

4-1978

# Awareness of Facial Decoding in Nonverbal Communication as a Function of People Oriented Activity

Ines Morgado  
*Western Kentucky University*

Follow this and additional works at: <https://digitalcommons.wku.edu/theses>



Part of the [Psychology Commons](#)

---

## Recommended Citation

Morgado, Ines, "Awareness of Facial Decoding in Nonverbal Communication as a Function of People Oriented Activity" (1978).  
*Masters Theses & Specialist Projects*. Paper 2673.  
<https://digitalcommons.wku.edu/theses/2673>

This Thesis is brought to you for free and open access by TopSCHOLAR®. It has been accepted for inclusion in Masters Theses & Specialist Projects by an authorized administrator of TopSCHOLAR®. For more information, please contact [topscholar@wku.edu](mailto:topscholar@wku.edu).

Morgado,

Ines A.

1978

AWARENESS OF FACIAL DECODING IN  
NONVERBAL COMMUNICATION AS A FUNCTION  
OF PEOPLE ORIENTED ACTIVITY

A Thesis

Presented to

the Faculty of the Department of Psychology

Western Kentucky University

Bowling Green, Kentucky

In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

by

Inés A. Morgado

April, 1978



AUTHORIZATION FOR USE OF THESIS

Permission is hereby

granted to the Western Kentucky University Library to make, or allow to be made photocopies, microfilm or other copies of this thesis for appropriate research or scholarly purposes.

reserved to the author for the making of any copies of this thesis except for brief sections for research or scholarly purposes.

Signed

Ans A. Loyola

Date

May 12, 1978

Please place an "X" in the appropriate box.

This form will be filed with the original of the thesis and will control future use of the thesis.



AWARENESS OF FACIAL DECODING IN  
NONVERBAL COMMUNICATION AS A FUNCTION  
OF PEOPLE ORIENTED ACTIVITY

Recommended 4-24-78  
(Date)

Joseph P. Cangemi  
Director of Thesis

Richard Mully

John O'Connor

Approved May 11, 1978  
(Date)

Elmer Gray  
Dean of the Graduate College

To my husband

"With love and gratitude for  
his support and comprehensive-  
ness."



## ACKNOWLEDGEMENTS

The author wishes to acknowledge her gratitude for the assistance of many individuals for their invaluable help in this research. Among them,

to Dr. Joseph D. Cangemi, my major advisor, who as a friend and professor provided me with suggestions, technical help and above all, a permanent interest in my research;

to Dr. Ricahrd L. Miller, who was a constant help in the difficult matter of finding an appropriate model for a complex human problem;

to Dr. John O'Connor, who as head of the Psychology Department gave me his constant support in my graduate program and was able to understand the difficulties encountered by foreign students;

to Miss Virginia Leehmenkuler, Head of the Department of Nursing, Western Kentucky University, to Mr. Lawernce G. Howard, Jr., Director of Purchasing, Western Kentucky University, and to Mr. Owen Lawson, Jr., Administrator of Physical Plant and Facilities Management, Western Kentucky University, for their help in establishing appropriate contacts and obtaining subjects;

to Mr. Carroll M. Luckey and F.M.C. Corporation, Crane and Excavatory Division, of Bowling Green, Kentucky for their interest and help in obtaining experimental subjects and their overall support of this project;



to my subjects for their time and patience, and at Western Kentucky University, to the faculty and staff of the College of Applied Arts and Health and the Ogden College of Science and Technology; to the personnel of the Purchasing Department and Physical Plant;

to Dr. Paul Ekman, Professor of Psychology, Human Interaction Laboratory, Department of Psychiatry, University of California, San Francisco, for his interest and advice; and finally

to the Faculty of Medicine, Austral University of Chile, Valdivia, Chile, that made possible my academic training at Western Kentucky University.

