaving on a trip
- Scene 86. A. talking about one's wedding
B. admiring nature
- Scene 87. A. criticizing someone for being late
B. expressing deep affection
- Scene 88. A. admiring nature
B. returning a faulty item to a store
- Scene 89. A. asking forgiveness
B. returning a faulty item to a store
- Scene 90. A. expressing motherly love
B. helping a customer
- Scene 91. A. asking forgiveness
B. leaving on a trip
- Scene 92. A. criticizing someone for being late
B. helping a customer
- Scene 93. A. talking about one's wedding
B. threatening someone
- Scene 94. A. expressing motherly love
B. nagging a child
- Scene 95. A. expressing motherly love
B. expressing gratitude
- Scene 96. A. talking about one's divorce
B. trying to seduce someone
- Scene 97. A. expressing jealous anger
B. asking forgiveness
- Scene 98. A. expressing motherly love
B. criticizing someone for being late
- Scene 99. A. talking about one's wedding
B. talking about the death of a friend

PONS Answer Sheet
Page 7

- Scene 100. A. expressing strong dislike
B. talking about the death of a friend
- Scene 101. A. saying a prayer
B. helping a customer
- Scene 102. A. nagging a child
B. leaving on a trip
- Scene 103. A. talking about one's divorce
B. asking forgiveness
- Scene 104. A. ordering food in a restaurant
B. expressing jealous anger
- Scene 105. A. criticizing someone for being late
B. talking about the death of a friend
- Scene 106. A. talking about the death of a friend
B. ordering food in a restaurant
- Scene 107. A. leaving on a trip
B. nagging a child
- Scene 108. A. saying a prayer
B. talking about one's divorce
- Scene 109. A. asking forgiveness
B. expressing strong dislike
- Scene 110. A. ordering food in a restaurant
B. asking forgiveness
- Scene 111. A. talking about one's wedding
B. leaving on a trip
- Scene 112. A. expressing deep affection
B. admiring nature
- Scene 113. A. expressing jealous anger
B. criticizing someone for being late
- Scene 114. A. talking about one's divorce
B. threatening someone
- Scene 115. A. expressing strong dislike
B. returning a faulty item to a store
- Scene 116. A. ordering food in a restaurant
B. threatening someone
- Scene 117. A. talking to a lost child
B. criticizing someone for being late

PONS Answer Sheet

Page 8

- Scene 118. A. admiring nature
B. nagging a child
- Scene 119. A. expressing strong dislike
B. helping a customer
- Scene 120. A. talking about one's wedding
B. ordering food in a restaurant
- Scene 121. A. expressing gratitude
B. ordering food in a restaurant
- Scene 122. A. leaving on a trip
B. expressing deep affection
- Scene 123. A. nagging a child
B. talking to a lost child
- Scene 124. A. talking about one's divorce
B. expressing motherly love
- Scene 125. A. talking about one's divorce
B. admiring nature
- Scene 126. A. expressing deep affection
B. talking about the death of a friend
- Scene 127. A. talking about one's divorce
B. admiring nature
- Scene 128. A. expressing deep affection
B. admiring nature
- Scene 129. A. talking to a lost child
B. admiring nature
- Scene 130. A. returning a faulty item to a store
B. talking about the death of a friend
- Scene 131. A. talking about one's wedding
B. returning a faulty item to a store
- Scene 132. A. admiring nature
B. leaving on a trip
- Scene 133. A. asking forgiveness
B. helping a customer
- Scene 134. A. expressing strong dislike
B. ordering food in a restaurant

PONS Answer Sheet
Page 9

- Scene 135. A. returning a faulty item to a store
B. talking about the death of a friend
- Scene 136. A. expressing deep affection
B. saying a prayer
- Scene 137. A. saying a prayer
B. criticizing someone for being late
- Scene 138. A. talking about one's wedding
B. talking about one's divorce
- Scene 139. A. expressing gratitude
B. expressing motherly love
- Scene 140. A. expressing jealous anger
B. threatening someone
- Scene 141. A. asking forgiveness
B. expressing motherly love
- Scene 142. A. admiring nature
B. ordering food in a restaurant
- Scene 143. A. expressing motherly love
B. expressing jealous anger
- Scene 144. A. expressing jealous anger
B. helping a customer
- Scene 145. A. ordering food in a restaurant
B. returning a faulty item to a store
- Scene 146. A. talking about one's divorce
B. leaving on a trip
- Scene 147. A. nagging a child
B. saying a prayer
- Scene 148. A. trying to seduce someone
B. criticizing someone for being late
- Scene 149. A. expressing deep affection
B. admiring nature
- Scene 150. A. talking about the death of a friend
B. expressing motherly love
- Scene 151. A. expressing gratitude
B. expressing strong dislike

