Male/Female Differential Encoding and Intercultural Differential Decoding of Nonverbal Affective Communication.

Gail Mcallister St. martin

Louisiana State University and Agricultural & Mechanical College

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The Louisiana State University and
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Speech

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MALE/FEMALE DIFFERENTIAL ENCODING AND INTERCULTURAL DIFFERENTIAL DECODING OF NONVERBAL AFFECTIVE COMMUNICATION

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in

The Department of Speech

by
Gail McAllister St. Martin
B.A., Grinnell College, 1960
M.A., Louisiana State University, 1971
May, 1976
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ABSTRACT

The purpose of this study was to investigate nonverbal communication of emotions in a simulated inter-cultural context. To facilitate focusing on this multifaceted situation, the following null hypotheses were proposed.

H₁: Male sender ability = Female sender ability
H₂: Male respondent perceptions = Female respondent perceptions
H₃: Culture group A perceptions = Culture group B perceptions = Culture group C perceptions = Culture group D perceptions
H₄: Video stimuli = audio stimuli = audiovisual stimuli

Methodology of the study involved the compiling of a videotape on which 2 white American senders, 1 male and 1 female, responded to spoken emotion-evoking stimuli paragraphs for each of 6 emotions. The emotions were sadness, disgust, anger, surprise, happiness and fear. Verbal expression was limited to numbers spoken in English. There was no restriction on the use of gesture or facial expression. The best portrayal of each emotion by each sender was selected by a panel of 3 judges. These portrayals were edited onto another videotape with each portrayal appearing 3 times in 3 separate modes: audio only; video only; and audiovisual.
Respondents were both male and female and of 4 cultural types: White American; Black American, Latin American and Malaysian. They observed the master videotape and registered their perceptions of the senders on an evaluation device which consisted of a set of 9 bipolar adjectival scales for each of the 36 stimuli. These 9 bipolar scales were designed to register respondents' perception of the sender in terms of 3 factors: pleasure; arousal; and dominance.

Data collected from the respondents were analyzed by a split-plot analysis of variance and Duncan's New Multiple Range Test. The 6 emotions and 3 factors produced 18 instances of potential difference which might result from manipulation of one of the variables of Sender Sex, Respondent Sex, Cultural Type and Mode.

Sender Sex was significant in one-third of the instances. Therefore, the null hypothesis was rejected in favor of its alternative, i.e., male sender ability is not equal to female sender ability. This acceptance was tentative, however, primarily because of the limited number (1) of persons of each Sender Sex represented in this study.

Respondent Sex was statistically significant in only 1 of 18 potential instances. Therefore, the null hypothesis that male respondent perceptions are equal to female respondent perceptions was accepted.

Culture Type was statistically significant in 8 of
18 potential instances. The null hypothesis was rejected in favor of its alternative, that is, that there is a difference in the perceptions of nonverbal emotional communication depending upon the cultural origin of the respondent. Duncan's Test results indicated a number of differential perceptions between culture groups. In order of increasing number of differences they were: Black Americans/Latin Americans (0); Latin Americans/Malaysians (1); Black Americans/Malaysians (1); White Americans/Latin Americans (2); White Americans/Malaysians (5); and White Americans/Black Americans (8).

Mode of communication was statistically significant in 13 of 18 instances and beyond the .001 level in 12 of those 13 instances. Therefore, the null hypothesis was rejected and its alternative accepted. That is, for nonverbal affective communication the video mode, audio mode and audiovisual modes are not equal. Duncan's Test results revealed that there was little difference between video and audiovisual (4 instances), as compared to differences between audio and audiovisual (11 instances), as compared to differences between audio and audiovisual (13 instances).

Conclusions of the study are seen as indicative rather than conclusive. Suggestions are made for further studies both to verify these findings and to extend investigation of nonverbal communication to the transmission of information as well as of emotion.
CHAPTER I

INTRODUCTION

Communication by nonverbal means seems to be a universal human phenomenon. It is possible to stop speaking, but it is impossible to stop behaving. From this continual behavior others make inferences concerning one's thoughts and emotional states. These inferences are in turn acted upon by those who make them, a response just as real as if the original message had been verbal and intentional.

The Problem

Within a single culture, adults operate the nonverbal system almost unconsciously: a handshake between men in greeting; keeping to the right on streets or sidewalks; the interchange of glances during conversation. Birdwhistell (1970) estimates that within a single culture, only about 30 percent of what is communicated in conversation is verbal. But, it is when individuals from different cultural groups begin to interact that this unconsciously-assumed system of nonverbal communication ceases to function well. The elements of different systems may actually be the same but may be assigned different meanings from one culture's system to another's. The point is that we lack awareness of the
largely unconscious nonverbal systems. Thus, in a multi-cultural context we have no alternative but to send messages blindly. We have no way of knowing how these messages might be received and interpreted. In a word, we have maximized the potential for a communication failure.

It seems appropriate, and even overdue, at this time when communication between nations and cultures is no longer an option but rather an imperative, that we look more closely at human communication processes. The aim is a better understanding of these phenomena in theory. Also, on the practical level, our increased understanding of the similarities and differences among peoples of different cultures may allow for messages to be more accurately sent and received. It was out of a recognition of this inter-cultural problem and potential that the present study was conceived.

**Definition of Terms**

Before proceeding with reporting this study which focused on the nonverbal aspect of human communication, it is in order to define some of the more elemental terms to be used in the report itself.

**Nonverbal communication.**—Borden (1969) offered that the "... nuances of nonverbal communication fall into three categories; ... how we deal with time, space and our own personal self." (Borden, 1969, p. 60). Reusch and Kees (1956) wrote that nonverbal forms of codification fall into three distinct categories: sign language, action language
and object language. Ekman and Friesen (1969) cite five types of nonverbal communication (NVC): emblems, illustrators, affect displays, regulators and adaptors. Rosenthal, et al. (in preparation) see all authors who deal with NVC as falling into two general groups—the relativists and the universalists. Differences between these two groups are complicated, according to the authors, by issues of definitional imprecision, types of analysis (the component or the judgment approach), degree of naturalism in behaviors studied (posed or spontaneous), differences in channel (face, body, etc.), and differences of opinion with regard to what constitutes evidence (case studies, quantitative judgments, etc.). Argyle (1972) writes that the main NV signals used by man are 10 in number: bodily contact, proximity, orientation, appearance, posture, head nods, facial expression, gestures, looking, and the nonverbal aspects of speech.

It should be apparent that there is not a great deal of agreement among NVC researchers as to the definition of NVC. For the purpose of the study reported here, NVC is defined as all forms of human communication which are not verbal, i.e., spoken words. Included are all vocal utterances which are not linguistic, e.g., cries, sighs. Also included is any other form of behavior which has symbolic value. This last qualification allows for the exclusion of behavior which acts as a sign, e.g., a sneeze as a sign of a cold.
Encoding.--Encoding is the label used to denote the process of an individual's putting a thought or feeling into an appropriate form for communicating that thought or feeling.

Decoding.--Decoding is the label used to denote the reciprocal process of encoding, that is, the process of receiving the communication and interpreting the message.

Affective communication.--Affective communication is that sort which expresses emotions. This type of communication is "... often expressed nonverbally (hugs, kisses, lingering glances ...)." (Condon and Yousef, 1975, p. 28)

Intercultural communication.--For the purpose of this study intercultural communication is defined as that which takes place across cultural boundaries. In terms of individuals this would mean communication which takes place between persons of different cultural origins.

The definition of culture itself has occupied anthropologists for some time and many volumes, e.g., Chard (1969); Hall (1959); Smith (1966). Kroeber (1964) offers that, "When we need a term for that larger whose which is the common property of all groups of men and which distinctively sets off mankind from all other animals, there is no question: we call it culture." (Kroeber, 1964. p. xvii) A culture is differentiated from others by its style of living which varies with regard to certain universal components, e.g. family organization, religious beliefs, use of language, value orientation, etc.
Research Hypotheses

This study attempted in some part to raise to conscious awareness one particular sort of nonverbal communication—the communication of emotions, and in a particular context—a multicultural one. As an aid in focusing on this sort of situation the following research hypotheses were put forth:¹

$H_1$: Perceptions of male and female senders of nonverbal affective communication will be different.

$H_2$: Male and female respondents to nonverbal affective communication perceive the communication differently.

$H_3$: Members of different cultural groups perceive nonverbal affective communication differently.

$H_4$: The nonverbal affective communication will be perceived differently if transmitted via audio only or video only or audiovisual modes.

¹Listing of the hypotheses is not in order of importance but rather in an order allowing for ease and logical presentation of results of statistical analysis.
CHAPTER II

NONVERBAL COMMUNICATION

Nonverbal communication is a fairly recent label for phenomena which have been studied not only for some time but also from different points of view.

Nonverbal Communication Research: A Brief Survey

Charles Darwin (1872) investigated the biological and physiological similarities of facially expressed emotions among man and animals. Not surprisingly, he isolated similarities which were consistent with his evolutionary theory. That is, he affirmed to his satisfaction "... that behavior patterns are just as conservatively and reliably characteristic of species as are the forms of bones, teeth or any other bodily structures." (Lorenz, 1965. p. xii)

From the point of view of anthropology, many aboriginal peoples have had their cultures recorded and reported, e.g., Mead, 1930. Included in these reports, of course, are unique nonverbal behaviors, e.g., standardized greetings, ritualized ceremonial behaviors. Edward Hall (1959), in The Silent Language, deals extensively with nonverbal behaviors and posits a 10 by 10 matrix of interacting.
"Primary Message Systems" which he suggests are universal.