TABLE OF CONTENTS

Section	Page
List of Tables . . . . .	vii
List of Figures . . . . .	viii
Abstract . . . . .	ix
Introduction . . . . .	1
Literature Review . . . . .	1
Statement of the Problem . . . . .	7
Method . . . . .	9
Subjects . . . . .	9
Apparatus . . . . .	9
Procedure . . . . .	10
Design and Scoring . . . . .	10
Results . . . . .	12
Discussion . . . . .	18
References . . . . .	21
Appendix A . . . . .	25
Appendix B . . . . .	30
Appendix C . . . . .	33



LIST OF TABLES

Table	page
1. Percent Distribution of Samples by Working Experience . . . . .	15
2. Analysis of Variance for Decodification Process. . . . .	16



LIST OF FIGURES

Figure	Page
1. Comparison between index of decodification for each group by emotions . . . . .	17

AWARENESS OF FACIAL DECODING IN  
NONVERBAL COMMUNICATION AS A FUNCTION  
OF PEOPLE ORIENTED ACTIVITY

Ine's A. Morgado

April, 1978

35 pages

Directed by: Joseph P. Cangemi, R.L. Miller, and J. O'Connor  
Department of Psychology                      Western Kentucky University

An attempt was made to investigate the extent to which individuals involved in people oriented activity were better decoders of facial emotions than individuals engaged in non people oriented activity. It was hypothesized that the recognition of emotions through facial expressions would be more accurate if the decodification process were made by individuals engaged in people oriented activity than if it were undertaken by individuals engaged in non people oriented activity. Subjects participating in this study were an equal number of adult male and an equal number of adult female individuals engaged in people oriented activity and non people oriented activity (Western Kentucky University, faculty and staff members, and F.M.C. Corporation employees, Crane and Excavatory Division, Bowling Green, Kentucky). Individual slides of sixty faces posed for surprise, sadness, happiness, and anger (standarized by Ekman, 1976) were presented to the subjects. Eight seconds were allocated for viewing each slide. Answer sheets were provided the subjects for



scoring their judgements. Subjects also indicated their age and job category in order to assign them to an appropriate sample group.

An index of decodification by group was calculated, and the data were analyzed by a 4x2x2 three factor mixed design, with repeated measures on one factor.

The results indicated significant differences in the decodification process between jobs and sex and within emotions. There were no significant interaction effects.

The data suggested the decoding process could be influenced by the type of activity in which one engages and probably by the training individuals who work with people have acquired in their past experience, since in these groups more than forty percent had been working in the same job more than three years.

As indicated in previous studies, females were better decoders than males, and sadness was the emotion wrongly decoded more frequently by the four groups.

Implications for further research include a better definition of job categories, age, working age, differences among activities and antecedents of decoding.



## INTRODUCTION

### Literature Review

A common trait in any theory in human communication implies that "communication," in its broadest interpretation, is the eliciting of a response (Dance, 1967) by means of a social interaction through messages that are formally coded, symbolic, or that represent events of some shared significance in a culture (Gerbner, 1958). Therefore, "communication" implies a socially shared signal system that is a code. An encoder is one who makes something public via that code, and a decoder is one who responds systematically to that code (Wiener, Devoe, Rubinow and Geller, 1972).

On the other hand, since the human being has access to a wide range of nonsymbolic means of communication, it has been postulated by Watzlawick, Beavin and Jackson (1967) that this communication could be classified into one "analogic communication" and into one "digital communication." Digital communication refers to coded discourse in which words are manipulated according to syntactical rules and analogic communication refers to nonverbal communication. Nonverbal communication deals with vocal as well as body channels.

Under these circumstances the establishment of "communication" is related with the ability of the encoder to code a message and the ability of the decoder to decode it.

Ultimately, the whole process of communication, expressed as a response to a stimulus, is related with the decodification mechanism of the message contained in both the verbal and nonverbal communication.

Due to the complexity of the experimental approach no final conclusion is available regarding the definition of the role played by nonverbal communication in the overall decoding of the message. Nonetheless, several attempts give some insight into this problem.

Thus, it has been found that subjects confronted with inconsistent verbal and nonverbal cues assign greater weight to nonverbal cues when making judgements along attitudinal dimensions (Mehrabian, 1970). In the judgement of inferiority, equality and superiority of subjects submitted to verbal written messages or nonverbal stimuli, the former shows a dominance over the first (Argyle, Salter, Nicholson, Williams and Burgess, 1970).

In addition, studies where the impression of the speaker and the reconstruction of the message were analyzed in individuals submitted to a videotape showed that the impression of the speaker was dominated by constructs of and inferences from nonverbal cues and the message was reconstructed using the verbal mode as the primary source of information (McMahan, 1976). These studies contained either a) a verbal message conveying dominance combined with nonverbal cues conveying submissiveness, or b) a verbal message conveying submissiveness combined with nonverbal cues



conveying dominance, or c) a verbal message conveying dominance combined with nonverbal cues conveying dominance, or d) a verbal message conveying submissiveness combined with nonverbal cues conveying submissiveness.

