HAND MOVEMENTS AS AN INDICATION

OF COMMUNICATION EFFORTS

by

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Abstract

Freedman et al, in prior research on expressive movements during interview situations, suggest a link between specific kinds of gestures, such as object directed hand movements and individual cognitive differences, which relate to difficulty in representing thoughts by words. The present study hypothesizes that differences in the frequency of other directed (equal to "object directed") hand movements are perceived by observers as an indication of the intensity of interest and effort which a speaker invests in his audience. The relationship between frequency of other directed hand movements and observer's impressions of the stimulus person's involvement with the material he is presenting or the person to whom he is speaking was investigated. The research is also concerned with the validity of other directed hand movements as a measure which distinguishes communicating or involvement with the other person, from mere 'talking to'. Thus the modality of involvement with the other person is postulated to be a contextual variable mediating hand movements which is at least as important as cognitive individual differences.

Videotapes of five different speakers were edited and sections of the tapes in which the speakers used <u>no</u> hand movements were pieced together into five minute segments. A corresponding five minute tape was made of the same speaker <u>using</u> other directed hand movements.

Twenty subjects who did not know the speaker saw tape version two (no use of hand movements) and twenty other subjects saw tape version one (use of hand movements). Observers who saw tape version one responded with significantly higher ratings to questionnaire items asking the observer to judge the speaker on "involvement with material presented", "involvement with the audience", "sociability", "honesty" and "friendliness". Anxiety ratings did not show any consistent tendency to increase or decrease with frequency of use of other directed gestures.

In a second study, the relationship between the speaker's reported impression of his involvement and the frequency of other directed gestures was investigated. The results show that correlations did not quite reach the significance level.

It is concluded that other directed gestures are perceived - consciously, or unconsciously - as an indication of the speaker's concern with communicating, but no definite conclusions could be drawn as to whether such perception is veridical from the speaker's point of view.

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NONVERBAL BEHAVIOUR AS AN IMPORTANT INFORMATION CARRIER IN INTERPERSONAL RELATIONS

Nonverbal behaviour is a powerful influence in interpersonal relations. Birdwhistell has estimated that no more than 30 to 35% of the social meaning of a conversation is carried by words (Birdwhistell, 1961). Mehrabian (1968), after comparing verbal and vocal language modalities with facial and other non-language modalities, suggested that a "total message" was 55% facial, 38% vocal, and only 7% verbal. Information seekers can search nonverbal behaviour for extra data when they are not satisfied with verbal information alone. Information senders can use it to clarify or disguise a message. However, both usually lack the conscious knowledge of what specific behaviours mean or what effects they can induce.

The importance of dealing with nonverbal behaviour as a psychological issue is obvious. We know that the use of body language per se can have positive effects in interpersonal relations. Retarded children, for example, start to be more attentive if the teacher increases nonverbal approval such as smiles, gestures, head nodding, etc. while producing the same verbal output as before (Kazdin & Klock, 1973). Students begin to ask more questions, and learning, as measured by test results, increases (Kleinfield, 1974; Wyckoff, 1973). Discriminations between more and less successful explanations of social studies material, again measured by test results, can

be made on the basis of the teacher's use of gestures and movements (Rosenshine, 1968). Much nonverbal behaviour transmits negative messages, often without conscious awareness by the sender. Everyday experience is a reminder that usually a person feels responsible for what he <u>says</u> to another person, but hardly ever takes much notice of his <u>behaviour</u> while he talks. Couples in marriage therapy learn to observe on videotapes the discordance between the verbal message and the message of the body and recognize consciously, often for the first time, that they are responsible through nonverbal behaviour for reactions they obtain from others (Beier, 1966).

