ATTITUDE AS AN EFFECT OF BODY POSTURE AND POSITION

Thesis for the Degree of M. A. MICHIGAN STATE UNIVERSITY IRWIN L. SCHACHTER 1974





۰.



ABSTRACT

ATTITUDE AS AN EFFECT OF BODY POSTURE AND POSITION

By

Irwin L. Schachter

This investigation attempted to test the hypothesis that a person's postural status has impact on attitudes. Three postural and positional variables, one each associated with the attitudes of liking, not liking, and neutral, were imposed on thirty-six male subjects. The liking posture is contrasted from the not liking posture in that the subject leaned slightly forward rather than backward, and the back was slightly curved forward rather than back straight as in the not liking posture. Also, in the liking posture, the subject's forarms were resting on the knees, rather than arms crossed and leftward lean as in the not liking position. The neutral posture was any comfortable position chosen by the subject. In each postural variable, each subject viewed one neutral stimulus picture. The liking posture was closest to and with the most direct orientation toward the stimulus, while the not liking posture was furthest from and least direct in orientation to the stimulus. Directly following each stimulus presentation and while still in the assigned position and posture, each subject's attitudes were measured on five related semantic differential scales.

The most positive attitudes were reported by subjects while in the liking posture and position, followed by the neutral, and the most negative attitudes were reported by subjects while in the not liking posture and position. These results were in the expected direction although not statistically significant. A high correlation between the liking posture and position with attentiveness ($\mathcal{J}=25.17$, Df = 2, p = .001) suggests that attentiveness may be manipulated non-verbally.

Approved 5/1/74 Morria Abele, 1240 PROFISCON

ATTITUDE AS AN EFFECT OF BODY POSTURE AND POSITION

By Irwin L. Schachter

A THESIS

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

Department of Psychology

1974

ACKNOWLEDGEMENTS

651000

I would like to express my appreciation to Dr. Norman Abeles, chairman of my thesis committee, for his guidance and encouragement during each phase of this research. I would also like to thank Dr. Dozier Thornton and Dr. Martha Karson for their participation as members of my thesis committee.

TABLE OF CONTENTS

																				Pa	Ige
INTRODUCTI	ON	••	•••	٠	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	.1
PURPOSE OF	STUDY		••	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	4
THEORY AND	REVIE	W OI	7 TH	EI	LII	ER	AT	UR	E	•	•	•	•	•	•	•	•	•	•	•	5
RESEARCH H	POTHE	SIS	• •	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	17
PROCEDURE		••	••	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	18
RESULTS .	• • •	••	• •	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	22
DISCUSSION	•••	••	••	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	26
REF ERENCE S	•••	••		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	34
RAW DATA.		••	•••	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	36

INTRODUCTION

In recent years increased attention has been given to non-verbal communication systems. Like verbal communication, non-verbal systems are used to integrate and sustain relationships by providing signals about intent and feeling. The study of non-lexical channels of communication has aided in the understanding of characteristics, emotions, conflicts and attitudes of individuals. The study of body movement, in relation to spatial use, as a communication system, is called kinesics, a term conceived by Birdwhistell (1952). The study of body posture, orientation, and distance of a communicator as a communication system is called proxemics (Hall, 1963) and its function seems to be to delineate those aspects of posture and distance which

-1-

are acceptable and represent implicit standards within a given social or subcultural group (Mehrabian, 1969). The examination of posture, orientation, and distance as variables in the determination of attitudes between communicators has been called immediacy, as proposed by Mehrabian (1967) and Weiner and Mehrabian (1968). Immediacy has been studied with the purpose of inferring more about the communicator's attitudes. Proxemic variables used to study immediacy can be used as one basis for attitude inference when a communicator does not, or cannot, express his emotions in the more readily recognized verbal or facial channels (Mehrabian, 1969). Non-verbal actions figure prominently in the expression of the inner state of the organism (Ruesch and Kees, 1956). Ruesch and Kees (1956) also proposed the categorization of three modes of

-2-

non-verbal forms: sign, action, and object language. Sign language is the replacement of words, numbers or punctuation by non-verbal symbols. Action language is defined as behavior not intended as communication but indeed does have informational value to a perceiver. Object language is the intentional or unintentional display of objects, which includes the human body and also its attire or clothing. The assumption throughout is that non-verbal variables are a function of the individual's attitudes.