This experiment suggests that the dominance of nonverbal cues in social preception could be restricted primarily to the attribution of affect and attitudes toward the character and intentions of others.

Another set of experiments (Mehrabian and Farris, 1967; Mehrabian and Weiner, 1967) investigated the relative amount of positive-negative interpersonal attitudes conveyed by lexical, vocal or facial cues in college students. When the subjects were exposed to actors that posed facial expressions conveying a positive or negative attitude (together with verbalizing precalibrated words) with either a positive, neutral or negative tone of voice, their rating of the model's attitude toward a hypothetical third person was influenced by the tone of voice of the actor rather than the words spoken or by his facial expression when a posed photograph was paired with a recording of a voice spoken to convey a positive, neutral or negative attitude.

The influence of nonverbal communication is limited by the age of the decoder and the sex of the encoder. In experiments using videotaped messages containing conflicting inputs (friendly or unfriendly) in verbal contents and vocal tone or facial expression, it has been validated that conflicting messages in which the speaker smiled



while making a critical statement were interpreted negatively more by children than adults and in the same way if the speaker was a woman (Bugental, Kaswan and Love, 1970).

As a general conclusion, it can be postulated that the role of the decoder in the overall message is strongly determined by the personality traits of the decoder and his previous life situations in similar circumstances.

At the level of the human face, as one of the most numerous nonverbal media of communication, it has been established that it is the most complex (Meltzed, L., 1964), yet the most capable medium of expressing an extraordinary range of emotions and that the affective meanings of facial expressions are relatively stable across languages and cultures (Saral, 1972).

It has been assumed that the encoding process takes place between the inner affective experience and the face of the source, and the decoding process occurs between the facial expression of the expressor and the interpretation of the preceiver (Cuceloglu, 1972). There is consensus to accept that we know and identify people more by their faces than by their bodies (Ekman, 1974). Laboratory findings show that subjects weigh facial cues more heavily than they do vocal cues (Mehrabian and Farris, 1967).

These concepts were experimentally validated by studies designed to ascertain the extent to which expressors could, by means of facial expressions deliberately produced, convey to others the emotional meaning intended by them. In these

experiments, where college students portrayed happiness, love, determination, fear, bewilderment, surprise, anger, suffering, disgust and contempt to judges, the emotions happiness, love, fear and determination were more often accurately recognized than were disgust, contempt and suffering (Thompson, 1964). Expressors were able to enact several recognizable emotions, at levels better than chance, but there were considerable individual differences in this ability.

Related with a code of facial expressions, there is little doubt that a facial code exists, as well as specific cues for the manifestations of different emotions through the facial channel of nonverbal communication (Schlosberg, H.A., 1941, 1952, 1954).

Studies by Harrison (1964) and Cuceloglu (1970) have concentrated on structuring of facial code. Harrison employed pictograms to investigate the decoding process, and Cuceloglu studied the cross-cultural aspects of facial communication, as well as carrying out inquiries into the nature of decoding. The latter study suggested three basic bipolar dimensions for affective expressions, shared by Americans, Japanese and Turkish language/culture groups. These bipolar dimensions are called pleasantness, irritation and receptivity. Faces best representing the poles of these dimensions were analyzed into facial features (eyebrow, eye and mouth components), and it was suggested that a common decoding system of facial expressions exists in these three cultures.



Facial code was analyzed in a study by Cuceloglu (1972) whereby facial expressions constructed by male students of Hacettepe University in Ankara, Turkey, were combined with abstract eyebrow, eye and mouth features. The results suggested that, in the representation of different emotions through facial expressions, facial features carry varying significance in the expression of the various affective models, but a well structured code does exist. It was also suggested that the same facial code is employed both in encoding and decoding facial expressions.

A similar conclusion was reached by Ekman (1974) when he demonstrated that in the emotions surprise, fear, disgust, anger, happiness and sadness, facial cues could be recognized. Even if it is possible to find scales for the above mentioned emotions in the judgement of decoders (a code has been established for the eyebrows, eyes, wrinkles across the forehead and mouth), this facial code seems to be universal.