A number of lay theories are concerned with how to make the unconscious expressions or impressions evoked by them, conscious (Fast, 1970; Nierenberg, 1971, etc.). Attempts have been made to supply a simple code of meaning for the perceiver and to provide a well planned course of action for the sender. Thus, there is an attempt to translate nonverbal behaviour, once assumed to be an unconscious "emotional overflow" of our real, hidden feelings, into a language to be used at will. However, our present knowledge is still very limited. Aside from overall recognitions of matches versus mismatches between behaviour and verbal statements, little is known about the special significance or function of any one gesture or action. Ekman points out various roles that nonverbal devices can fulfill (Ekman, 1965). They can(1) repeat the verbal message,

(2) contradict the verbal message, (3)substitute for the verbal message, (4) reflect a person's feelings about the statement, (5) reflect changes in a relationship, (6) accent parts of a verbal message, or (7) maintain a communication flow. The dynamics or specifics of non-verbal behaviour in general, let alone the meaning of any one specific behaviour are far from being understood. Therefore, the implied or indirectly suggested assumption in writings such as for instance Goffman's (1959, 1963) that nonverbal behaviour can be managed in order to achieve desired communication effects, is unsubstantiated.

HISTORICAL BACKGROUND

Man has long been aware of the subleties and the importance of nonverbal communication. The following examples suggest conceptual problems, as well as the approaches to nonverbal behaviour which have been present over the centuries and which are still relevant to psychological research today.

Cicero and assumptions implied in later research

Cicero states:

"To every thing which belongs to action, nature has communicated a particular influence, so that by it the very illiterate, the vulgar, and even foreigners ignorant of the language, are much affected. Mere words can influence none, but those who are associated in their sense, by the use of the same language; and it often happens that acute reasonings escape the notice of men who are not very acute. But action (italics added) which is accompanied by the emotions of the mind, affects every one. For the feelings of all men are excited by emotions of the same kind, and they discover them in others by the same indications which they use to express them in themselves."
(Cic. de Orat., 55 B.C.)

The power of countenance or gesture in oratory is rated by Cicero next to that of voice, and he cites Demosthenes as having made the assertion, when asked about the first requisite in speaking, that "delivery" (the art of gesture) was the first, that it was the second, and that it was the third (Cic. de Orat., 55 B.C.). Cicero also describes Demosthenes as having shown extraordinary and successful perseverance in challenging and changing natural imperfections of his voice and actions during oratory.

Cicero makes four assumptions which are important in today's research in the field of nonverbal behaviour: (1) that nonverbal behaviour is expressive of emotions. This is the mind-body dichotomy: language expresses thought; the body expresses emotions, (2) that such emotional messages and their effects on other person's perceptions can be perceived in conscious ways, (3) that man's rational, conscious mind is in control over such emotions, and can use and change expressions to achieve desired effects, and (4) that there is universality of feelings, going along with universally understood expressions. In contemporary research, the following conflicting assumptions can be found: (1) that nonverbal behaviour is basically conscious, intentional, and useable for the purpose of making pre-planned impressions, versus the assumption that it is unconscious 'leakage' in the communicator, resulting in more or less unconscious feelings about the real meaning

in the perceiver, (2)that emotions and their behavioural
expressions are universal and innate, versus the assump-
tion that they are learned and culturally determined,
and (3) the assumption that nonverbal behaviour has an
exclusively emotional basis has been challenged.

Nonverbal behaviour in public speaking and social
manners

Historically important works on nonverbal behaviour
and public speaking are: Ludovicus Cressolius' treatise
on "perfect action and pronounciation (1620), and Rev.
G. Austin's "Chiromania" (1806) in which he attempted to
"dispel a strange prejudice against rhetorical delivery".
He writes:

> "There are some indeed who seem to think monotony
> of voice and inflexibility of countenace equally
> suited to their dignity and indifference and who
> are never either moved themselves nor attempt to
> move others".

Austin's book had considerable influence on other
writers on public speaking, for example: Cook's "The
American Orator" (1819); Michaelis' "Die Kunst der redne-
rischen and theatralischen Deklamation" (1818); and Bacon's
"Manual of Gestures" (1872). Typical of all these works is
a concern with the actual use of nonverbal behaviour. There
is little consideration of philosophical questions or
problems.