But is it possible that the reverse may also be verifiable? That is, can an individual's attitude be a function of bodily posture, position and orientation?

-3-

PURPOSE

The present study is an attempt to demonstrate experimentally that a person's attitudes can be affected by his body position, posture, and orientation. After experimental manipulation of the body position of subjects, a measure will be taken of the subject's attitude. Specifically, subjects will be placed in a "liking" position and a "not-liking" position and a neutral position. A measure of the subject's attitude will be taken after the presentation of a neutral stimulus.

-4-

THEORY AND REVIEW OF THE LITERATURE

There is a significant body of literature focussing on body language and non-verbal communications as a means of determining the attitude of a communicator. But there is little written on the possibilities of altering body posture in order to change attitudes. Lowen (1958) suggested that a client's characteristics are intimately related to his typical postures and gestures, and, therefore, if one changes these postures and gestures, he facilitates the changing of the client's characteristics. Fromm-Reichmann (1950) tried to experience what her clients were feeling by imitating their posture, thereby facilitating her grasp of their attitudes. Reich (1945) believed that a client's characteristics could be changed through modification

- 5-

of his body positions and tensions. Jacobson (1938) had his patients take a reclining position and taught relaxation methods in order to facilitate the reduction of anxiety through physical means. Pratap (1970) found that under stress situations the response levels and magnitude of change in response of persons in yogi positions are smaller than in non-yogi positions. Mehrabian (1970) suggests that non-verbal submissive clients could be trained to be non-verbally more assertive, implying that this change in non-verbal behavior would help the client actually become more assertive. According to Scheflen (1971), different positions relate to different emotional states, and emotional states can often be recaptured when a person resumes the origional position in which they occured. Witkin and Asch (1948) found that subject's postural tilt influenced their

-6-

perception of an upright. The upright was placed in a black

visual field offering no perceptual cues whatsoever (Witkin,

1949).

In a broad sense this present study relates to William

James' (1884) organic theory of emotions. He says

"Our natural way of thinking about these standard emotions is that the mental perception of some facts excited the mental affection called the emotions, and that this latter state of mind gives rise to bodily expression. My thesis on the contrary is that bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur is the emotion.

...we feel sorry because we cry, not, we cry because we feel sorry. We are frightened because we run, not, we run because we are frightened.

...any voluntary arousal of the so-called manifestations of a special emotion ought to give us the emotion itself....

Sit all day in a moping posture, sigh, and reply to everything in a dismal voice, and your melancholy lingers. If we wish to conquer undesirable emotional tendencies in ourselves... we must go through the outward motions of those contrary dispositions we prefer to cultivate."

Might we not say, following James' line of reasoning,

that if we sit with arms and legs tightly crossed and do

not look at the other person, that we will tend to be more closed and defensive? Or, if we sit with our head slwmped in our hands, look at the floor, and avoid others, we will tend to be sad and depressed. Or, if we sit with arms and legs open, orienting toward the other person, we will tend to be more open and accepting of the other. Additionally, if we sit in a liking position, a position facing and looking at the other person, with our arms and legs open and at a comfortably close distance, will we tend to "like" more than if we sit in a "not liking" position, facing and looking

٢

away, more physically distant, with arms and legs crossed?

Since this study attempts to influence attitude by changing the non-verbal variables of liking and not liking, it is appropriate to review the literature dealing with body posture and positions as communicators of the attitudes of

-8-

liking and not liking.