In an effort to establish some of the multiple factors that affect nonverbal communication through facial cues, Eiland (1976), demonstrating the effect of race, age and sex of encoders regarding the emotions of happiness, sadness, fear, anger and disgust, observed that individuals did not interpret accurately messages sent by black faces, whether young, old, male or female. The same was found to be true of messages sent by white faces. Similarly, people did not interpret messages sent by male faces (whether black, white, young or old) the same as messages sent by female faces.

Experiments using outline drawing, with no distinguished features other than profile, eye, eyebrows, nose and mouth, showed that in the perception of faces the social context plays an important role and is one variable that should be considered (Cline, 1956).

In several studies it has been shown that, in general, females are better than males in decoding ability (Bugental, 1970; Gitter, 1976; Hoffmann, 1977).

Finally, activities of individuals are an important factor. Ekman (1973) suggested that people who work with people are likely to be better decoders than those without such experiences. Dittman (1965) reported that dance therapists were better decoders than nondance personnel in decoding body movements in videotaped representations of an interview.

#### Statement of the problem

Investigators of nonverbal communication have tested the hypothesis that the face is the best channel to communicate emotions, and that in the decodification process there are many factors affecting interpretation. The factors with considerably more research support are sex, age, life situations and race.

Since there are individuals whose work with people and whose activities offer greater potential to recognize facial expressions than others who work almost exclusively alone with things, sufficient data regarding this situation



as an influencing factor have not been established. As a result, the following problem was stated:

How is the decodification process made by individuals engaged in people oriented activity?

To answer this question, it was hypothesized that the recognition of emotions through facial expressions would be more accurate if the decodification process were made by individuals engaged in people oriented activity than if it were made by individuals involved in non people oriented activity.

A review of the literature suggests that females would be better decoders than males.

## METHOD

### Subjects

Subjects who participated in this study were adult individuals working at Western Kentucky University (faculty and staff) and individuals working in a factory (F.M.C. Corporation, Crane and Excavatory Division, Bowling Green, Kentucky).

All of them ranged from less than three years to more than ten years working experience in the same job. The criteria used to define the activity as being people oriented or non people oriented was the subject's personal selection.

An equal number of females and males working at people or non people oriented activity was obtained from the group who voluntarily chose to participate in the experiment.

By randomly discarding the excess of subjects, a total of eighty were used, with twenty subjects in each group.

### Apparatus

A set of sixty Caucasian faces (24 males and 36 females) on black and white slides representing the emotions of sadness, surprise, happiness and anger (15 for each emotion), was used.

The slides were arranged in random fashion for each session.



The slides were obtained from Pictures of Facial Affect (Ekman, 1976; Consulting Psychologists Press, Inc., 577 College Ave., Palo Alto, California, 94306), and all were correctly rated by at least 70 percent of the judges (Appendix A).

An answer sheet (Appendix B) was used to score each subject's judgement. Instructions were taped to avoid bias or deviation in the procedure (Appendix C).

#### Procedure

A maximum of 20 subjects were tested at one time. They had sufficient space, so each of them could not observe the other subjects' responses. The distance from the screen to the subjects was approximately equal for each subject.

After the subjects were seated, the tape was started, giving the subjects the general information and instructions for page 1. The data to assign the sample groups also were obtained. Instructions for page 2 were likewise given by tape, then the slides began at number 1. Each slide was shown for 8 seconds to obtain the subject's judgement of each emotion by marking (x) in the appropriate space. Each subject rated the entire set of slides during the 20 minutes required for each session.

#### Design and scoring

To test the significance of the variance between individuals engaged in people oriented and non people oriented activity and between sex (males and females in each group) across the four selected emotions (surprise, sadness,

happiness and anger), a three factor mixed design, with repeated measures on one factor (the four emotions), was used (4x2x2 design) (Bruning, J.L., Kintz, B.L., 1977).

Scores for individuals were determined by the correct decoding of the emotion demonstrated in each slide.

An index of decodification was computed for each group, considering the total correct decodification (number correct by number of subjects in each group), divided by the total possibilities of correct decodification for each group (300).

The samples were also tabulated by their working experience (years of experience in the same job).