For some time the question of 'appropriateness' of gesti-
culation in social intercourse was of main concern. The fol-
lowing is a passage from "The Habits of Good Society: A

Handbook for Ladies and Gentlemen" published in London (1870):

> "Foreigners talk with their arms and hands as
> auxiliaries for the voice. The custom is con-
> sidered vulgar by us calm Englishmen...You have
> no need to act with the hands, but, if you use
> them at all, it should be very slightly and grace-
> fully, never bringing down a fist upon the table,
> nor slapping one hand upon another, nor poking
> your fingers at your interlocutor. Pointing, too,
> is a habit to be avoided...you should not be too
> lively in your actions..."

This attitude becomes more understandable when reading a
description of a tendency apparently prevalent during the
time of orators:

> "...not able to advance three words until they have
> got fast hold of one of your buttons; but as soon
> as they have procured such an excellent handle for
> discourse, they will indeed proceed with great
> elocution."

The author, Steele (in "The Guardian", 1713) complains of
"having...during the last years...been argued out of several
dozen [coatbuttons]; insomuch that I have, for some time,
ordered my taylor to bring me home with every suit a dozen
of spare ones". The Victorian style of public delivery, in
contrast, "made of gestural taciturnity an oratorical virtue"
(Efron, 1941) through its "matter of factness". Similar
attitudes were found earlier in 16th and 17th Century France.

Interpretations of gestural differences among races were
a favourite topic for many years. French people are usually
seen as having a natural propensity to accompany their speech
with lively body motions (Efron, 1941) "determined by a here-
ditary emotional overtness, as contrasted with what they con-
sider a congenital affective restraint in the Anglo-Saxons".

In contrast, Estienne, a French linguist of the 16th Century states that "Frenchmen are not gesturers by nature and dislike gesticulation" (Estienne, 1578). It is interesting to note that in one case, at least, gestures are seen as a consciously adopted system of intercommunication. The development in Sicily of a system of gestural communication has been attributed to a tyrannical suppression of the freedom of speech by Hieronimus of Syracuse in the 5th Century B.C. (Efron, 1941).

Darwin and the expression of emotions

In "The Expression of Emotions in Man and Animals" (1896) Darwin traced behavioural characteristics representative of various emotions. In contrast to the majority of authors just mentioned, Darwin challenged the idea that nonverbal behaviour was conscious and rationally used. In an evolutionary approach, his studies led him to speculate on the survival of "serviceable habits". He hypothesized that certain emotional expressions had functional value in the past and were consciously executed; then gradually these were converted to reflex action through habit and association and became part of our biological structure. The human sneer, for example, was considered to be a remnant of baring the teeth to ward off enemies. Emotional expression, according to Darwin, could also be due to involuntary performance of movements resulting from certain conflicting states of mind. For example, shoulder shrugging was seen as

the unconscious wish to attack, superseded by the conscious sense of impotence. Such movements can also become basic motor patterns.

Darwin firmly believed in the Greek dichotomy of language and mind versus body and emotion as well as in the assumption that emotions and their expressional referents were the same everywhere. He noticed that young children seemed to understand a smile or grief "at much too early an age to have learnt anything by experience" (Darwin, 1896). His research suggested cross-cultural similarities in the expression of happiness, sadness, elation, etc. Addressing himself to the question of expression and recognition he writes:

> "Children, no doubt, would soon learn the movements
> of expression in their elders in the same manner
> as animals learn those of man...through their asso-
> ciating harsh or kind treatment with our actions...
> Moreover when a child cries or laughs, he knows in
> a general manner what he is doing and what he feels;
> so that a very small exertion of reason would tell
> him what crying or laughing meant in others. But the
> question is, do our children acquire their knowledge
> of expression solely by experience through the power
> of association and reason? As most of the movements
> of expression must have been gradually acquired,
> afterwards becoming instinctive, there seems to be
> some degree of a priori probability that their recog-
> nition would likewise have become instinctive".
>   (Darwin, 1896)

For Darwin, the relationship between expressive bodily behaviour and the corresponding psychical attitude was due to the fact that expressive gestures were remnants of originally serviceable habits which survived because of natural

selection. In some ways, this is contrary to the later Gestalt position which postulates an isomorphic correspondence or inner kinship between a particular pattern of muscular behaviour and a correlated state of mind. On the other hand, Darwin's position is similar to the Gestalt view because both postulate an underlying structural connection between the behaviour and the emotion.