Numerous postural variables have been suggested as important in the communication of attitude. Among them is included the distance between communicator and addressee, eye contact, body orientation, openness of arms and/or legs, relaxation of body, arms-akimbo position, and head orientation. Two methods are typically used by experimenters who investigate proxemic variables in communications. In a decoding methodology, subjects infer from controlled stimuli the attitudes and feeling conveyed by others. For example, subjects in a decoding experiment may view pictures of models in various poses and will try to infer the feelings that would be communicated non-verbally by those postures. But in the second methodology, called encoding, subjects are placed in experimental situations where different attitudes

-9-

are elicited, and then their postures and positions are observed as variables of the induced attitude. A typical encoding methodology may use role play to induce desires attitudes from subjects (Mehrabian, 1969).

James (1932) was an early experimenter in postural methodology. He had subjects infer the feelings of thirty photographed masked male models in various positions, in addition to asking subjects to report their subjective reactions to the poses, and also had subjects take certain positions themselves and then describe what the positions seemed to signify. He found that all three methodologies tended toward agreement of emotional meaning and attitude communicated by specific postures. The subject's interpretations suggested four postural types: approach, withdrawal, expansion, and contraction. Approach was communicated by a forward lean of the body, whereas withdrawal, a negative attitude, was communicated by a backward lean or turning away.

In a review of experimental findings dealing with posture and positional variables in the communication of attitudes and status relationships, Mehrabian (1969) found that eye contact, body orientation, lean of torso while seated, and trunk relaxation, have been found most consistently to be communicators of attitudes towards an addressee.

Mehrabian (1968b) found that distance linearly decreased as positive attitude toward the addressee increased. Encoders (subjects placed in experimental situations where specific reactions are elicited) stand closer to liked addressees (3.88 feet) than to disliked addressees (4.59 feet). Mehrabian (1968a), in a different encoding experiment, also found endoders stood closer to liked addressees (5.57 feet) than to disliked addressees (7.24 feet). These differences were significant.

Body orientation, which is head, shoulder, and leg orientation, can be summarized by shoulder orientation alone (Mehrabian 1968b, Mehrabian and Rriar, 1969). Their findings indicate, using an encoding methodology, that for seated females, the shoulder orientation (the angle formed by the vortex of the imaginary lines of the two sets of shoulders) is least direct for moderately and intensely liked addressees (38.5°, 50.6°). For seated males, for moderate and intensely disliked addressees, their orientation was more direct than for females (47.1°, 42.3°) whereas for moderately and intensely liked addressees orientation was more similiar to females (47.1°, 63.5°). In general, findings corresponding orientation to attitude are somewhat ambiguous

(Mehrabian and Friar, 1969) yet a more direct orientation (a smaller angle) seems to correspond with a more liking attitude (Mehrabian, 1968b, 1969).

The lean of the communicators torso is also indicative of attitude. In a decoding experiment, the slight forward lean of photographed endoders indicated a more positive attitude than a backward lean (Mehrabian, 1968a; James, 1932). In an encoding experiment, using raters looking at subjects through a one-way mirror (Mehrabian, 1968b), the subject's backward lean was high for moderate and intensely disliked addressess (16.5°, 15.7°) and less for moderately and intensely liked addressees (10.7°, -1.3°). In another experiment (Mehrabian and Friar, 1969) there was found more support for these findings. The mean of the backward lean in this encoding experiment was 1.4° for liked

addressees and 9.3° for disliked addressees.

arm and leg relaxation fail to yield consistant relationships with the attitude of the communicator (Mehrabian, 1968b) although Machotka's (1965) study suggested that the more accessible, open postures signified a more positive attitude toward the addressee. By using two indices of trunk relaxation, backward and sideways lean of the torso, Mehrabian and Friar (1969) found that the degree of communicator relaxation is either very high or very low for a disliked addressee and moderate for a liked addressee. A smaller reclining angle of the torso by the communicator indicated a smaller degree of trunk relaxation, and sideways lean was moderately high for disliked and liked addressees. Least relaxation would be exhibited by a straight back and upright trunk, whereas

-14-

a most relaxed posture would be represented by a greater than 20° backward lean and a greater than 10° sideways lean. Moderate relaxation would be, for example, a 20° forward lean, curved back, and a more than 10° sideways lean (Mehrabian and Friar, 1969). Also, a more open-armed position of a seated communicator may be considered an index of relaxation. Relaxation, though, seems more to be a function of status and potency in relationship than of attitude (Mehrabian, 1969).