## RESULTS

Since this research hypothesized that the recognition of emotions through facial expressions would be more accurate if the decodification process were made by individuals engaged in people oriented activity than if it were made by individuals involved in non people oriented activity, the working experience of the subjects working at the same job was considered an important variable. The results for working experience are presented in Table 1. As can be observed, more than 60 percent of the total sample declared a working experience of less than 3 years. The remaining percentage is equally distributed in the other two categories, 3 to 10 years and more than 10 years.

Related with groups distribution, Table 1 also shows males engaged in people oriented activity (Group I) had the longest working experience, with 70 percent having over 10 years of experience. Individuals engaged in non people oriented activity presented working experience of less than 3 years, with percentages ranging from 80 percent for males (Group III) and 100 percent for females (Group IV).

The performance for each emotion (surprise, sadness, happiness and anger) measured by the Index of Decodification (number actual right decoding by group, divided by total

possible number of decoding for each group 15 x 20), is presented in Figure 1. As can be observed, the four groups (person oriented activity males, person oriented activity females, non person oriented activity males and non person oriented activity females) presented high values for the Index (.81 to .97). The lowest index (.81 to .89), corresponded to sadness in the four groups, and the highest values were obtained by females for the four emotions (.89 to .98 person oriented activity females and .83 to .97 non person oriented activity females). The effect of the activity (people oriented and non people oriented), as well as the sex (male and female) in the overall performance of the decodification process of the facial emotions surprise, sadness, happiness and anger, was determined through a factorial analysis of the variance with repeated measures on one factor (facial emotions). As can be observed in Table 2, F ratios of 4.33 and 4.76 respectively were obtained between activity and sex which corresponds to p values less than .05 level of significance. Within subjects, emotions yielded an F ratio of 42.90 with a significant p value less than .001 level of significance. All interactions were not significant at the .05 level of confidence.

These results suggest that activity and sex influence the decodification process. Those who are engaged in people oriented activity tend to be better decoders than those engaged in non people oriented activity. Females likewise



tend to be better decoders than males. The effect of sex, however, is not dependent upon activity.

Table 1  
Percent Distribution of the Samples by Working Experience

Working Experience (years)	Group*				Total N=20
	I N=20	II N=20	III N=20	IV N=20	
Less than 3 yrs.	10	55	80	100	61.25
3 to 10 yrs.	20	40	20	0	18.75
More than 10 yrs.	70	5	0	0	20.00
Total	100	100	100	100	100.00

- \* I: People oriented activity, male  
 II: People oriented activity, female  
 III: Non people oriented activity, male  
 IV: Non people oriented activity, female



Table 2  
 Analysis of Variance for Decodification Process

Source	SS	df	MS	F	p
Total	624	319	-	-	-
Between subjects	198	79	-	-	-
Activity	10	1	10	4.33	< .05
Sex	11	1	11	4.76	< .05
Activity x Sex	1.2	1	1.2	< 1	-
Error <sup>b</sup>	175.8	76	2.31	-	-
Within subjects	426	240	-	-	-
Emotions	150.6	3	50.2	42.90	< .001
Emotions x activity	4.4	3	1.4	1.19	> .05
Emotions x sex	0.3	3	0.1	< 1	-
Emotions x activity x sex	2.5	3	0.83	< 1	-
Error <sup>w</sup>	268.2	228	1.17	-	-