In contemporary research, there is considerable disagreement with Darwin's thesis that expressions have the same definition and purpose for all men, and Darwin is often accused of having underestimated the influence of cultural processes (eg. Arnheim, 1949). Studies opposing Darwin's belief will be discussed in the section on "Cultural Determinism".

Early experimental research

Darwin's "Expression of the Emotions in Man and Animals" has been of major importance because it served as a bench mark for much of modern research in the area of nonverbal behaviour. Most of the early experimental work in the 1920's was a followup of Darwin's hypothesis and sought the existence of a relationship between facial expressions and the conveyance of emotion. The critical question was whether observers and judges could accurately identify the emotions of subjects when specified emotions were expressed nonverbally. Stimuli were usually presented as photographs of posed facial expressions. Results were inconclusive and often failed to consider the question of whether accuracy or inaccuracy was to be attributed to the validity of expression, the specific

emotion investigated, or the insensitivity of the judges.
Woodworth (1938) demonstrated that people can accurately
discriminate among broad categories of emotional states.
Carmichael, Roberts & Wessell (1937) had observers judge
emotions expressed by different hand positions and found
high agreement.

Ekman (1965) and many others agree, fully or partly,
that the kind of emotion expressed can be inferred correctly
from nonverbal expressions. Other researchers, however,
insist that knowledge of the context and of the natural
occurence of the behaviours to be recognized is essential
for positive results (Galloway, 1971). An extensive review
of the problem and results of different investigations can
be found in Frijda (1969). Generally, it is believed today
that the inconclusive results of the early experiments were
partly due to unnatural settings where observers had to
judge in complete absence of context and where emotional
expressions were provided by poses of actors. Contemporary
research, directed at the same question, prefers to use spon-
taneous, interactive behaviour in natural settings (actual
group interaction) or film and video recordings rather than
posed photographs, thus providing judges with a knowledge
of context. Using these procedures, positive results are
often obtained for gross categories of emotion but not for
finely differentiated variations of feelings (Rosenthal,
1973).

Since Darwin, attention was increasingly focused

with emphasis on more and more isolated aspects of move-

ment research. There were few attempts at integration,

and overviews of the problems were relatively rare. Only

gradually did research center on problems identified by

Cicero's four basic assumptions.

Nonverbal behaviour: universal, culturally determined,
or idiosyncratic?

Studies on cultural characteristics. As mentioned

earlier, contemporary research is in disagreement with

asserting universality of behavioural expression. A large

amount of research is based on the firm conviction that

behavioural expression and meaning in different cultures

is varied enough to justify purely descriptive research,

often executed in extremely narrow geographical areas.

Pei (1965) describes several foreign culture gestures as

well as the use of gestures by common interest groups, such

as boy scouts, traffic policemen, etc. Efron (1941) compared

gestural behaviour of Eastern Jews and Southern Italians,

both groups being immigrants to New York City, and found

qualitative differences between the two. For example, the

radius of the gestures of the Ghetto Jew are more confined

than those of the traditional Italian. The qualitative dif-

ferences apparently diminish in proportion to social assimi-

lation. Kany (1960) presents 42 illustrations of gestures

observed in certain sections of Latin America. He also cites

prose fiction of the observed regions as documenting the authenticity of his described gestures. Klineberg (1938) deduced characteristic facial expressions, gestures, and their meanings from Chinese literature, and Brewer (1951) describes 16 distinct Arab gestures and brief interpretations of what they mean. Green's Gesture Inventory for the Teaching of Spanish (1968) not only extensively describes the use, form and meaning of a number of gestures used in the Spanish language, but introduces a new idea: the possible use of language gestures as "invaluable help" in foreign language instruction.