In summary, considering the above findings, a posture and position of a seated communicator indicating liking in contrast to not liking may include a closer distance rather than a further distance. Orientation of the torso would be toward the addressee rather than away (Mehrabian, 1970). The torso lean would be forward about 20°, curved

-15-

back and a less than 10° sideways lean, in contrast to either a straight back and upright trunk or a 20° backward lean and a more than 10° sideways lean for the not liking attitude.

-16-

RESEARCH HYPOTHESIS

There will be significant differences in attitude between the group placed in the liking position versus the group placed in the not liking position. Specifically, the liking group will have a greater preference for a neutral stimulus than the not liking group.

PROCEDURE

Thirty-six undergraduate male subjects will each separately hear taped instructions. The order of the three positions (liking, not liking, heutral) will be counterbalanced, so that there will be six different orders of positions. The pictures used in the study as mild neutral stimuli are black and white slides of random geometric shapes in various configurations. An example of instructions for one order of positions is

as follows:

I am interested in finding out how comfortable certain positions are for you while you see some pictures projected onto the wall. Please place the chair so that it is over the A on the floor. Sit in the chair so that you are directly facing the A on the wall. Lean forward slightly so that your back is slightly curved. Keep your feet on the floor and rest your forarms on your knees. You are now going to see a picture. Look at the picture while remaining in exactly the same position you are in.

-18-

Show the picture for fifteen seconds. After ten seconds:

In a moment I will remove the picture. Stay in the same position. You now see on the wall pairs of word opposites along a number line. Please say out loud the number which is most closely associated with the word that describes your feelings about the picture you have just seen.

Now the five semantic differential pairs (approving-

disapproving, pleasureable-unpleasureable, attracting-

repelling, contented-discontented, interesting boring)

appear, one pair at a time, on the wall while the exper-

imenter notes the subject's responses.

Now move the chair so that the chair is over the B on the floor. Sit in the chair so that you are directly facing the B on the wall. Lean backward slightly while keeping your back straight, not curved. Keep your feet on the floor, legs uncrossed, and fold your arms over your chest. Please lean slightly to your left side. You are going to see a different picture. Remain in the same position you are now in.

Show picture two, then the semantic differential series.

Position three:

Please place the chair so that it is over the C on the floor. Sit in the chair in any position you find comfortable, while directly facing the C on the wall. You are going to see a picture. Look at the picture while remaining in the same position you are now in.

After fifteen seconds, the semantic differential is again administered.

At the end of the presentation, the experimenter asks the subjects for subjective responses. Specifically, in which position did the subject feel most comfortable, most

The five semantic differential word pairs are scaled

uncomfortable, and most attentive.

٠

from one to seven, where seven represents the most positive rating (e.g.: interesting) and one represents the most negative rating (e.g.: boring) for three of the five word pairs. The opposite was true for the other two word pairs. These pairs were alternately presented, to prevent

habituation at either end of the scale. For statistical

-20-

analysis, the subject's responses are converted on two scales so that for all scales the higher the number of the response, the more positive the attitude being expressed.

Position A is located six feet from the image wall and, when subject is orienting toward the A on the wall, is at a 20° angle from the image, whereas for position C the subject is seven and one-half feet from the image wall and at a 30° angle and for position B is nine feet from the wall and at a 40° angle from the image itself.