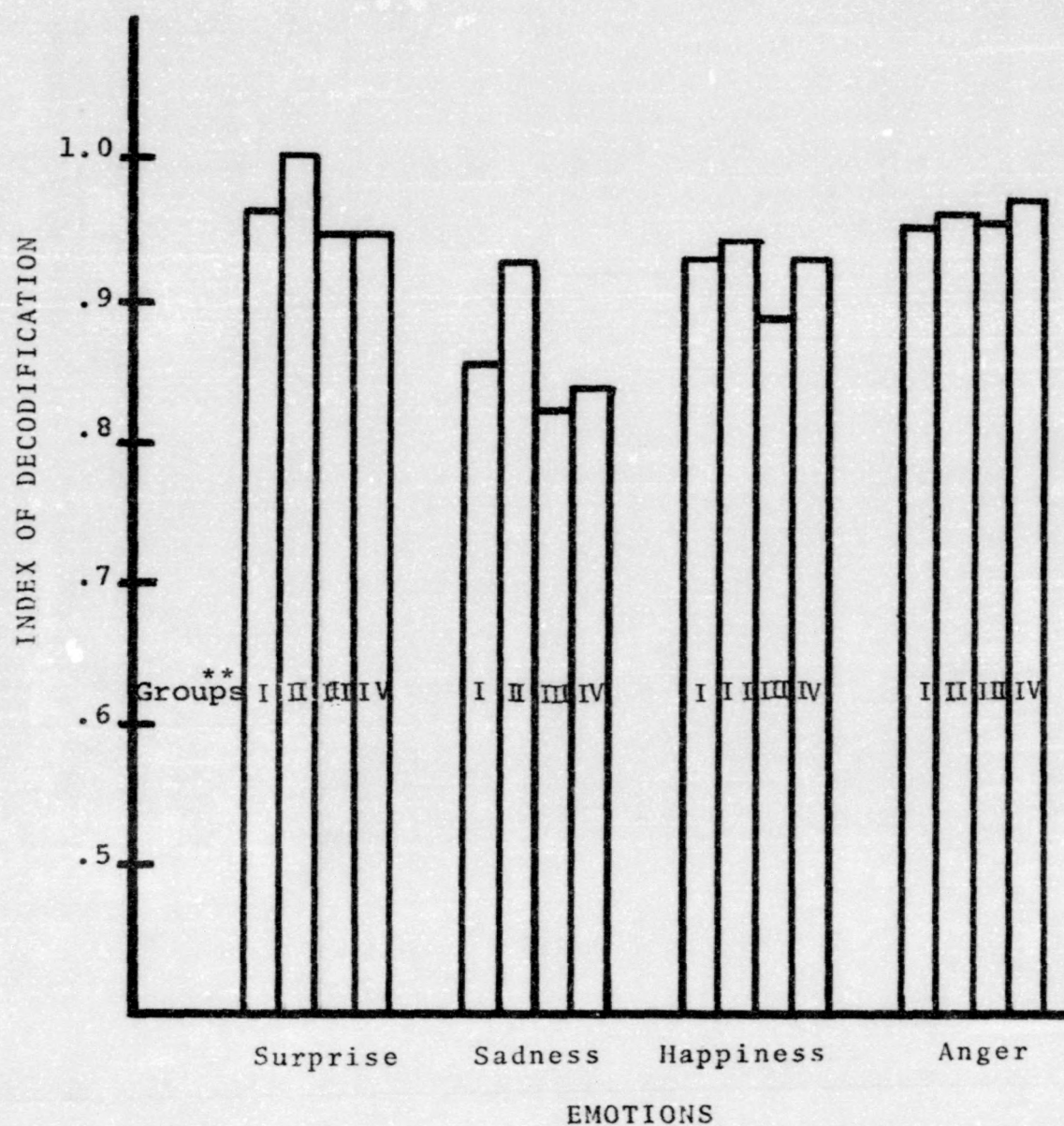


Figure 1. Comparison between index of decodification for each group by emotions

$$\text{*Index of Decodification} = \frac{\text{Right Decoding}}{\text{Total Possible Decoding}}$$

- \*\*I = People oriented activity, male
- II = People oriented activity, female
- III = Non people oriented activity, male
- IV = Non people oriented activity, female



## DISCUSSION

The results obtained from the Index of Decodification show there are differences between sex in the decodification process of facial emotions. Females are better decoders than males. This finding is in agreement with Bugental (1970) and Gitter (1976), whose results stated that females' judgements in the decodification process are more accurate than the judgement of males. Hoffman (1977) showed that females are more empathic and tend to imagine themselves in the situation of others. The findings also demonstrated that this difference is significant and is not dependent upon the other factors studied. On the other hand, the high Index of Decodification obtained by the four groups confirm the existence of a facial code pointed out by Cuceloglu (1972), Hamton (1964), and Scholsberg (1952, 1954).

Thompson (1964) found that negative emotions were more often incorrectly recognized. In the present study there were differences between the emotions decoded. Sadness was, in the entire sample, the worst decoded emotion and was most frequently confused with anger. Probably this situation is derived from the negative reinforcement generated by negative emotions. The percentages of correct responses (Appendix A), compared with the standardized measures of the

slides used (Ekman, 1976), also were lower. Probably this difference could be attributed to the samples. In the former study cited by Ekman (1976), the subjects were college students.