Cross cultural studies and their implications for the assumption of universality. Cultural and cross cultural studies as well as the studies on recognition of emotion described earlier could be the decisive argument against the assumption that nonverbal behaviour is an instinctive, universal communication and expression system. The findings seem to point to a lack of universality and seem to support the associationistic assumption stated by Berkeley (1733):

> "...Those passions are themselves invisible: they
> are nevertheless let in by the eye along with
> colours and alterations of countenance, which are
> the immediate object of vision, and which signify
> them for no other reason than barely because they
> have been observed to accompany them: without which
> experience, we should no more have taken blushing
> for a sign of shame, than of gladness".

Birdwhistell (1952) asserts that there is no single motion or gesture that conveys identical meaning in all

societies. He argues that laughter, or any other emotional expression, can mean different things in different cultures. When a bilingual person changes his language, he also changes his posture, gesture, and movements. Even within one culture, working class and middle class will possibly perceive different meanings in one gesture. Even a single gesture in a specific subgroup within a culture may have meanings that vary from context to context. That is, a frown may mark a point in a sentence, or in another context, may signify annoyance or contradiction (Birdwhistell, 1952).

However, in considering the Gestalt proposition that processes taking place in different media may nevertheless be similar in structural organization, one criticism is immediately evident. Generally, cultural and cross cultural studies have concentrated on specific, concrete movements and behaviours and their descriptive meanings, rather than on basic, primary categories. They have also concentrated on the description of specific, culturally determined symbols rather than on the gross patterns of emotions presumably felt by persons in all cultures. Thus, they do not supply a final answer to the question of the instinctiveness versus the learned aspect of nonverbal behaviour.

Lundholm (1921), when asking laymen in art to draw lines to express different affective tones, found that only straight lines broken by angles were used to represent adjectives such as "exciting, furious, hard", while only curves were used for "sad, quiet, lazy, merry". Upward direction of lines expressed strength, energy, force. Down-

ward direction expressed weakness, lack of energy, relaxation, depression, etc. Similar descriptions of patterns occuring in nonverbal behaviour and comparisons with corresponding psychological processes on cultural as well as cross cultural bases would open possibilities for understanding nonverbal behaviour. Clearer differentiations need to be made between kind and quality of behaviour patterns which do have natural referents on a universal basis and learned variations as well as culture specific behaviours. It might be more promising to categorize behaviours under these different possibilities rather than attempting to force all behaviours into one category. Despite their shortcomings, the studies on cultural characteristics mentioned above have importance in that they provide the only existing analyses comparing perceptual patterns with the expressions they convey. They are thus a first step towards the comparison of the structural similarities of psychological experience and physical behaviour.

Idiosyncratic styles of movement. Awareness of patterns rather than the specifics of behaviour raises another question. Whatever the cultural or cross cultural meaning of specific expressions, there is the possibility that individuals show a personal style in movements. This style could be purely idiosyncratic and peculiar to the particular person. If such idiosyncratic styles do exist, the interpretation of meaning of each specific nonverbal behaviour could not be made on as general a basis as is usually done,

but would have to be viewed in the context of the specific
individualistic style. Furthermore, a knowledge of the
idiosyncratic style of movement might allow the inference
of personality characteristics or dispositions correlated
with these movements.

The major study in this area is Allport & Vernon's
(1933) investigation of the interrelatedness of multiple
response styles in individuals. They did find tendencies
for an individual's expressive movements to be similar
across many different kinds of activities, such as voice
expression, hand writing, drawing, walking, etc. Ames
(1940) found that for tempo, or speed of manipulation of
different objects and creeping around, in children of six
to twelve months of age there was great individual consistency
across activities and over time. Roback (1931) talks about
"personal idioms" or the same quality which often pervades
different creative works of an artist.

The basic function of nonverbal behaviour: emotional,
or cognitive?