RESULTS

A one way analysis of variance, subjects by treatment design, was computed for the effects of the three positions on attitude. The results were in the expected direction but statistically insignificant (Df = 2, F = 1.60). In other words, the most positive attitudes were reported while subjects were in the liking position (A), followed by the self-chosen neutral position (C), and the most negative attitudes were reported in the not liking position (B). (See Table I.)

Table I. Sum and Means of Semantic Differential Scale Responses of 36 Subjects in Each Position.

•.

Position	Scale Totals	Mean
A (liking)	785	21.80
C (neutral)	762	21.16
B (not liking)	732	20.33

A one way analysis of variance, treatment by subjects

design, was performed to see if using three different

pictures, counterbalanced, as the neutral stimuli, or the order effect of the positions (A, B, and C), also counterbalanced, had significant effects. Both the effect of the different slides and the order of the positions were insignificant (slides: Df = 2, f = .86; order: Df = 2, F = 2.54) although there was actendency for the subject's attitude to increase positively as time increased. (See Table II.)

Table II. Semantic Differential Scale Totals For All Subjects in Each Position and in Each Time Period.

Position		Time	Totals	
	1	2	_3	
A	269	252	264	785
В	230	242	260	732
С	235	254	273	762
Totals	734	748	797	2279

After each subject had seen and rated the slides on the semantic differential in each position, verbal subjective reports were taken. Most subjects felt uncomfortable in position

B, the not liking position (\mathcal{V} = 8.66, Df = 2, .02>p>.01).

Also, most subjects felt attentive in position A, the liking position (\mathcal{X} = 25.17, Df = 2, p = .001). This suggests that attentiveness may be manipulated by changing a person's posture and position.

To analyze the data, each subject's responses to the five semantic differential scales for each slide in each position was collapsed and summed. For example, subject 1 viewed slide 1 in position A and then responded with a number from one to seven for each of the five semantic differential scales. These five responses were summed and this sum, potentially ranging from five to thirty-five, represented the subject's attitude to the neutral stimulus slide in that particular position. The higher the number, the more positive was the attitude being expressed. The correlations between the scales was high enough to justify collapsing the scales,

-24-

assuming, on both statistical and logical grounds, that the scales were measuring the same variable, attitude. Table III shows the results of a correlational analysis of the scales. Table IV shows the results of the corrected and uncorrected part-whole analysis correlations, where the corrected correlation means that each particular scale was separated from the other four scales, and the uncorrected means that the particular scale was not separated from the whole group of five scales.

Table III. Corrected Analysis of the Five Semantic Differential Scales With Each Other.

Scales	RA	BI	UP	DA	DC
Repelling-attracting	1.000				
Boring-interesting	.685	1.000			
Unpleasant-pleasant	.646	.628	1.000		
Disapproving-approving	.569	.527	.782	1.000	
Discontented-contented	.482	.303	.615	.703	1.000

Table IV. Corrected and Uncorrected Part-Whole Semantic Differential Scale Analysis Correlations.

Scale	Corrected	Uncorrected
RA	.714	.823
BI	.625	.765
UP	.823	.894
DA	.789	.874
DC	.616	.755

DISCUSSION

Although the most positive attitudes were reported in the liking position (A) and the most negative attitudes were reported in the not liking position (B), as predicted, these differences were not statistically significant. It is possible, of course, that muscular status is not stronger than affective factors, but rather affective reactions have more impact than muscular status on attitude. In any event, their mix and interplay is not at all clear from the results of this study.

Much of the posture and position variables used in this study are from encoding and decoding experiments. But it is uncertain whether a particular posture and position taken by a subject which communicates a specific attitude

-26-

to an observer, as in the decoding experiments, also will elicit that same attitude in the subject. For example, if a particular subject's status communicates liking to an observer, it does not necessarily elicit liking in the subject.