The significant results obtained between people oriented activities and non people oriented activities suggest the ability to decode emotions presented through facial expressions is influenced by people oriented activities, as was hypothesized in the present study. However, the absence of other studies related to people oriented and non people oriented activities and the non-significant interactions (probably derived by the educational level of the samples, experimental conditions and the definition of people oriented or non people oriented activity) do not permit complete assurance that fix and match these other significant variables in the decodification process without further research.

The criteria used to define the activity (subject's self selection of activity) indicated that individuals do not identify easily their jobs as non people oriented activity. This could have influenced the results regarding people oriented and non people oriented activity.

If the decodification process is a learning process (Gerbner, 1958), training obtained on the job should be a good method to help in the development of decodification ability. In the present study 60 percent of the subjects engaged in non people oriented activity had less than 3 years working experience in the same job. If length of time



working in the same activity were more closely studied, the results might have attained more support regarding the influence of the type of work activity.

Another situation derived from the experimental conditions suggested the first ten slides presented should be used for procedural training, since the major error encountered was in this sequence. Random slides arrangement developed in the present study for different sessions appeared to decrease the influence of the first ten slides.

In the present study, individuals working in people oriented activity jobs could decode four emotions, surprise, happiness, sadness and anger, better than individuals engaged in non people oriented activity jobs. The present research suggests the necessity for future research in people oriented activity and non people oriented activity to be concerned with which other variables, such as educational level, classification of activities, and length of time working in the same job are influencing the decodification process. Such research will enable investigators to utilize this information for education in the formative years, to improve the performance of individuals in their respective jobs and to further the relationships and comprehension of many individuals.

Laboratory findings, in general, strongly suggest that facial expressions tend to dominate the entire communication process.

#### REFERENCES

- Argyle, M., V. Salter, H. Nicholson, M. Williams and P. Burges, The communication of inferior and superior attitudes by verbal and nonverbal signals, British Journal of Social and Clinical Psychology, 1970, 9, 222-231.
- Bruning, J.L., and B.L. Kintz, Computational handbook of statistics, Scott, Foresman and Company, Glenview, Illinois, pp 62-72, 1977.
- Bugental, D.E., J.K. Kaswan, and L.R. Love, Perception of contradictory meanings conveyed by verbal and non-verbal channels, Journal of Personality and Social Psychology, 1970, 16, 647-655.
- Cline, M.G., The influence of social context on the perception of faces, Journal of Personality, 1956, 25, 142-158.
- Cuceloglu, D., Perception of facial expressions in three different cultures, Ergonomics, 1970, 13, 93-100.
- Cuceloglu, D., Facial code in affective communication, Comparative Groups Studies, 1972, 3, 395-407.
- Dance, F.E.X., Toward a theory of human communication, In human communication theory, Edited by Frank E.X. Dance; Holt, Rinehart and Winston, Inc., pp 289, 1967.



- Dittman, A.T., M.B. Parloff, and P.S. Boomer, Facial and bodily expression: A study of perceptivity of emotional cues, Psychiatry, 1965, 28, 239-244.
- Ekman, P. and M.V. Friesen, Unmasking the face, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1974.
- Eiland, R., and D. Richardson, The influence of race, sex and age on judgements of emotions portrayed in photographs, Communication Monographs, 1976, 43, 167-175.
- Gerbner, G., Content analysis and critical research in mass communication, AV Communication Review, 1958, 85, 108.
- Gitter, G.A., H. Black, J.E. Fishman, Effect of race, sex, nonverbal and verbal communication on perception of leadership, Journal of Sociology and Social Research, 1976, 60, 46-57.
- Harrison, R., Pictic analysis: toward a vocabulary and syntax for the pictorial code; with research on facial communication, Ph.D. dissertation, Michigan State University, 1964.
- Hoffman, M.L., Sex differences in sympathy and related behaviors, Psychological Bulletin, 1977, 84, 712-722.