Cultural and cross cultural research has identified
a large number of nonverbal "phrases" which are used
cognitively to substitue for, or to add to verbal language
(eg. shaking the head for "yes" or "no"; nonverbal acts
having a direct translation into verbal terms, such as
"come here", "I'm cold", "crazy",etc.).However,the meaning
of the main core of movements that we observe everyday remains

unexplained. These unexplained movements are seen by many psychologists as emotional correlates indicative of temporary or enduring emotional states. Researchers usually concern themselves with the question of what emotions and feelings can be inferred rather than with the theoretical basis to support the assumption that any such inference is valid at all.

Examples from psychoanalysis. Freud's statement on nonverbal behaviour is well known:

> "He that has eyes to see and ears to hear may con-
> vince himself that mortals can't keep a secret.
> If his lips are silent, he chatters with his finger-
> tips, betrayal oozing out of him at every pore".
> (Freud, 1905)

Freud saw such movements as a gateway to the unconscious.

Reich, in his Character Analysis points out that one's character defenses, style of relating to others, etc. are made manifest concretely and visibly in muscular tensions, posture, breathing patterns and expressive styles (Reich, 1928). He formulated the hypothesis that postural rigidity or tension was a measure of the difficulty in introducing changes in a person. Partial support for such an hypothesis is given by Malmo (1956). He found that certain feelings may elicit corresponding tension in various muscle groups. For example, when a divorced woman was interviewed about her problems and electrical action potentials were recorded from different muscle groups, it was found that when she was talking mainly about her anger and hostility towards her husband, the

main activity was localized in her leg muscles. In general,
as she experienced different feelings about different
situations and people, she also experienced different
muscle tensions related to the feelings she was having.

This finding can be related to the so called motor
theory of thought which claims that we think with our whole
body. It has been demonstrated that muscular activities are
integrally involved in thought processes. Eye movements during
imagining an object are often similar to eye movements exa-
mining the object when it is physically present. Thoughts of
lifting a weight will correlate with action currents in arm
muscles.

Lowen (1971) agrees with Reich that the client's
characteristics of maladjustment are intertwined with typi-
cal postures and gestures. He therefore proposes that modi-
fication of client characteristics could be enhanced through
manipulation of nonverbal behaviours. Deutsch observed
patients' movements and positions in psychoanalysis (Deutsch,
1947) and correlated them with speech content and aspects of
personal history and personality. He claimed that certain
positions and gestures reveal specific intrapsychic conflicts.
Giedt (1955), on the other hand, argued that nonverbal cues
were of little value in making clinical conclusions about
his patient sample.

Popular bestsellers on "body language" have attempted
to take these ideas from the individualistic framework of

psychoanalytic studies and expand them into conclusions
valid for the general public. They infer personality
types or problems from frequently occuring, characteristic
behaviours in a typical over generalized way, as, for
instance:

> "Generally happy people move more quickly and are
> light on their feet"

> "Dejected people shuffle with hands in their pockets,
> seldom looking where they are going"

> "Those people who are preoccupied with a problem,
> often assume a meditative pose while walking - their
> heads down, they walk along with hands clasped behind
> their backs. The self satisfied, or somewhat pompous
> person talks with chin upraised, the arms swinging
> in an exaggerated manner, the legs taking a deliberate
> pace." (Fast, 1970)

Such general conclusions are definitely drawn too hastily.
It has to be remembered that (1) there is little agreement
as to the very validity of making inferences (eg. Giedt
versus Lowen and Reich) and that (2) in the reports mentioned
above, the behaviour of patients was interpreted in the
context of psychoanalytic treatment and the validity of
the inferences is partly to be ascribed to the sensitivity
of the psychiatrist. The psychiatrist formed conclusions
about a patient he knew over a long period of time and in
the context of verbal statements and discussions of problems.
In these psychoanalytic writings, no extensive description
of such context, nor specifics of behaviours are given.
Generalizations applied to different contexts are therefore
bound to be misleading.

<u>Experimental and theoretical research on the emotional</u>

<u>meaning of nonverbal expressions (nonverbal behaviour as an</u>

<u>index of temporary mood states</u>). With the exception of psycho-

analytic reports, not many psychologists have favoured the

idea of tying nonverbal behaviour to enduring states. More

researchers are willing to acknowledge nonverbal behaviour

as disclosing temporary emotions and feelings. However,

there is little agreement as to what emotional state or

attitude is indicated by an increase or decrease in kinetic

behaviour.