PONS Answer Sheet
Page 10

- Scene 152. A. expressing deep affection
B. returning a faulty item to a store
- Scene 153. A. expressing gratitude
B. threatening someone
- Scene 154. A. leaving on a trip
B. talking to a lost child
- Scene 155. A. talking about the death of a friend
B. expressing jealous anger
- Scene 156. A. helping a customer
B. expressing gratitude
- Scene 157. A. asking forgiveness
B. saying a prayer
- Scene 158. A. trying to seduce someone
B. expressing gratitude
- Scene 159. A. expressing jealous anger
B. saying a prayer
- Scene 160. A. criticizing someone for being late
B. helping a customer
- Scene 161. A. expressing strong dislike
B. expressing deep affection
- Scene 162. A. expressing deep affection
B. talking about the death of a friend
- Scene 163. A. returning a faulty item to a store
B. leaving on a trip
- Scene 164. A. expressing gratitude
B. expressing jealous anger
- Scene 165. A. talking about one's wedding
B. trying to seduce someone
- Scene 166. A. talking to a lost child
B. expressing jealous anger
- Scene 167. A. talking to a lost child
B. talking about the death of a friend
- Scene 168. A. talking about one's divorce
B. asking forgiveness

PONS Answer Sheet
Page 11

- Scene 169. A. trying to seduce someone
B. threatening someone
- Scene 170. A. expressing gratitude
B. expressing jealous anger
- Scene 171. A. talking about one's wedding
B. criticizing someone for being late
- Scene 172. A. returning a faulty item to a store
B. expressing strong dislike
- Scene 173. A. expressing gratitude
B. talking to a lost child
- Scene 174. A. expressing gratitude
B. returning a faulty item to a store
- Scene 175. A. expressing motherly love
B. criticizing someone for being late
- Scene 176. A. ordering food in a restaurant
B. expressing jealous anger
- Scene 177. A. expressing gratitude
B. returning a faulty item to a store
- Scene 178. A. expressing strong dislike
B. talking about one's divorce
- Scene 179. A. talking about one's divorce
B. talking about the death of a friend
- Scene 180. A. ordering food in a restaurant
B. returning a faulty item to a store
- Scene 181. A. expressing motherly love
B. talking to a lost child
- Scene 182. A. trying to seduce someone
B. talking about one's wedding
- Scene 183. A. leaving on a trip
B. trying to seduce someone
- Scene 184. A. talking about the death of a friend
B. asking forgiveness
- Scene 185. A. trying to seduce someone
B. talking to a lost child

PONS Answer Sheet
Page 12

- Scene 186. A. expressing motherly love
B. ordering food in a restaurant
- Scene 187. A. saying a prayer
B. expressing jealous anger
- Scene 188. A. trying to seduce someone
B. talking about the death of a friend
- Scene 189. A. ordering food in a restaurant
B. talking about the death of a friend
- Scene 190. A. helping a customer
B. trying to seduce someone
- Scene 191. A. expressing motherly love
B. criticizing someone for being late
- Scene 192. A. saying a prayer
B. nagging a child
- Scene 193. A. talking to a lost child
B. expressing deep affection
- Scene 194. A. talking about one's divorce
B. returning a faulty item to a store
- Scene 195. A. threatening someone
B. helping a customer
- Scene 196. A. criticizing someone for being late
B. talking about one's divorce
- Scene 197. A. expressing jealous anger
B. nagging a child
- Scene 198. A. talking about one's wedding
B. expressing jealous anger
- Scene 199. A. trying to seduce someone
B. expressing deep affection
- Scene 200. A. threatening someone
B. expressing strong dislike
- Scene 201. A. talking about one's wedding
B. talking about the death of a friend
- Scene 202. A. talking about one's divorce
B. talking about one's wedding

PONS Answer Sheet
Page 13

- Scene 203. A. threatening someone
B. expressing strong dislike
- Scene 204. A. admiring nature
B. criticizing someone for being late
- Scene 205. A. ordering food in a restaurant
B. nagging a child
- Scene 206. A. expressing gratitude
B. threatening someone
- Scene 207. A. talking about one's wedding
B. saying a prayer
- Scene 208. A. admiring nature
B. talking about the death of a friend
- Scene 209. A. trying to seduce someone
B. saying a prayer
- Scene 210. A. talking about one's divorce
B. threatening someone
- Scene 211. A. expressing deep affection
B. trying to seduce someone
- Scene 212. A. saying a prayer
B. talking about one's wedding
- Scene 213. A. leaving on a trip
B. trying to seduce someone
- Scene 214. A. saying a prayer
B. talking to a lost child
- Scene 215. A. admiring nature
B. talking about one's wedding
- Scene 216. A. expressing jealous anger
B. criticizing someone for being late
- Scene 217. A. leaving on a trip
B. ordering food in a restaurant
- Scene 218. A. expressing strong dislike
B. talking to a lost child
- Scene 219. A. expressing jealous anger
B. talking to a lost child
- Scene 220. A. asking forgiveness
B. expressing gratitude

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