Hall also developed "proxemics" (Hall, 1963, 1968) which is the study, complete with appropriate notation system, of how man uses the space surrounding him. Watson (1970) investigated proxemic behavior among Americans and Arabs and Griswold (1973) tested and verified Hall's proxemic variables and measuring system. In 1966 Hall published *The Hidden Dimension* which explained and elaborated on proxemcs for the more general reader.

Psychology has concentrated a fair amount of study in the area of NVC, not usually in terms of groups but rather as NVC relates to the behavior of individuals. Argyle (1973) explored the different functions of gaze. Ekman and Friesen (1969) considered NV behavior with regard to its origin, usage and coding. Jourard's (1966) study in "body accessibility" remains a classic. Mahl and Schultz (1964) indexed psychological research in the extra-linguistic (vocal) area. Reusch and Kees' (1956) book was an early effort to label and deal systematically with NVC.

Other and earlier treatments from the psychological point of view dealt with pathological behaviors and modes of therapy. Azrin (1958) treated the effects of noise on human behavior. Berrien (1946) also investigated the effects of noise. Condon and Ogston (1963) used sound film to analyze normal and pathological behavior patterns of individuals. Scheflen (1964) reported on posture as a form of communication in group psychotherapy.
Social psychology and sociology have more recently been contributing their studies of NV behavior, particularly within groups. Argyle and Dean (1965) dealt with eye contact in groups. Albert and Dabbs (1970) treated physical distance as related to persuasion. Gitin (1970) experimented and theorized about "manual expression." Goffman (1958) "... consider[ed] the way in which the individual in ordinary work situations presents himself to others." \textit{(Ibid., p. xi)}

Though the field of speech-communication got an early start when Aristotle dealt with vocal communication in his \textit{Rhetoric}, it is only within recent years that the nonverbal dimension of speech communication has been explored in any detail. Breed and Coliauta (1974) examined the NV dynamics in the speech classroom. Bruneau (1973) theorized regarding the forms and functions of "communicative silence." Connolly (1975) investigated interpersonal space among black and white midwesterners. Dittman (1972) reported research dealing with the developmental factors in NV conversational behavior. Knapp, \textit{et al.} (1973) treated the verbal and NV correlates of human leave-taking. VandeCreek and Watkins (1972) investigated the effects of incongruent verbal and NV emotional cues.

From the viewpoint of linguistics, NVC is subsumed within the area labeled "semiotics." Smith (1970, p. 7) defines semiotics as "The study of ... relationships among words, thoughts and things." Mouton Press of The Hague,
which has published the *Janua Linguarum* series since the mid-1950's, began publishing both *Semiotica* and *Approaches to Semiotics* within the last decade. Nonverbal Communication was the theme of the Seventh Annual Conference on Applied Linguistics held in January, 1976, at the University of Michigan. (Linguistic Reporter, January, 1976)

It should be apparent from the preceding brief survey that the NVC literature and interest grows in several different fields. It must be added, because it is not so apparent, that the density of growth is variable and that the relative density changes over time. One trend is obvious, however, and a glance at the preceding publication dates can attest to the fact—production has increased markedly in just the last five years. It seems reasonable to interpret this as increasing interest from many quarters in a previously-overlooked, or unrecognized, communication system—the nonverbal one.

**Contributory Studies**

The study reported here focused on nonverbal communication. Specifically, it sought to discover if sex or culture or media influences the sending or receiving of nonverbal communication of emotions.

**The media.**—Rosenthal, *et al.* (1974) have issued a progress report on the development of their new test, "Perception of Nonverbal Sensitivity" (PONS). This test consists of a videotaped female encoder who sends a variety
of messages. Subjects are asked to watch a number of 3 to 5-second segments, then immediately choose 1 of 2 written possibilities to describe each segment.

The videotape for PONS has been modified to offer the stimuli segments via 11 different "channels." The first 3 are video; face only, body only; face and body. The next 2 are audio. One audio is "electronic content-filtered" which removes critical frequencies from the voice, the other is "randomized spliced" which modifies both sequence and rhythm. The remaining 6 "channels" are all possible combinations of the original 3 video and 2 audio.

The subjects for PONS testing have been drawn from all parts of the world, e.g., Canada, Australia, Alaska, New Zealand, Israel, England, Mexico, Holland. (Rosenthal, et al., in preparation). The researchers are using various indices of "cultural distance" between sender and receiver, e.g., general modernization of culture, communications development, contact with Americans, in an attempt to account for differential perceptions among receivers as related to sender.

The development of the PONS test is not yet complete, but Rosenthal does suggest at this time that "... females are better at," perceiving NV stimuli and that adults are more accurate than elementary school children. (Ibid.)

For the purpose of the study reported here, the PONS project suggested a medium, video tape. This allowed for stimuli which, it was felt, more closely approximated a real
and dynamic situation that would have the use of static pictures or photographs. Using the medium of video tape, then, besides taking the route of creating the 11 channels by the method outlined for PONS, there are 3 obvious channels; video only, audio only and their combination, audiovisual. Gitter, Black and Goldman (1975) used these three modes and found, with regard to superior/inferior judgments of the sender, that respondents registered a significant difference in 10 out of 42 criteria, as a result of difference of mode. Burns and Beier (1973) asked observers to judge various portrayals of feeling on film and found that visual cues were more accurate than vocal ones. Based on samples of previous research, then, it seemed that comparison among audio, video and audiovisual was a valid area for investigation.

The senders.—The PONS study contributed to the one reported here not only by suggesting a medium, but also by its omission suggesting a portion of this study's methodology. The PONS test used only a female sender. A male sender had been used for an audio-only stimulus in a pilot study, but Rosenthal, et al. (Ibid.) offered no reason for rejecting use of a male sender for the PONS test itself. Intuition would seem to suggest that there might be a difference between the NVC of male and female senders. Research reports bear this out. Zaidel and Mehrabian (1973) reported that their study suggested "... females were considerably better than males at communicating variations in negative
attitude . . . although males were somewhat better at communications of positive attitude." (Zaidel and Mehrabian, 1973. p. 350). Buck, Miller and Caul (1974) report a study which also dealt with the communication of affect via facial expression. They used colored slides as stimuli to evoke a facially expressed emotion in one subject, who, in turn was observed with regard to kind and degree of emotion by another subject. It was discovered, among other findings, that while females were better senders, there was no difference between the sexes with regard to reception of the emotional facial expressions.

For the purpose of this study, then, it seemed valid, based on previously reported research, to use both male and female senders, both male and female respondents and to make comparisons between sexes for both the encoding and the decoding processes.

The evaluation device.—The PONS test suggested one last methodological modification for this study—the evaluation device. PONS asks the respondent to register his evaluation as an either/or choice. It was the interest of the study reported here to allow the respondent the opportunity to register degree of response and with regard to more than just one factor per stimulus. A device which suited these performance specifications was presented first by Mehrabian in 1972, then published in more refined form by Mehrabian and Russell in 1974. The device is essentially a
set of bipolar adjectival scales. Each scale on which the respondent registers his evaluation has at its poles 2 opposing adjectives, e.g., happy-unhappy. Therefore, by placing a penciled mark along this calibrated continuum, the respondent is able to register the degree of his evaluation of the stimulus in terms of the opposing adjectives.

Mehrabian and Russell (1974) suggest 18 bipolar scales in all which have been generated as a result of a 3-stage procedure that increasingly refined and tested over 500 individuals' descriptive responses to emotional situations. Statistical analysis of these responses resulted in the 18 bipolar adjectival scales which have been subjected to factor analysis. For the purpose of the study reported here, 9 of these scales were selected. Their selection was based primarily on high factor loadings but also on the researcher's judgment of adjectives likely to be understood by non-native speakers of English.

The theoretical framework of Mehrabian and Russell's 18 bipolar scales is suggested by the fact that they claim to tap the elemental evaluative dimensions of pleasure, arousal and dominance. (Mehrabian, 1972. p. 195) For the isolation and recognition of these dimensions and the bipolar adjectival device for evoking them, Mehrabian acknowledges a debt to Charles Osgood (1957) who developed the bipolar technique and labeled the human semantic dimensions as evaluation, activity and potency.

Mehrabian claims that his 3 dimensions afford a
"semantic space for nonverbal behavior," and that human perceptions of social orientations based on these dimensions are basic to human nature. Pleasure, for example, is a basic cognitive distinction which determines one's approach and avoidance tendencies toward objects and persons who are judged as pleasant or not. This ability to evaluate is crucial to survival. Arousal is the "... nonverbal-social counterpart of the (physiological) orienting reflex." (Mehrabian, 1972. p. 14.) Dominance "... relates to social control (power) ... and its assessment is a major determiner of social interaction." (Ibid.) It would seem that there are theoretically justifiable grounds for postulating these basic 3 factors. Additionally, it has been demonstrated through research as reported above (Mehrabian and Russell, 1974) that persons' perceptions of situations do, in fact, seem to fall into the theorized 3 general factors.