- McMahan, E.M., Nonverbal communication as a function of attribution in impression formation, Communication Monographs, 1976, 43, 287-294.
- Merhabian, A. and M. Weiner, Decoding of inconsistent communications, Journal of Personality and Social Psychology, 1967, 3, 248-252.
- Merhabian, A. and S. Ferris, Inferences of attitudes from nonverbal communication to two channels, Journal of Consulting Psychology, 1967, 31, 248-252.
- Merhabian, A., When are feelings communicated inconsistently, Journal of Experimental Research in Personality, 1970, 4, 198-212.
- Meltzed, L., Communication of emotional intent by facial expression, Journal of Abnormal and Social Psychology, 1964, 68, 129-135.
- Saral, T.B., Cross-cultural generality of communication via facial expression, Comparative Groups of Studies, 1972, 3, 473-486.
- Schlosberg, H.A., A scale for the judgement of facial expressions, Journal Experimental Psychology, 1941, 29, 495-510.
- Schlosberg, H., The description of the facial expression in terms of two dimensions, Journal Experimental Psychology, 1952, 44, 229-237.



Schlosberg, H., Three dimensions of emotions, The Psychological Review, 1954, 61, 81-88.

Thompson, D.F. and L. Meltzer, Communication of emotional intent by facial expression, Journal of Abnormal and Social Psychology, 1964, 68, 129-135.

Watzlawick, P., J.H. Beavin and D.D. Jackson, In pragmatics of human communication, New York, W.W. Norton, 1967, pp. 61.

Wiener, M., S. Devoe, S. Rubinow and J. Geller, Nonverbal behaviour and nonverbal communication, Psychological Review, 1972, 79, 185-214.

## APPENDIX A

Comparison between percent of judgements of each of Ekman's slides\* and actual percent results at Western Kentucky University/1978 for the emotions happiness, anger, sadness and surprise.

\* Ekman, P., Pictures of Facial Affect, Consulting Psychologists Press, Inc., Palo Alto, California



HAPPINESS

<u>Slide #</u>	Percent of Judgements	
	<u>Ekman</u>	<u>WKU/1978</u>
35	97	89
42	100	90
66	92	25
1	100	94
84	96	100
34	100	100
57	100	96
14	100	95
74	100	95
22	96	99
7	99	99
29	100	100
85	100	99
73	97	98
48	100	99

ANGER

## Percent of Judgements

<u>Slide #</u>	<u>Ekman</u>	<u>WKU/1978</u>
30	81	98
96	100	98
10	74	94
69	100	99
38	76	93
80	83	88
44	92	94
52	84	94
53	100	99
31	97	98
25	70	93
89	79	98
61	100	96
62	96	96
18	83	100



SADNESS

## Percent of Judgements

<u>Slide #</u>	<u>Ekman</u>	<u>WKU/1978</u>
36	93	91
76	92	56
15	97	75
43	96	93
87	100	89
49	90	96
86	100	83
77	83	41
81	90	93
67	94	85
21	90	95
23	71	94
58	87	98
94	92	43
75	74	93

SURPRISE

## Percent of Judgements

<u>Slide #</u>	<u>Ekman</u>	<u>WKU/1978</u>
31	93	100
90	93	99
54	96	91
107	91	96
11	94	99
39	97	94
26*	100	96
4	97	99
19	91	95
70	81	98
26	100	91
8	74	96
45	96	99
63	90	99
97	100	94

\*Slide repeated to reach the same number of the instrument.



APPENDIX B

Answer sheet used for scoring decodification of facial emotions.

## INSTRUCTIONS:

Please answer the following questions:

## 1. SEX:

Male \_\_\_\_\_

Female \_\_\_\_\_

## 2. You have been working in this job:

-3 years \_\_\_\_\_

3-10 years \_\_\_\_\_

+10 years \_\_\_\_\_

## 1. You consider your job as:

People oriented activity \_\_\_\_\_

Non-people oriented activity \_\_\_\_\_

Data Activity \_\_\_\_\_

In the respective line of the face's slide number, mark (X) on your selected emotion.

Go to page 2.

Thank you.



Number Slide	Surprise	Sadness	Happiness	Anger
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				
31.				
32.				
33.				
34.				
35.				
36.				
37.				
38.				
39.				
40.				
41.				
42.				
43.				
44.				
45.				
46.				
47.				
48.				
49.				
50.				

Number Slide	Surprise	Sadness	Happiness	Anger
51.				
52.				
53.				
54.				
55.				
56.				
57.				
58.				
59.				
60.				



APPENDIX C

Audio of tape used in the application of the instrument.

Voice: number 3 (voice continues repeating number  
up to 60)

Voice: number 60

Silence: 8 seconds

Voice: Thank you very much

Music: 2 minutes