Sainsbury (1955) interprets greater gestural activity

during psychoanalytic interviews as being due to threat

and to the emotion of anxiety. Rosenfeld (1966) found a

relationship between increases of head nodding, gesticular

and facial activity, higher speech rate, volume, vocal

activity, etc. to a greater intention to be persuasive. He

also found gesticular rate, in particular, correlated

positively with relaxation, thereby directly contradicting

Sainsbury's "threat association". In a further study

(Rosenfeld, 1966 b),he found "higher speech rate, smiling,

head nods, less frequent self references, and more gesti-

culation" to be associated positively with the attempt to

elicit more liking. Rosenfeld states that "in initial

encounters with strangers, the behaviour most likely to

secure a high attractiveness rating is total gestural and

verbal output." (Rosenfeld, 1966 b).

Mehrabian & Williams (1969) found that activity of the communicator increased with his intention to persuade, and the level of persuasiveness was correlated with the level of activity exhibited. They also showed that the "arms akimbo" position was used with greater frequency when interacting with disliked persons than with liked (thus reducing arm movements to a minimum).In a further study, Mehrabian (1971) found that "immediacy" - i.e. body position, direction of looks, etc. - in nonverbal behaviour toward an addressee is greater when one is truthful.

Spiegel & Machotka (1974), investigating the perception of nonverbal cues in paintings, found that their subjects saw Boticelli's Venus as self sufficient and melodramatic and made some other, not too flattering comments. Men especially seemed to be angered by her, using a good deal of sarcasm describing her. Spiegel & Machotka showed that the cues that gave rise to these impressions were uniform: they reside in the hands and arms. A change in arm positions toward "openess" changed impressions significantly.

Dittmann & Llewellyn (1971) state:

"If a person wishes to convey the idea that what he is expressing is difficult to conceptualize or exciting, or important, he will introduce movements along with his speech...The timing will follow a pattern that he is familiar with, that is, early in encoding units, or following hesitation in speech."

Dittmann (1962) also presents the opinion that the intensity

of a mood can be differentiated by frequency of movement,

but that different body areas have to be observed for

inferences about the specific mood present.

Nonverbal behaviour as a communicator of non-emotional
states

It is possible that nonverbal behaviour has non-emotional

functions, for example, as a code maintaining social order and

as an aid in the cognitive symbolizing process of verbalizing

thought. Efron (1941), Birdwhistell (1952), Scheflen (1966,

1972), amongst others, see body movement as a traditional

code maintaining interpersonal relationships without the

use of language or conscious mental processes. From the

communicational point of view, which, Scheflen (1972) asserts,

is held by anthropologists and ethologists, rather than by

psychologists, "the behaviours of posture, touch, and movement

are studied in relation to social processes like group cohe-

sion, and group regulation". According to Scheflen, body

language, combined with spoken language, serves to control

human behaviour and to maintain social order. He calls for

analysis of the influence of body language in different

social areas rather than inferential statements regarding

what each movement 'means'. Scheflen's goal (1966) is to

find "...how the pieces are organized into standard units,

recognizable at a glance, and recordable at a stroke". The

various elements of such a structural unit, in his opinion,

should occur together every time. "They will have consistent

arrangement and appear invariably in the same context". An approach attempting to disclose such units would therefore have to be descriptive and analytic rather than follow the experimental, statistical trend employed by studies investigating the emotional functions of nonverbal behavioural expressions.