Mehrabian and Russell's device seemed appropriate for the study reported here for several reasons. First, it was designed to accommodate responses to emotional messages --exactly the type of stimuli to be used in this study. Also, it afforded respondents the opportunity to express degree of evaluation with regard to several descriptive adjectives. Next, given Mehrabian and Russell's statistical reporting of their previous research, it was possible to edit their 18 scales down to 9 based to a large extent on the most favorable factor loadings. Lastly, it afforded
both theoretical and demonstrated justification for analyzing on the basis of the 3 factors of pleasure, arousal and dominance.

The message content.—In 1959 Davitz and Davitz reported on their study, "The Communication of Feelings by Content-free Speech." They had asked 8 senders, 4 male and 4 female, to express 10 "feelings" by first reading to themselves a paragraph which described a situation in which a feeling (emotion) might occur. Next, the sender would speak "content-free" sounds (the English alphabet) into an audio tape recorder. Then, the 10 recorded "feelings" from the 8 senders were played back for 30 judges, graduate students at a teachers' college. For each recording the judges were provided with a printed list of all 10 possible emotions and asked to indicate which one emotion on the list they thought was being portrayed. The results showed that all of the tape-recorded "feelings" were correctly identified at a level greater than chance. Results were not reported in terms of sex for either the senders or receivers.

The 10 feelings which Davitz and Davitz (1959) had recognized, in descending accuracy of judgment are presented in Table 1.

Ekman (1973, 1975), who reports on a broad range of studies involving facial expressions of other forms of non-verbal communication, cites 6 emotions that he has found have pancultural elements; anger, sadness, happiness, fear, surprise, disgust. Curiously, 3 of Ekman's pancultural
Table 1.—Feelings correctly judged by listeners in Davitz and Davitz study. 
N = 240

<table>
<thead>
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<td>anger</td>
<td>156</td>
<td>satisfaction</td>
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<tr>
<td>sympathy</td>
<td>93</td>
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</tbody>
</table>

Facial expressions are in the top 4 of the auditorally perceived "feelings" most accurately identified by Davitz and Davitz (1959). For the study reported here, then, it seemed reasonable to definitely include portrayals of the emotions; anger, sadness, and happiness. And, because respondents to these emotional portrayals were to be drawn from different cultures, it seemed reasonable to include the rest of Ekman's pancultural possibilities; fear, surprise and disgust, plus, perhaps, the high-scoring, nervousness, from the Davitz and Davitz study.

Davitz and Davitz (1959) contributes to this study in 2 ways; by suggesting content, i.e., which emotions to include as stimuli and by suggesting a procedure for assembling and presenting the stimuli portrayals, i.e., emotionally loaded stimuli paragraphs read by individuals who then are immediately recorded responding with that emotion using content-free speech and appropriate facial expressions, gestures, etc.
A brief mention should be made with regard to the concept of the content-free vocal aspect of the portrayals. What is meant is that as nearly as possible the sounds uttered are lacking in semantic content, i.e., meaning. Kuckholn (1961) refers to an earlier study by Brown, Black and Horowitz (1955) which is pertinent here. They investigated "Phonetic Symbolism in Natural Languages." Their "three separate (studies), using three lists of English words and six foreign languages, showed superior to chance agreement and accuracy in the translation of unfamiliar tongues." For example, Chinese "ch'ing" and "chung" translated as English "light" and "heavy" by 93 percent of the subjects. "The accuracy can be explained by the assumption of some universal phonetic symbolism in which speech may have originated or toward which speech may be evolving." (Brown, Black and Horowitz, 1955, p. 393). For the study reported here no consideration was made to select vocal utterance which would be consistent in potential meaning with the emotion being portrayed. Therefore any manifestation of "universal phonetic symbolism" was intentionally minimized. Vocal utterance was included, but in the form of speaking numbers in English. Thereby, it was hoped, that both the senders and receivers of non-verbal message would be speaking/hearing not content per se, but rather whatever emotional clues could be transmitted by the variations in vocal pitch, volume and rate.
Summary of Contributory Studies

For the purpose of this study, Rosenthal et al. (1972, in preparation) suggested that the stimulus medium be dynamic, i.e., film or videotape and that cultural differences in perception of NVC can be shown to exist.

Both Gitter, Black and Goldman (1975) and Burns and Beier (1973) suggested that the mode of presentation might be a significant independent variable. Therefore, stimuli for this study were presented in 3 modes, video only, audio only and audiovisual.

Both Zaidel and Mehrabian (1973) and Buck, Miller and Caul (1974) suggested that respondent sex might be another independent variable in the perception of NVC. Therefore, both male and female senders and respondents were included in this study.

Mehrabian (1972), then Mehrabian and Russell (1974) afforded an evaluation device for NVC to be used by the respondents. This device satisfied the criteria of affording respondents the opportunity to register both kind and degree of response.
CHAPTER III

PURPOSE AND DESIGN OF THE EXPERIMENT

The problem as defined in Chapter I suggests the necessity for investigating affective communication among peoples representing different cultural groups. It has also been suggested that sex of both sender and receiver is a factor worth investigating with regard to nonverbal communication of affective messages.

RESEARCH HYPOTHESES

The purpose of this study was to investigate the following four research hypotheses: 1. Perceptions of a male and a female senders of nonverbally expressed emotions are different; 2. Male and female respondents will differ in their perceptions of nonverbally expressed emotions; 3. Receivers' perceptions of nonverbally expressed emotions will differ based on their cultural origins; 4. Nonverbal emotional communication will be perceived differently if it is transmitted via audio only, by video only or by audio-visual modes.

The preceding research hypotheses stated in the form of null hypotheses are:

H1: Perceptions of male sender = Perception of female sender.
\( H_1: \) Male sender ability = Female sender ability.

\( H_2: \) Male respondent perception = Female respondent perception.

\( H_3: \) Culture group A perceptions = Culture group B perceptions = Culture group C perceptions = Culture group D perceptions.

\( H_4: \) Video stimulus = Audio stimulus = Audiovisual stimulus.

METHODOLOGY

The study was done in a "judgment" mode as contrasted to a "components" mode. (Ekman, Friesen and Ellsworth, 1972.) That is, rather than having one observer attempt to isolate the common components in a number of examples of nonverbal behaviors, what was done was to hold up some selected examples of nonverbal behavior and collect judgments from a number of observers about that behavior.

This method seemed particularly appropriate since one focus of the study was the investigation of possible cultural differences with regard to perceptions of nonverbal behavior. The "judgments" approach would seem to allow for more of an emic rather than an etic profile for a particular culture's perception of nonverbally expressed emotions.

Materials

The stimulus master videotape consisted of two senders, white Americans aged 20 to 30, one male and one female, each portraying the following six emotions: happiness; sadness; fear; surprise; disgust; anger. Each
portrayal was presented three times: first video only; then audio only; then audiovisual—a total of 36 (2x6x3) individual stimuli of from five to ten seconds in duration each. From 50 seconds at the beginning of the exercise to 40 seconds toward the end were allowed between stimuli to allow for informants to rate each stimulus. The videotape was in black and white.

The master tape mentioned above was composed in the following manner: The sender was asked to listen to an emotion evoking stimulus paragraph (see Appendix A), then to respond immediately with the same emotion. He/she was told to use any facial expressions, arm, hand or body movements appropriate together with saying numbers from one to ten.

It was decided that a vocal channel was very necessary but at the same time it was important to keep whatever was uttered as content-free as possible. Both the English alphabet and numbers were considered. Numbers were selected based on the assumption that they would be less culture/language specific than the English alphabet.

Portrayals were recorded in the Closed Circuit Television Laboratory, Himes Hall, Louisiana State University. Two stationary cameras, one equipped with a zoom lens, picked up the picture which then was "mixed" at the control room panel, then recorded on half-inch Scotch videotape by means of a Panasonic model NV 3130 video recorder.

There were 3 "takes" for each sender, i.e., the entire set of ten emotions was recorded three separate times
for each sender. Originally there were ten emotions under consideration (pity, boredom, annoyance, nervousness added to those cited above) therefore the finished "rough draft" tape contained a total of 60 individual portrayals (2 senders x 10 emotions x 3 takes).

The next task was to edit this "rough draft" tape down to the best portrayal of each emotion for each sender. At this point it seemed advisable to get outside opinions as to which were the "best" portrayals. Three judges were used: one male professor of theatre; 1 female professor whose specialty is costume design; 1 male doctoral candidate in psychology with several years experience teaching international students. Each of the judges viewed and rated the "rough draft" videotape two times at approximately one-week intervals.

Each portrayal was rated on a scale of 1 (poor) to 7 (superior). Ratings within each judge were averaged over time, then again among all judges. The 20 portrayals with the highest mean score were then isolated as "best." A mean rating of 3.5 was established as the minimum for selection.

Care was taken that the process of merely averaging rating did not "hide" a large difference of evaluation either over time for each judge or among judges. Because an appropriate statistical test is not available to accommodate this consideration, a very close comparison of the judges' ratings will have to serve this purpose.

Table 2 shows the comparison of all judgments and how
many differed for each judge between time 1 and time 2. As can be seen, fully 40.5 percent of the judgments were identical over time. And a total of 87.1 percent was either identical or differed by only 1 point over time. These figures would seem to indicate a high degree of rater reliability over time. Therefore the procedure of averaging ratings over time for each judge, then among all judges seems a valid procedure.