Following the same line of thought, specifically elicited postures and positions were taken by subjects during the encoding experiments. But it does not necessarily follow that if the subject takes the specific position, without the appropriate external affective stimuli, that the subject will feel the associated emotions hypothesized. More simply, it is not clearly known whether the particular positions used in this experiment would or should elicit the particular feeling hypothesized. This it may be necessary to find out not only if muscular status affects one's feelings, but also which postures and positions would have

-27-

a particular attitudinal effect on the subjects.

The experimental design used had some shortcomings. The subject's involvement may have been too low, due to the low stress perceived and the low stakes involved. Involvement was short, yet long enough for subjects to become bored at their repetitive task.. The greatest differences in attitude between liking and not liking was during the first time period (Trial 1), possibly because the situation was novel and boredom was at a minimum. Although all subjects were male college upperclassmen, no individual screening methods were used to ascertain, for example, which subjects were more sensitive to their own bodily sensations or muscular reactions. Individual differences were not accounted for in the design, other than assuming that they would balance out. Not only is it unknown whether the positions used actually might elicit

-28-

the expected attitude in the subjects, but, with respect to individual differences, whether the same position would elicit the same attitude in all subjects.

The results suggesting that attentiveness can be elicited from a particular posture and position appear contradictory to the rest of the data. That is, most of the data indicates that attitude cannot be manipulated by body posture and position, whereas attentiveness can be manipulated. It may in fact be easier to elicit certain attitudes, such as attentiveness, than other attitudes, such as liking or not liking, from muscular changes. Also, some previous learning may be involved. For example, many subjects can remember, expecially in elementary school, their teachers reminding them of how to sit (posture, position)

to help them pay attention in class. People seem to know more

-29-

about how they appear when they are alert and attentive than how they appear when either liking or not liking something or someone.

If a retest of this hypothesis was performed, changes in the design would be appropriate. Two experimental sessions for each subject could be utilized, tather than the present one session. In the first session, the subject would view and then rate on the semantic differential a particular charged stimulus, and the experimenter would note the posture and position with the intent being to associate for each subject a particular individual posture and position for the attitude expressed.

In the second part of the experiment, significantly later in time, the subject would view the same stimuli in the posture and position which expresses, for the subject, the opposite attitude to his origional one. For example, assume a subject liked a certain stimuli and constantly took a particular posture with that liked stimuli and a different posture for disliked stimuli. During session 2 the subject would be shown the stimuli he liked but instructed to be in his not liking posture. Then, if on the semantic differential scales, the subject expresses significant changes in his attitude, muscular effects would be indicated as influencing attitude.

This design is responsive to subject's individual differences and in addition offers more flexibility in the use of posture and position variables in effecting attitudes.

If it could be demonstrated experimentally that muscular posture and position did influence feelings, what would be its import? For one, we would better understand some non-

-31-

verbal and certain behavioral-type change programs, such as non-verbal assertiveness training. Also, one can consciously assume a particular posture and position, to help elicit and reinforce a desired attitude associated with it.

34

But most important, musculatory factors in human affect would be considered more seriously in psychotherapy and research. Is it possible, as Reich (1945) and Lower (1958) have outlined, that lasting significant mental changes can occur through changes in body tonus and movements, with a minimal verbal interchange? Can these "radical" approaches be combined with insight therapy in a more productive way? Gestaltist bring into the client's awareness the messages of the body. They infer that the body is more aware of the true state than the mind and we only need become more aware of the body for psychological health (Brown, 1973). If indeed the work of psychotherapy is to restore flow and destroy dichotomies between mind and body, we must know more about the body and its messages and associations with cog-

nitive and affective events.