These 20 "best" portrayals were then ready to be edited on to the final stimulus tape. At this point it had become apparent that respondents would have to be drawn from classes which were limited to 50-minute periods. This, in turn, limited total tape time to approximately 45 minutes. Allowing for the 3 modes (video only, audio only and audiovisual) for each emotion, plus a time space between each stimulus for informant response, it was obvious that the total of 10 emotions could not be used. It was decided to include only those 6 that Ekman (1973) claims have pan-cultural elements, i.e., happiness, sadness, fear, disgust, surprise, anger.

Editing was done using Panasonic Models NV 3120 and NV 3130 video tape recorders. The process involved simply finding all of the "best" portrayals on the rough draft tape, then transferring them to the final master tape allowing for 50 to 40-second intervals between each. Mode and sex of portrayals were in the following sequence: Video only, 6 female then 6 male sender; Audio only, 6 male sender then 6
Table 2.—Comparison of time₁ and time₂ "rough draft" videotape judgments.

<table>
<thead>
<tr>
<th>Judges</th>
<th>Ratings Identical Time₁ &amp; Time₂</th>
<th>Ratings Different by 1 point, Time₁ &amp; Time₂</th>
<th>Ratings Different by 2 or more points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Theatre Faculty Member</td>
<td>Male  8 (26.6%) Female 13 (43.3%)</td>
<td>Male 18 (60.0%) Female 15 (50.0%)</td>
<td>Male 4 (13.3%) Female 2 (6.6%)</td>
</tr>
<tr>
<td>Female Theatre Faculty Member</td>
<td>Male 14 (46.6%) Female 15 (50.0%)</td>
<td>Male 12 (40.0%) Female 11 (36.6%)</td>
<td>Male 4 (13.3%) Female 4 (13.3%)</td>
</tr>
<tr>
<td>Male Psychology Doctoral Candidate</td>
<td>Male 17 (56.1%) Female 6 (20.0%)</td>
<td>Male 11 (36.6%) Female 17 (56.6%)</td>
<td>Male 2 (6.6%) Female 7 (23.3%)</td>
</tr>
<tr>
<td>Totals</td>
<td>Male 39 (43.3%) Female 34 (37.7%)</td>
<td>Male 41 (45.5%) Female 43 (47.7%)</td>
<td>Male 10 (11.1%) Female 13 (14.4%)</td>
</tr>
<tr>
<td>Totals</td>
<td>73 (40.5%)</td>
<td>84 (46.6%)</td>
<td>23 (12.7%)</td>
</tr>
</tbody>
</table>

Total ratings each judge: 30 male, 30 female.
Ratings made on 7-point scale.
female sender; Audiovisual, 6 female sender than 6 male sender. In addition to these stimuli, an example portrayal (male, audiovisual, "boredom") was included at the beginning to serve merely as illustration during introduction of the exercise to the listeners. The entire editing process consumed 6 hours and yielded a master tape of 44 minutes duration.

Participants

Listeners were undergraduate students at Louisiana State University. The white Americans came from an introductory speech class. The black Americans were from a basic composition English class. And the international students were enrolled in a basic speech class designed for non-native speakers of English.

Procedure

All testing took place in Louisiana State University's Closed Circuit Television Laboratory during regular class time. Listeners were seated at writing-arm desks which were arranged in an arc facing a 25-inch television monitor. Their backs were to the control room and lighting was sufficient for writing but lowered somewhat to facilitate viewing the monitor.

Respondents found evaluation booklets at their desks upon entering and were instructed to individually complete the cover, "Personal Data Sheet." Items included were: age; sex; country of citizenship; time in the United States;
approximate population of home community; native language; other languages spoken. No names were requested.

The second sheet was devoted to instructions concerning use of the bipolar rating scales. (See Appendix B.) These instructions were read aloud by the administrator who then answered any questions posed by informants. The remainder of the booklet contained the bipolar rating scales themselves, a set of 9 to be used to rate each stimulus. These 9 scales were derived from Mehrabian and Russell (1974), 3 scales designed to tap each of 3 factors, Pleasure, Arousal and Dominance. Every other scale's poles were reversed and their sequence according to factors was randomized (see Appendix B). The "example portrayal" was shown. Any further questions from listeners were answered.

The entire master tape was then shown with respondents evaluating each of the 36 stimuli portrayals immediately after it occurred.

After administration of the exercise itself, respondents were afforded the opportunity of making any comments they felt pertinent on a separate sheet of the test booklet.

They were sincerely thanked for their participation. Any listeners who so desired were then "debriefed," i.e., told what hypotheses were being investigated, etc.
CHAPTER IV

RESULTS AND DISCUSSION

METHOD OF TABULATING RAW DATA

Usable completed evaluation booklets were sorted according to sex of respondent and cultural group of respondent. This resulted in eight sets: White American, male and female; Black American, male and female; Latin American, male and female; and Malaysian, male and female. The split-plot analysis of variance used to analyze the data required the same number of respondents in each set with a minimum of five in each set. These requirements were met.

Next, each evaluation booklet was scored. The scoring procedure involved first reversing the poles of alternate scales so that all of them could be assigned the numbers one to seven from left to right. (See Appendix B for example of rating scales as used by respondents.) For each emotion evaluation, it was necessary to group the nine scales used into three groups of three scales each according to the factor which each group was measuring. Then, three templates were constructed such that, by laying a template over the scales for one factor, the experimenter could add the three ratings which had been registered and record their
sum in the margin. This procedure yielded three scores for each emotion, one for each of the factors of pleasure, arousal and dominance. Each scale could have a score of one to seven, therefore the range of potential factor scores was three to twenty-one.

These raw scores, 108 for each respondent's booklet, were then coded and subsequently punched on to IBM cards. Included on these IBM cards was information gathered from the booklets' covers "Personal Data Sheet" (see Appendix B): culture group; sex; age; languages spoken and length of time in the United States. Data regarding sender sex and mode of presentation were included also.

METHOD OF STATISTICAL ANALYSIS

Statistical analysis included essentially three steps. First, means were computed for all of the raw factor scores in terms of each of the variables individually. Next a split-plot analysis of variance (ANOVA) was performed for the purpose of determining the statistical significance of each factor for each emotion. Finally, the means for all of the significant F ratios were subjected to Duncan's New Multiple Range Test to determine where the significant differences lay. For example, the ANOVA indicated that Respondent Culture was a significant variable in the perception of all factors of the emotion Sadness. Duncan's test allowed for an investigation to show which culture groups were significantly different from each other.
The results of the ANOVA are shown in Table 3. Note that $F$ scores were calculated for each factor (3), of each emotion (6) in terms of each variable alone and in combination with each of the other variables. This amount of detail allows for comparisons of factors both within each emotion and across emotions. Of course, the nature of factor structure is such that a unit, in this case an emotional expression, is separated into separate facets in which each has a separate score. These facets are different aspects of a single thing, and because the facets are orthogonal to each other they may not be summed. This amount of detail also allows for examination of the interaction effects between pairs of variables, e.g., Sender Sex with Mode for the emotion of Sadness, factor of arousal is statistically significant while neither of the variables is significant alone.

The remainder of this chapter will be devoted to an explanation and elaboration of the items included in Table 3. This will be done in terms of the original research hypotheses.

Results Relevant to Hypothesis 1

Hypothesis 1, as stated earlier, maintained that Male Sender Ability was equal to Female Sender Ability. As the Sender Sex scores in column SS of Table 3 indicate, there were perceived differences according to sender sex in
Table 3.—F values for dependent variables

| Emotion   | SS   | RS   | SS   | RT   | RS   | SS   | RT   | RS   | SS   | RT   | RS   | SS   | RT   | RS   | SS   | RT   | RS   | SS   | RT   | RS   | SS   | RT   | RS   | SS   | RT   |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sadness   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| pleasure  | 9.698* | 2.035 | 0.025 | 3.093* | 0.376 | 2.192 | 1.471 | 9.487** | 0.936 | 2.416* |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| arousal   | 0.737 | 4.357* | 2.811 | 3.023* | 1.181 | 3.568* | 0.986 | 10.538** | 0.026 | 1.025 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| dominance | 0.087 | 0.057 | 0.009 | 4.401* | 0.505 | 0.627 | 2.714 | 1.684 | 2.082 | 0.337 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Disgust   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| pleasure  | 6.036** | 0.958 | 0.540 | 1.029 | 0.505 | 0.069 | 23.424** | 11.464** | 0.703 | 1.817 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| arousal   | 6.537* | 0.518 | 0.044 | 1.423 | 0.082 | 0.280 | 10.248** | 6.254* | 0.230 | 0.969 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| dominance | 3.425 | 0.258 | 1.703 | 0.243 | 0.214 | 0.307 | 0.375 | 6.487* | 0.393 | 1.044 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Anger     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| pleasure  | 33.954** | 0.007 | 0.488 | 3.620* | 1.535 | 0.303 | 21.354** | 1.219 | 0.764 | 1.312 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| arousal   | 23.790** | 0.035 | 1.115 | 5.802* | 1.431 | 0.198 | 2.232 | 1.951 | 0.654 | 0.546 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| dominance | 0.008 | 0.001 | 0.440 | 1.601 | 1.245 | 0.578 | 6.368* | 2.933 | 0.372 | 1.875 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Surprise  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| pleasure  | 0.238 | 0.041 | 1.093 | 2.557 | 0.182 | 0.135 | 30.400** | 4.289* | 0.484 | 4.190** |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| arousal   | 0.233 | 0.487 | 0.804 | 0.516 | 0.484 | 0.244 | 8.109** | 0.020 | 3.576* | 2.398* |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| dominance | 0.362 | 0.922 | 1.064 | 8.404** | 0.162 | 0.262 | 7.192** | 0.001 | 1.202 | 1.017 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Happiness |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| pleasure  | 0.691 | 0.991 | 0.814 | 1.147 | 2.592 | 0.578 | 64.844** | 6.510* | 0.665 | 1.571 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| arousal   | 2.119 | 1.327 | 0.170 | 0.415 | 1.273 | 0.080 | 29.103** | 12.411* | 5.044* | 1.401 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| dominance | 0.428 | 0.115 | 0.378 | 0.049 | 0.733 | 2.896* | 18.756** | 0.199 | 0.987 | 2.053 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Fear      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| pleasure  | 0.049 | 0.057 | 0.023 | 3.375* | 0.376 | 0.882 | 10.556** | 10.474** | 0.983 | 0.549 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| arousal   | 3.357 | 0.344 | 0.004 | 4.343* | 1.593 | 2.079 | 9.514** | 2.135 | 0.232 | 1.914 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| dominance | 5.938* | 0.119 | 0.725 | 0.942 | 1.888 | 0.316 | 8.656** | 1.444 | 0.050 | 1.146 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

SS = Sender Sex; RS = Respondent Sex; RT = Respondent Type; MD = Mode; * Significant at F .05; ** Significant at F .001
6 of 18 possible cases. There is no statistical test that can logically be applied to determine if this 6 is a "significant" proportion of this 18. However, it would seem that if sender sex affected respondents' perceptions in one-third of the cases, then we can reasonably say that Male Sender ability is not equal to Female Sender ability. It is interesting to note that only for the emotions of Surprise and Happiness was Sender Sex not a significant variable.

Specific Emotions Displaying Sender Sex Differential Perception

The patterns of differential Sender Sex perceptions will now be examined in more detail. Only those instances which are indicated as statistically significant in Table 3 column SS will be described. The mean rating scores which are expressed in the following figures 1 through 4 were calculated from ratings assigned by all respondents in all modes.

Sadness.—As shown in Figure 1, for the emotion of Sadness, factor of Pleasure, the male sender was perceived as expressing less pleasure than the female sender. Both senders, however, are well to the "less pleasure" side of the neutral point, a mean rating of 12. This is not too surprising considering that the emotion expressed is Sadness.

Disgust.—Figure 2 illustrates a comparison of male and female sender mean ratings for the emotion of Disgust,
Figure 1. Sender Sex Comparison
Emotion: Sadness
Factor: pleasure

Figure 2. Sender Sex Comparison
Emotion: Disgust
Factors: pleasure arousal

the factors of pleasure and arousal. The male sender was perceived as expressing significantly less Pleasure and significantly more Arousal in his portrayal of disgust than was the female sender. Note, however, that both senders are rated on the side of neutral (12 mean rating) that would be expected for the emotion Disgust, i.e., less Pleasure, but more Arousal.

**Anger.**—Figure 3 illustrates a comparison of male and female sender mean ratings for the emotion of Anger, the factors of Pleasure and Arousal. The male sender was perceived as displaying significantly less Pleasure and significantly more Arousal in his portrayal of Anger than was the female sender.

This emotional portrayal for both senders generated perceptions that were, compared to others, rather extreme (see preceding Figures 1 and 2). It is worth noting, also, that for both factors the Sender Sex difference was highly significant at the .0001 level.

**Surprise.**—No significant difference due to Sender Sex was found for this emotional portrayal.

**Happiness.**—No significant difference due to Sender Sex was found for this emotional portrayal.

**Fear.**—Figure 4 illustrates perceived Sender Sex differences for the emotion of Fear, the factor of Dominance. The male sender was perceived as significantly
Figure 3. Sender Sex Comparison
Emotion: Anger
Factors: pleasure
arousal

Figure 4. Sender Sex Comparison
Emotion: Fear
Factor: dominance
less dominant than the female sender in this portrayal.

It is interesting to note, however, that neither sender was perceived as very far from the neutral point, a mean rating of 12. Given the emotion of Fear, one would suppose that the sender might appear very much dominated by whatever might have caused him to be fearful. These results do not seem to substantiate that assumption. There are 2 possible explanations: The portrayals might not have been easily recognizable, and the emotion of Fear is a difficult one to rate or to recognize. Ekman's research would seem to substantiate the second possibility. He has found it necessary to differentiate "Fear from anger, disgust or sadness," and "Fear from surprise." (Ekman, 1975. p. 38.)

Summary: Sender Sex Comparisons

The relative perceptions of the male and female sender for the factor of Pleasure was the same for the three emotions of Sadness, Disgust and Fear. In all of these essentially negative emotions the male sender was recognized as displaying less pleasure than the female sender. We might be able to conclude that the male sender was perhaps more effective at communicating these less-pleasureful emotions than was the female sender.

The factor of Arousal also displayed the same male/female sender relationship in two emotions, Disgust and Anger. In both of these emotions the male sender was perceived as significantly more aroused.
The Dominance factor showed significant Sender Sex difference only in the emotion of Fear. This difference was such that the male sender was perceived as less dominant than the female sender, i.e., more influenced by something or someone. It is impossible to generalize regarding Sender Sex differences and the Dominance factor from this one instance.

Because the Sender Sex variable was statistically significant in one-third of the possible instances it can reasonably be concluded that male and female senders were not perceived equally, i.e., their abilities to send nonverbal affective messages are not equal.

Results Relevant to Hypothesis 2

Hypothesis 2, as stated earlier, maintained that male receiver perceptions were equal to female receiver perceptions. As the Respondent Sex (RS) column of Table 3 indicates, there was a perceived difference based on Respondent Sex in only 1 of 18 instances. As was true for Hypothesis 1, there is logically no statistical test that can be applied to determine if this 1 is a "significant" proportion of this 18. However, it would seem safe to say that, for the nonverbally expressed emotions of this study at least, Respondent Sex was not a significant variable. A graphic presentation of this one instance is shown in Figure 5.
Specific Emotions Displaying Receiver
Sex Differential Perception

Sadness.—Figure 5 illustrates Respondent Sex differences for the emotion of Sadness, the factor of Arousal. The male respondents perceived all portrayals of Sadness expressed on all modes as more aroused than did the female respondents. We might infer that female receivers were more sensitive to the lack of arousal in a Sadness expression. Despite the difference, both male and female respondents are well to the "less aroused" side of the neutral point (mean, 12), which seems appropriate for this particular emotion.

Summary: Respondent Sex Differential Perceptions

Respondent Sex was a significant variable in only 1 of 18 possible instances, Sadness emotion, Arousal factor. As stated earlier, it can reasonably be stated that for this study, Respondent Sex was not a relevant factor in the perception of nonverbal affective messages, that is, Hypothesis 2 is accepted.

Results Relevant to Hypothesis 3

Hypothesis 3, as stated earlier, maintained that there would be no difference in the perception of nonverbal affective communication as a result of Culture Type of the respondents. As the Respondent Culture Type (RT) column of Table 3 indicates, there was a perceived difference based on
Figure 5. Respondent Sex Comparison
Emotion: Sadness
Factor: arousal
\[\text{more} \quad \text{less}\]
the Respondent Cultural Type in 8 of the 18 possible instances. As was true for the 2 previous hypotheses, we have no statistical test that we can logically apply to determine if this 8 is a "significant" proportion of this 18. However, it would seem that if Respondent Cultural Type affected the respondents' perceptions in almost half of the possible instances, then it can safely be said that this variable had a significant influence—to the perception of nonverbal affective communication of this study, certainly. Hypothesis 3 can then be rejected and its alternative be accepted. That is, it can be said that there was a difference in the perception of nonverbal affective communication based on the cultural origin of the perceiver.

Specific Emotions Displaying Respondent Cultural Type Differential Perception

The patterns of differential Respondent Cultural Type perceptions will now be examined in more detail. Only those instances which have statistically significant F scores as indicated in Table 3, column RT, will be described. The mean scores which are along the horizontal axes of the following Figures 6 through 9 were calculated from scores made by both sexes of respondents in all modes.

Sadness.—Figure 6 illustrates Respondent Cultural Type differences for perception of the emotion Sadness, the factors of Pleasure, Arousal and Dominance. If we look at all 3 factors for each cultural type we can say generally
Figure 6. Respondent Type Comparison
Emotion: Sadness
Factors: pleasure
arousal
dominance
more less
that White Americans perceived all factors as being toward the "less" end of the scale. The perceptions of Latin Americans seem most like those of the White Americans, and those of Black Americans and Malaysians seem very much alike and toward the "more" half of the scale. However, no Respondent Cultural Type registered on the "more" half of the scale, i.e., with a rating less than the mean of 1.2.