REFERENCES

- Birdwhistell, R. <u>Introduction to Kinesics</u>. Louisville Press, University of Kentucky, 1952.
- Brown, H. The New Body Therapies. <u>Psychotherapy: Theory</u>, <u>Research, and Practice</u>. 1973, <u>10</u>, 98-116.
- Fromm-Reichmann, F. <u>Psychoanalysis and Psychotherapy</u>. University of Chicago Press, Chicago, 1950.
- Hall, E.T. A System for the Notation of Proxemic Behavior. <u>American Anthropologist</u>. 1963, <u>65</u>, 1003-1026.
- Jacobson, E. In Wolpe, J. <u>Psychotherapy by Reciprocal</u> <u>Inhibition</u>, Stanford University Press, 1958.
- James, William. What is an Emotion? <u>The Emotions</u>. James, W., and Lange, C. Hafner Publishing Co., N.Y., 1967.
- James, W. A Study of the Expression of Body Posture. Journal of General Psychology. 1932, 7, 405-437.
- Lowen, Alexander. <u>Physical Dynamics of Character Structure</u>. Grune and Stratton, Inc., N.Y., 1958.
- Machotka, P. Body Movement as Communication, <u>Dialogues:</u> <u>Behavior Science Research</u>. 1965, <u>2</u>, 33-65.
- Mehrabian, Albert. Orientation Behaviors and Non-verbal Attitude Communication. Journal of Communication. 1967, <u>17</u>, 324-332.
- Mehrabian, A. Inference of Attitudes from the Posture, Orientation and Distance of a Communicator. <u>Journal</u> <u>of Consulting and Clinical Psychology</u>. 1968, <u>32</u>, 296-308 (a).

- Mehrabian, A. Relation of Attitude to Seated Posture, Orientation and Distance. Journal of Personality and Social Psychology. 1968, 10, 26-30 (b).
- Mehrabian, A., and Friar, J. Encoding of Attitude by a Seated Communicator via Posture and Positional Cues. Journal of Consulting and Clinical Psychology. 1969, 33, 330-336.
- Mehrabian, A. Significance of Posture and Position in the Communication of Attitude and Status Relationships. <u>Psychology Bulliten</u>, 1969, <u>71</u>, 359-372.
- Mehrabian, A. A Semantic Space for Non-verbal Behavior. Journal of Consulting and Clinical Psychology, 1970, 35, (2), 248-257.
- Osgood, C., and Suci, G., and Tennenbaum, P. <u>The Measurement</u> of <u>Meaning</u>. University of Illinois Press, Urbana, Ill., 1957.
- Prater, V. Reaction Level in Yogic and Non-yogic Sitting Conditions, An Experimental Study, XXth International Congress of Psychology, Abstract Guide, Toyko, 1972.
- Reich, W. Character Analysis, N.Y., Orgone Institute Press, 1945.
- Ruesch, J. and Kees, W. <u>Non-verbal Communication</u>. Notes on the <u>Visual Perception of Human Behavior</u>. University of California Press, 1956.

Scheflen, A.E., in Fast, J. Body Language. Simon and Schuster, N.Y., 1971.

- Weiner, N., and Mehrabian, A. Language Within Language; <u>Immediacy, A Channel in Verbal Communication</u>, Appleton-Century-Crofts, N.Y., 1968.
- Witkin, H.A., and Asch, S.E. Studies in Space Orientation, III, Perception of the upright in the absence of a visual field. Journal of Experimental Psychology, 1948, <u>38</u>, 603-614.
- Witkin, H.A. Sex Differences in Perception. <u>Trans. N.Y.</u> <u>Academy of Science.</u> 1949, <u>12</u>, 22-26.

Raw Data:

Positional	Subject	Seme	intic	Diff	erent	Slide	
Ørder	Number.	RA	BI	UP	DA	DC	Number
ABC	1	5	5	5	5	5	1
		5	5	5	5	6	3
		5	6	5	6	6	2
							1 1
	2	2	5	4	5	3	3
		3	4	3	3	2	2
		2	3	3	3	3	1
	3	3	5	3	5	6	1 1
		5	5	6	6	6	2
		5	5	5	6	2	3
		-	-	,	-	-	
	4	>	2	4	2	2	2
		4	3	4	4	3	
		2	0	2	2	0	
	5	3	5	5	4	6	2
	-	4	5	4	4	5	i l
		5	5	5	5	Š	
		•	-	•	-	-	
	6	5	5	5	4	4	3
		4	4	4	4	3	1
		5	6	5	4	5	2
ACB	7	3	3	4	4	4	1
		4	3	4	3	3	3
		4	4	5	5	5	2
		E	l.	4	F	4	
	0) E	4	6	ر ۲	6	
		 	0 c	0 E	6	5	
		3))	U	3	
	9	3	6	4	5	3	1 1
		5	6	3	4	3	2
		4	5	5	5	3	3
							<u>├</u>

ł

	10	5	5	6	4	3	2
			Ē	Č.	ĥ	2	
	Į	5	2	0	4	3	3
		3	3	3	3	2	
		1					1 1
	1	, ·		,	,		
	1 11	4	2	4	4	2	
		4	4	4	4	4	
		4	4	4	4	4	1 2
			-	-	-	-	
		I					1 1
	12	4	5	4	4	4	3
		5	c	5	1.		
			2	,	4	4	
		3	5	4	4	3	
							1 1
RAC	12	2	2	1.	1	•	
DAC	15	5	2	4	4	3	
		5	5	6	6	3	
		1 3	3	4	4	3	1 2 1
				-	-	5	
							1 1
	14	3	4	3	3	2	3
		4	2	4	2	2	1 1
		1 7	5			,	
		4	3	5	4	4	
	15		2	1.		2	
	15	7	5	-		5	
		4	4	4	4	4	3
		3	3	4	4	4	1
		-	-	•	•	•	-
						-	
	16	4	3	4	4	6	
		3	3	3	3	2	2
		Ē	Ē	č	2		
)	2	0	0	/	1 2 1
	17	4	3	4	5	3	
				E	5	5	
		5	4	2	2	5	
		4	4	5	4	5	3
							i 1
	10	1 2	1.	2	6	2	
	10	2	4	2	4	2	
		5	4	5	5	5	2
		4	4	5	5	5	1 1
			-				1
							1
BCA	19	5	5	5	5	5	
		4	5	4	5	4	2
			2	7	5	7	
		2	0	6	6	0	2

,

	20	4 4 4	5 3 3	4 3 3	5 3 3	5 3 3	3 2 1
	21	3 4 5	3 4 6	4 5 4	3 5 4	3 4 5	1 2 3
	22	4 4 6	3 5 5	4 3 2	3 3 1	3 3 2	2 3 1
	23	5 5 4	5 5 5	5 3 3	3 5 4	2 3 3	2 1 3
	24	5 4 4	4 4 4	5 5 5	5 5 5	4 5 4	3 1 2
CAB	25	4 5 6	5 6 5	5 6 6	6 6 6	6 6 5	1 3 2
	26	5 6 5	6 7 7	7 5 6	6 6 6	5 3 6	3 2 1
	27	3 3 4	2 2 4	3 3 4	3 3 4	2 3 4	1 2 3
	28	2 4 4	2 1 2	2 3 4	4 4 4	4 4 3	2 3 1
	29	5 4 3	2 4 2	2 5 4	3 6 4	4 6 3	2 1 3

ł

1.75

	30	2 4 5	1 3 - 5	1 4 5	2 3 6	3 3 4	3 1 2
СВА	31	4 4 5	5 5 5	4 3 4	5 5 5	4 3 5	1 3 2
	32	4 2 5	3 3 5	4 3 4	3 3 5	4 3 5	3 2 1
	33	4 4 5	5 4 5	4 4 4	4 4 4	4 4 4	1 2 3
	34	6 5 4	6 5 3	5 5 4	6 6 4	4 4 3	2 3 1
	35	5 3 5	5 5 6	4 3 5	4 2 6	2 2 5	2 1 3
	36	4 4 5	5 4 5	5 3 5	4 4 4	3 4 4	3 1 2