The application of Duncan's New Multiple Range Test allows for calculation to rank these differences which were expressed in the graphic terms of Figure 6. For the factor of Pleasure, only White Americans and Black Americans are significantly different. For the factor of Arousal, White Americans are significantly different from both Black Americans and Malaysians. For Dominance White Americans are significantly different again from Black Americans and Malaysians. But also, Latin Americans are significantly different from Malaysians.

To summarize then, for the perception of the emotion Sadness, White Americans and Latin Americans differed for no factors; White Americans and Malaysians differed for 2 factors; White Americans differed from Black Americans for all 3 factors and Latin Americans differed from Malaysians in 1 factor.

Disgust.—There were no statistically significant differences for perception of this emotion based on Respondent Cultural Type.
Anger.—Figure 7 illustrates Respondent Cultural Type differences in the perception of the emotion Anger, the factors of Pleasure and Arousal. The most obvious contrast exists between the mean scores for the two factors displayed. Pleasure is generally extremely to the "less" end of the scale while Arousal is almost as extremely toward the "more" end of the scale. Since the portrayal was of Anger, this should not be too surprising. White Americans had the most extreme mean scores, followed by Latin Americans, then the Malaysians, then the Black Americans. It might be supposed that the White American Respondents were more sensitive to nonverbal cues given by the White American senders.

Application of the Duncan's New Multiple Range Test allows for a specific statement regarding exactly which differences displayed between cultural groups were significant. For the Pleasure factor only White Americans and Black Americans differed. For the Arousal factor Black Americans and Malaysians were different from White Americans.

Surprise.—Figure 8 illustrates the highly significant differences according to Respondent Cultural Type for the emotion of surprise, the factor of Dominance. Only the White American group is really toward the "less" end of the scale. All of the other 3 cultural groups are clustered near the neutral point of 12. Duncan's test confirms this
Figure 7. Respondent Type Comparison

Emotion: Anger
Factors: pleasure arousal

more less
Figure 8. Respondent Type Comparison
Emotion: Surprise
Factor: dominance

Wht. Amer. ~ 15.146
Blk. Amer. ~ 11.483
Lat. Amer. ~ 12.483
Malsn. ~ 11.750

more less
observation, i.e., White American respondents were significantly different from all 3 other respondent types. These 3 Respondent Cultural Types—Latin Americans, Black Americans and Malaysians—were, in turn, not different from each other.

Fear.—Figure 9 illustrates the Respondent Cultural Type differences for the perception of the emotion Fear, the factors of Pleasure and Arousal. As with the same 2 factors described in the discussion of Anger, the White Americans seem to register the greatest interval of any Cultural Type between their mean scores, i.e., the Pleasure mean score and the Arousal mean score. Pleasure mean scores are toward the "less" end of the scale, though not extremely for all cultural groups and Arousal scores are generally toward the "more" end of the scale.

Duncan's test indicates that there is a significant difference for the Pleasure factor between White Americans and Black Americans as well as between Malaysians and Black Americans. Duncan's test also indicates that, for the Arousal factor, White Americans were significantly different from the Black Americans, Latin Americans and Malaysians. The latter 3 cultural groups were not significantly different from one another. This is the same grouping as above for the factor of Dominance in the emotion of Surprise.

Summary: Respondent Cultural Type Differential Perceptions

As stated earlier, Respondent Cultural Type influenced perception of the affective portrayals in 8 of
Figure 9. Respondent Type Comparison

Emotion: Fear

Factors: pleasure
arousal

more less
the 18 potential instances. It would seem reasonable to say that the cultural origin of a respondent definitely affected his or her decoding of affective nonverbal messages.

Within these 8 separate instances of differential Respondent Cultural Type decoding, the application of Duncan's New Multiple Range Test allowed for pinpointing exactly which cultural group differed from which others. The results of these tests have been mentioned individually before but are summarized in Table 4 below. The largest number of instances of difference were between White and Black Americans. Perhaps part of the reason for this might lie in the use of only White senders coupled with the history of tensions between White and Black Americans. The next most different pairing was that of White American/Malaysian, followed by the White American/Latin American pairing. The two pairs with the least (1 each) incidence of differential decoding were Black Americans/Malaysians and Latin Americans/Malaysians. There was no difference exhibited between the Black Americans and the Latin Americans.

Table 4.--Instances of differential decoding based on cultural group of respondent as tested by Duncan's New Multiple Range Test

<table>
<thead>
<tr>
<th>Perception Difference Between Culture Group</th>
<th>Pleasure</th>
<th>Arousal</th>
<th>Dominance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wht.Amer./Blk.Amer.</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Wht.Amer./Lat.Amer.</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Wht.Amer./Malaysn.</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Blk.Amer./Malaysn.</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Lat. Amer./Malaysn.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blk.Amer./Lat.Amer.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Duncan's Test Summary Table presents decoding according to Respondent Cultural Type for the 4 emotions of Sadness, Anger, Surprise and Fear. It is important to note, however, that for the emotions of Disgust and Happiness there was no difference for any factor based on the variable of Respondent Cultural Type. Essentially, for 2 out of 6 emotions, the Cultural Type of the Respondent was not a significant variable.

The original Hypothesis 3 stated that there would be no difference in perception of nonverbal affective communication among receivers of varying cultural types. This study found that this sort of difference was significant in 8 out of 18 instances. Therefore, it seems reasonable to reject this hypothesis and accept its alternative, i.e., that Culture Type A's perceptions are not equal to Culture Type B's perceptions, etc.

Results Relevant to Hypothesis 4

Hypothesis 4, as stated earlier, maintained that there would be no difference in perception of nonverbal affective communication as a result of the variable, mode of communication, i.e., the audio stimuli are equal to the video stimuli are equal to the audiovisual stimuli. Results relevant to this hypothesis appear in column MD of Table 3. In a possible 18 instances, the mode of presentation was statistically significant in 13 instances. Additionally, in 12 of these 13 instances, the F value was at the .001 level
of significance. It seems reasonable to state, then, that the results of this study led to the conclusion that the mode of the presentation does effect a difference in the perception of nonverbal affective communication.

Specific Emotions Displaying Mode Differential Perceptions

Sadness.—There was no significant difference in perceptions as a result of mode for any factors of the emotion of Sadness.

Disgust.—Figure 10 illustrates mode comparisons for the emotion of Disgust, the factors of Pleasure and Arousal. The factor of Pleasure was perceived most via audio, less via video and least via audiovisual. All of the means, however, fell on the "less" side of the mean of 12. At the same time, the factor of Arousal as displayed by the sender was perceived as least via audio, more via video and most via audiovisual. It can be said generally that for the perception of the emotion Disgust, the progression of modes; audio, video, audiovisual parallels a tendency for senders to be evaluated as more extremely Aroused and Pleased.

Results of the Duncan's Test indicate that for the factors of Pleasure, all modes were significantly different from one another. For the factor of Arousal, audio was significantly different from both video and audiovisual, which were not significantly different from one another.
Figure 10. Mode Comparison  
Emotion: Disgust  
Factors: pleasure arousal  
more less

Figure 11. Mode Comparison  
Emotion: Anger  
Factors: pleasure dominance  
more less
Anger.—Figure 11 shows the mode comparison for the emotion of Anger, the factors of Pleasure and Dominance. Again, as with the emotion of Disgust, the Pleasure factor as displayed by the sender was greater via audio than via video and audiovisual. However, all of the Pleasure means registered on the "less" side of the scale. The Dominance factor was perceived as less via audio than via video and audiovisual, and all Dominance means were on the "more" side of the scale.

Duncan's analysis indicates that for the factor of Pleasure, all 3 modes were significantly different from one another. For the factor of Dominance, the audio mode was significantly different from both video and audiovisual, which were not significantly different from one another. This mode relationship for Anger-Dominance is identical to the one for Disgust-Arousal.

Surprise.—Figure 12 illustrates the mode comparisons for the emotion Surprise, the factors of Pleasure, Arousal and Dominance. As with the preceding emotions, perception of Pleasure was most via audio, less via video, least via audiovisual. The perception of Arousal is highest with audio, slightly less with audiovisual, and least in video.

Duncan's Tests indicate that for the factor of Pleasure the audio mode is significantly different from both the video and audiovisual modes which are not different from one another—a pattern displayed previously, but for the factors of Arousal and Dominance. For the factor of Arousal,
Figure 12. Mode Comparison
Emotion: Surprise
Factors: pleasure, arousal, dominance

Figure 13. Mode Comparison
Emotion: Happiness
Factors: pleasure, arousal, dominance
video was significantly different from both audio and audiovisual, which were not different from each other. For the Dominance factor, again, audio was different from both of the other two media, which in turn were not different from each other.

**Happiness.**—Figure 13 illustrates the mode comparison for the emotion of Happiness, the 3 factors of Pleasure, Arousal and Dominance. In particular contrast to Disgust and Anger described above, the perception of senders' pleasure is perceived as greater via video than via audio. Perception of Pleasure is then about the same for audiovisual as for video. This should not be too surprising, given that Happiness is at about the opposite pole from the negative emotions, Disgust and Anger. Arousal was perceived as greater via video than via audio. Arousal via audiovisual was only slightly lower than via video. The Dominance factor displayed a pattern similar to the Arousal factor, i.e., perceived least in the audio mode, greatest in the video mode and only slightly less in the audiovisual mode.

The pattern for all 3 factors expressed in the emotion Happiness is perception of increased intensity from audio to audiovisual to video mode. It is worth noting that in the audio mode all 3 factors hover near the neutral point of evaluation (a mean of 12).

Analysis by Duncan's Test substantiates statistically
what is apparent from the visual inspection of Figure 13. For all 3 factors, the audio mode is significantly different from both the video and audiovisual modes, which are not different from each other.

Fear.—Figure 14 illustrates the mode comparisons for the emotion Fear, the factors of Pleasure, Arousal and Dominance. Via the audio mode, Pleasure was perceived as near the neutral point. Via the video mode, less pleasure was perceived, and via audiovisual the least pleasure was perceived. The Dominance factor displayed approximately the same pattern as for the Pleasure factor. Arousal, however, was perceived as most via audio, slightly less via audiovisual and least via video. All arousal scores, though, were on the "more" side of the mean rating of 12.

Duncan's Test indicates that for all 3 factors the audio mode was significantly different from both the video and the audiovisual modes which, in turn, were not different from each other. This pattern was also true for the emotion of Happiness discussed above.

Summary: Mode Comparisons

A visual survey of Figures 10 through 14 yields the following summary. In 4 out of 5 cases the factor of Pleasure is most via audio, less via video, and least via audiovisual. The emotion of Happiness was the exception in that the perception of Pleasure was relatively high in the audio and audiovisual modes and least in the audio mode.
Figure 14. Mode Comparison

Emotion: Fear
Factors: pleasure arousal dominance

more less
Mode was statistically significant in perception of the Arousal factor in 4 instances. Of these only Surprise and Fear appear similar: The greatest arousal was perceived in the audio mode, slightly less in the video mode and least arousal in the audiovisual mode.

Mode was statistically significant in only 3 emotions. Both in Surprise and Fear the factor of Dominance via the video and audiovisual modes was perceived as almost the same, but it was perceived as greater in the audio mode. The reverse pattern was true for Happiness where video and audiovisual modes were perceived as conveying more (stronger) Dominance than the audio mode. Notice, however, that there are two patterns, video and audiovisual could be considered as one element and audio alone the other element.

Inferences made from this visual survey of Figures 10 through 14 are substantiated by analysis with Duncan's Test. A summary of these test results appears in Table 5. The only locus of no difference is between the video and audiovisual modes in the perception of Dominance. By far the greatest difference occurred between the audio and the other two modes. There was relatively little difference between the video and the audiovisual modes. The results of this study would seem to indicate then, that for the perception of nonverbal affective communication, respondents gained the same sort of clues from the video mode as from the audiovisual mode. Additionally, the evaluations respondents made
based on information transmitted via the audio mode were
different from those of the video and audiovisual modes.

Table 5. Instances of differential decoding based on mode of presentation: result of Duncan's New Multiple Range Tests

<table>
<thead>
<tr>
<th>Perception Differences between Modes</th>
<th>Pleasure</th>
<th>Arousal</th>
<th>Dominance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio/Video</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Audio/Audiovisual</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Video/Audiovisual</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

In this study, mode of communication, more than any other variable, registered more instances of highly significant results. Mode was significant in the perception of 5 of the 6 emotions presented. If this is viewed in terms of factors, there were 13 significant items of a potential 18. It seems, then, as stated earlier, that Hypothesis 4 as originally stated must be rejected. Its alternative must be accepted. That is, results of this study indicate that nonverbal affective communication via audio is not equal to communication via video is not equal to communication via audiovisual media.

DISCUSSION

As regards Sender Sex differences it was decided to reject on the basis of results of this study the hypothesis that for nonverbal affective communication male and female
senders are perceived equally. It is important to recognize that the conclusion is valid for this study only and certainly should not be generalized beyond this study without further corroborating research.

The principal reason for the caution against generalization lies in the fact that this study used only one sender of each sex. It is possible that, given more individuals of both sexes acting as senders, different results could be obtained. Also it is possible that the senders used for this study might not be a "typical" White American male or "typical" White American female. Though they were randomly drawn from a pool of Speech Department graduate students, it is possible that this pool is in some significant ways not "typical" of White Americans generally. Perhaps the female sender was somehow "masculine" or very "feminine" in the eyes of the respondents. Perhaps the male was overly "masculine" or somehow "feminine." One casual comment from a respondent after a testing session suggests that the latter might have been the impression that the male sender conveyed to some of the respondents. Therefore, though the affirmation of Sender Sex difference agrees with the results of the Zaidel and Mehrabian study discussed in Chapter II (Zaidel and Mehrabian, 1973), it is important not to generalize this conclusion beyond this study.

As regards Respondent Sex differences, it was decided to accept the original hypothesis that for nonverbal affective communication there is no difference between the
perceptions of male and female respondents.

This is a bit surprising in light of Rosenthal's comment that "females are better at . . .," perceiving nonverbal stimuli. (Rosenthal, et al. 1974.) The specific contents and methodology upon which he bases his comment are not available. Therefore, it can only be supposed that this study and PONS are in some way essentially different, therefore allowing for different results. The only difference apparent is the PONS' use of only a female sender. However, this does not seem to have been a significant item as regards the factor of Respondent Sex in this study. Results listed in Table 3, column SS*RS indicate that the interaction between Sender Sex and Receiver Sex was significant in none of the potential 18 instances. Therefore, perhaps the PONS single-sex sender is not a significant difference which would contribute to the contradictory conclusion regarding Respondent Sex differential abilities. This returns us to the supposition that there must be a difference in the content of the PONS and the study reported here. Lacking information about the PONS content we cannot take this supposition beyond speculation.

It can be restated that the results of this study show no appreciable difference in the decoding of nonverbal affective messages as a result of Respondent Sex. This conclusion, it will be remembered from Chapter II, concurs with that of Buck, Miller and Caul (1974) who were investigating affective communication.
As regards Respondent Cultural Type, it was decided to reject the original research hypothesis which stated that for nonverbal affective communication there is no difference in perceptions of respondents who are members of different cultural groups. This study found 8 incidents of such difference in a potential of 18.

Given that the 6 emotional stimuli were the 6 emotions that Ekman (Ekman, 1973, 1975) claims have puncultural elements, these results seem at odds with his "pan cultural" label. This apparent contradiction is likely to be a result of an essential difference in methodology. Ekman's study (Ekman, 1975, p. 24) used static photographs as stimuli, while the study reported here used videotape, which is a more dynamic medium. An even more important difference is the type of evaluation device. For Ekman's study, photographs of facial displays of emotion were presented to subjects after which they were asked to assign 1 of a given list of 6 emotion labels to each photograph. In contrast, the study reported here used a more refined method of evaluation. This study was not so much interested in the respondents' recognition of an emotion but rather in their evaluation of an expression of emotion. Using this more refined and essentially different evaluative device, this study did find that persons from different cultures evaluate expression of emotion differently—in almost 50 percent of the instances.

With regard to mode of presentation, it was decided
to reject the original hypothesis that there was no difference in perception of affective communication as a result of difference in modes—audio, video and audiovisual. This hypothesis seemed intuitively to be false and was put forth not so much to accept or reject it, but rather, upon rejecting it, to investigate what the differences might be among the 3 modes. These qualitative differences have been described earlier in this chapter.

In terms of quantity, this study discovered significant differences due to the varying mode in 13 of 18 instances—a larger proportion that Burns and Beier's (1973) 10 out of 42. (See Chapter II.) Both studies have investigated nonverbal communication—albeit looking for slightly different factors.

With regard to mode, it is interesting to note in column MD*SS of Table 3, that there are some incidents of significant interaction given certain mode and sender sex combinations for factors in which neither is significant. This suggests that any study which generalizes about the relative performances of video, audio and audiovisual modes without specifying Sender Sex or without using senders of both sexes may be coming to fallacious conclusions.

An effort was made to make the verbal stream as content-free as possible. The method was described in Chapters II and III. It should not be too surprising then to find that the results of this study indicate that the audio mode differs significantly from the video mode in many
instances. What is worth noting is that, while the audio and video modes often perform differently given the same factor of the same emotion, the audiovisual mode for the same factor is not a summing or averaging of the impressions gained from the other 2 modes which logically comprise it. Most often (see Figures 10 through 13) the audiovisual mode performs in a manner very similar to that of the video only mode. This leads to the supposition that, for nonverbal affective communication at least, most information is transmitted visually. Further, if both the eyes and the ears receive information, often, it seems, respondents decode the visual information, considering little, if at all, the audible information.
CHAPTER V

CONCLUSIONS

This study investigated the nonverbal communication of emotion in a simulated multicultural context. To facilitate focusing on this many-faceted situation the following null hypotheses were proposed:

\( H_1: \) Male sender ability = Female sender ability

\( H_2: \) Male respondent perceptions = Female respondent perceptions

\( H_3: \) Culture group A perceptions = Culture group B perceptions = Culture group C perceptions = Culture group D perceptions

\( H_4: \) Video stimuli = Audio stimuli = Audiovisual stimuli

**Summary of Conclusions**

Hypothesis \(_1\) was partially rejected and its alternative accepted. That is, results of this study indicated that male sender ability was not equal to female sender ability in 6 of 18 cases. Hypothesis \(_2\) was accepted. That is, the results of this study demonstrated equal respondent perceptions regardless of sex. Hypothesis \(_3\) was rejected and its alternative accepted. Results of the study reported here indicated that, for the nonverbal communication of emotion, there was a difference in perceptions of respondents as a function of their cultural origin. Hypothesis \(_4\) was
rejected and its alternative accepted. That is, results of this study indicated that there was a difference in the perceptions of nonverbal affective communication as a function of a difference in mode of presentation, audio, video or audiovisual.

Suggestions for Further Studies

**Studies to verify.**—The tentative acceptance of inequality between male and female senders of NV affective communication needs to be confirmed. This could be done by constructing a study in which a variety of persons (ages, races) of both sexes are used as senders.

**Studies to extend.**—The issue of cultural type differences affecting perceptions might well be pursued for other sorts of communication besides the affective. A study could reasonably investigate differences with regard to communication whose purpose is the transmission of information instead of emotion, for example. If possible, a matching of the respondents within the cultural groups with respect to age, intelligence or personality would probably make for a firmer conclusion. Often, as with the study reported here, the potential pool of international student subjects is too small to allow for this fine a filter for respondents.

The issue of mode difference, as with that of cultural difference, needs to be extended beyond this study's
focus on affective communication. Again, a study might investigate effect of mode in the communication of information, e.g., material conveyed in a classroom lecture.

General Conclusions

The conclusions of the study reported here are, for the most part, indicative rather than finally conclusive as the suggestions for further study above would indicate. It can be said that perhaps communication of emotions differs depending on the sex of the sender of that emotion. At the same time, sex of the respondent does not seem to be relevant to the perception of that emotion.

However, the cultural origin of the respondent does influence his perception. If this last difference can be verified for other types of communication also, we might have a beginning for answering the challenge posed by international and intercultural communication.

Finally, it can be said with more certainty than any other single item resulting from this study, that the medium of the communication very significantly affects its perception. Of course, this has been demonstrated for nonverbal affective communication only. This assertion is really a reaffirmation of "One picture is worth 10,000 words." However trite, though, peoples and governments of the world are now capable of intercontinental communication via satellite. This capability often includes audio and video modes, with a choice of one or both modes forced by
the considerations of economy and expediency. Results of this study would seem to indicate that the selection of mode(s) should be based not only on the issues of cost and efficiency, but also on the intended function of the communication.
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APPENDIX A

EMOTIONAL STIMULI PARAGRAPHS

ANGER:

You are behind the wheel of your car and have been cruising around for the last 20 minutes trying vainly to find a parking place. Your appointment for a job interview begins in only 5 minutes. Spotting an empty space on the curb ahead, you joyfully accelerate, then get ready to park by pulling up parallel to the car in front of the empty space. You shift to reverse, and with foot on the gas you turn around to watch as you back up. What you do see is a dirty white Volkswagen as it zips frontward into your parking space. You are infuriated at the rudeness, the audacity of whoever is driving the VW! You feel like backing right on over the ugly little machine! You are angry. If you could talk to him you'd say . . . .

DISGUST:

You're sitting on a Greyhound bus that you had to take because your car broke down. God, why don't they open the windows! The freezing air is thick with cigarette smoke. And someone's singing in the back of the bus. The bearded man across the aisle hasn't had a bath for weeks.
You cross your legs and discover a wad of gum stuck to one shoe sole. You get up and hop back to the restroom; there may be some tissue there. You open the lavatory door and are hit with the stench that starts your eyes watering. There, seated on the pot, is the drunk you heard singing earlier. Vomit runs down his shirt. The smell of dried urine is overwhelming! In disgust you say to him . . . .

SURPRISE:

You're sitting in the Los Angeles airport reading a magazine. Your flight has been delayed and you try to resign yourself to an hour's wait. Too bad you don't know anybody in this town. You begin to actually read an article from the magazine in your lap. It's really very interesting. You're quickly brought back from the reading. There's a firm hand on your shoulder. A deep voice is saying something unintelligible. You look up, very surprised, and say . . . .

HAPPINESS:

The exam is over. You know you did well, too. As you walk across the grass in the gentle October sunshine you're looking forward to this evening's barbecue. And there's nothing you've got to do tomorrow morning so you can sleep late. Yes, it'll be nice to unwind tonight: good food, drink and friends. The world looks good to you right now--just about everything's going right. Yes, you feel satisfied and happy. If you had to put it into words
SADNESS:

You knew that it was going to happen. For months you knew. And now the time is here. Your high school senior year was wonderful--9 months of ego-inflating play and joy and mostly, most of all, doing everything, sharing everything with (him/her). The summer has been one long goodbye, really. Through the private picnics and swimming parties and touching at the movies, you both really knew and despite the sometime gaiety, the feeling of dark inevitability always seeped into the silences. Now it's happened. And all you could do was hold (his/her) hand and look into (his/her) eyes before departure time--all that feeling and no words to say it. You sit on the train seat now. Your eyes scan the fastenings of the upholstery on the seat in front of you, then wander to the metal "Ladies" and "No Smoking" signs fastened at the front of the car, then back to the upholstery again. Your eyes really see nothing. What you are aware of inside is a heaviness which extends even to your legs and arms. You can't move with the heaviness of a deep SADNESS. If you could speak you would say . . . .

FEAR:

You must undergo an exploratory operation. The doctors are going to hunt for the cause of your recent weight loss and the basket full of other strange things your
body's been doing lately. What will they find? You've been warned of the length and painfulness of the recovery. You suspect what you haven't been warned of is the possible malignancy—of cancer. It can happen to anyone you realize—even the young and the rich can't escape. You're really quietly and thoroughly scared. You're talking to a friend, a good friend and need to express that you're very afraid.
APPENDIX B

RESPONDENT EVALUATION BOOKLET

INSTRUCTION AND BIPOLAR RATING SCALES

Instructions

The purpose of this study is to measure the meanings of certain actions for various people by having them judge the actions by using a series of descriptive scales. In using these scales, please make your judgments on the basis of what the televised actions mean to you.

On each of the following pages you will find sets of scales. You are to rate the televised action on each of these scales in order.

Here is how you are to use these scales: If you feel that the televised person's action is very closely related to one end of the scale, you should place your check mark as follows:

**Strong X:** ______: ______: ______: ______: ______: ______ weak

**OR**

**Strong:** ______: ______: ______: ______: ______: ______: ______ weak

If you feel that the person's action is quite closely related to one end of the scale, but not extremely, you should place your check mark as follows:

**Awful:** ______: ______: ______: ______: ______: ______: ______ nice

**OR**

**Awful:** ______: ______: ______: ______: ______: ______: ______ nice

If you feel that the action to be neutral on the scale (both ends of the scale equally associated with the action in your opinion—or if the scale is completely unrelated to the action you saw), then you should place your check mark in the middle space:

**Happy:** ______: ______: ______: ______: ______: ______ sad

**IMPORTANT:**
1. Place check marks in the middle of the spaces—not on the boundaries.
2. Be sure you check every scale for every action that you see—DO NOT OMIT ANY.
3. NEVER put more than one check mark on a single space.
Sometimes you may feel as though you've had the same item before on the test. This will not be the case, so do not look back and forth. Do not try to remember how you checked similar items earlier in the test. Make each item a separate and independent judgment.

Work at fairly high speed through this exercise. Don't worry or puzzle over each item. It's your first impressions, your feelings about the televised action that we want. We want your true impressions.

The first set of televised actions will be visual (picture) only. The next set will be audio (sound) only. The final set will be audiovisual (both picture and sound).

happy___:____:____:____:____:____:____:____:____:unhappy

calm___:____:____:____:____:____:____:____:____:excited

influential___:____:____:____:____:____:____:____:____:influenced

unsatisfied___:____:____:____:____:____:____:____:____:satisfied

aroused___:____:____:____:____:____:____:____:____:unaroused

controlled___:____:____:____:____:____:____:____:____:controlling

pleased___:____:____:____:____:____:____:____:____:annoyed

sleepy___:____:____:____:____:____:____:____:____:wide awake

in control___:____:____:____:____:____:____:____:____:cared for
Gail McAllister St. Martin was born Gail Arlene McAllister on September 3, 1938, in Omaha, Nebraska. She attended public schools in Nebraska and was graduated from Lincoln High School, Lincoln, Nebraska, in June, 1956. In June, 1960, she received a Bachelor of Arts degree from Grinnell College, Grinnell, Iowa, with a major in speech-theatre. During the following academic years until June, 1963, she taught in Honolulu, Hawaii, principally at the Kamehameha Schools.

She attended Yale University School of Drama in 1963-64. She continued graduate study at Louisiana State University where, in January, 1971, she received a Master of Arts degree in Speech and where she is now, in May, 1976, a candidate for the Doctor of Philosophy degree in Speech.
Candidate: Gail McAllister St. Martin

Major Field: Speech

Title of Thesis: Male/Female Differential Encoding and Intercultural Differential Decoding of Nonverbal Affective Communication

Approved:

\[\text{Signature}\]

Major Professor and Chairman

\[\text{Signature}\]

Dean of the Graduate School

EXAMINING COMMITTEE:

\[\text{Signature}\]

\[\text{Signature}\]

\[\text{Signature}\]

\[\text{Signature}\]

Date of Examination:

April 21, 1976