Kinesics. In considering nonverbal behaviour as a code regulating interpersonal relations and communications, Birdwhistell's research is of foremost importance. He introduces a new term, "kinesics", which he defines as "the study of body motion as related to the nonverbal aspects of interpersonal communication" (Birdwhistell, 1952).Body movement is seen by Birdwhistell as one channel of communication, consisting of culturally learned units, patterned analogous to language. He thinks that the meaning of movement is not to be found in individual dynamics or in concepts involving emotions but,rather,in effects the behaviour has and in its place in the stream of consciousness. Birdwhistell's research deals with patterns of synchrony, regulation, and organization of group behaviour. He has, for instance, defined a number of kinesic markers which supplement the linguistic markers. For instance, when a person asks a question, the voice goes up, and the head does also. Movements of the hands, head and eyelids are defined by Birdwhistell as "kinesic points". Birdwhistell selects movements of all kinds and attempts to determine the basic unit which could be considered the building block

of all movements, just as the phoneme is the building
block of words. He views his work as analogous to the
work of a structural linguist and believes that careful
analysis of the total context in which behaviour occurs
will eventually lead to the discovery of its meaning
(Birdwhistell, 1952).

Birdwhistell (1966) divides the research program
that should be carried out in kinesics into three distinct
subareas: (1) pre-kinesics (the physiological bases for
study of body motion), (2) micro-kinesics (recording of
kinesic data), and (3) social kinesics (the kinesic act
in total context). Birdwhistell's personal progress seems
to have been made mainly in the first two areas. He deline-
ated particular muscles involved in specific constellations.
In micro-kinesics, his recording system for kinesic data is
unique in the field, and as such is of major importance.
However, up to now, there is no positive indication that
the study of social kinesics will actually lead to discovery
of individual meanings. Wiener et al (1972) criticize the
assumption as follows:

> "...if there is no a priori specification of the
> set of movement to be analyzed (and the criteria
> for selecting particular movements to analyze have
> not been spelled out by these investigators), then
> Birdwhistell, and others, are left with the impossible
> task of analyzing every movement. Even were this task
> possible, it is still not clear how an analysis of the
> structure could lead to specification of meaning of
> the occurences unless it is assumed that structure
> and meaning are correlated in some as yet unspecified
> way...Birdwhistell appears to compound somewhat the

difficulties associated with this approach when he
holds that the meaning of the movement will be known
only when the total context is known. This latter
task seems logically impossible...Since we do not know
whether there is anything we do not know, we cannot
be certain we know the total..."

Thus, they point out, the search for the "total context" will

be endless. It will always be possible to include something

else in the total, and Birdwhistell seems to be doing just

that by including even olfactory components and micromomentary

muscle changes.

Despite shortcomings in Birdwhistell's approach, his

emphasis on body language in a communication context has

stimulated research on the role of context variables. It

has also reopened the question of intentionality and

consciousness in the use of nonverbal behaviour.

Structural analysis as a research methodology. Birdwhistell

used the model of linguistic analysis in nonverbal behaviour

research to provide guidance for a more disciplined, structu-

rally analytic approach to the problem. Other researchers

have followed this approach. A review of the studies of the

structure of nonverbal behaviour is to be found in Duncan

(1969). Some, for example, have looked for rules governing

what behaviours may occur in the communication process,

and in what context (eg. Scheflen, 1966, Loeb, 1968).Others

have tried to uncover organization among behaviours (Crystal

& Quirk, 1964; Stockwell, Brown & Silva-Fuenzalida, 1956;

Trager, 1961, etc.). Structural analysis has also helped to

clarify distinctions and relationships among nonverbal

behaviours. For instance, Boomer & Dittman (1962) have shown
that disregarding the location of pauses in relation to
phonemic clauses may have led to erroneous conclusions in
prior research.

As researchers concentrated on nonverbal behaviour in
the context of verbal utterances, more general questions
about the relationship of nonverbal behavioural units
to speech also became of interest. Freedman & Hoffman
(1967) identified units of kinetic behaviour, especially
movements of the hands, which bear differential relations
to speech. Object focused movements (hand movements which
are intimately linked to the formal or content aspects of
speech) were subcategorized into "Speech Primacy Movements"
(hand movements which closely parallel the formal and rhytmic
properties of speech) and "Motor Primacy Movements" (move-
ments expressing some only partially articulated thought,
image, etc.). Body focused movements, on the other hand,
according to Freedman & Hoffman,are hand movements involved
in the "stimulation of the body" (hand to hand touching,
general body- and hair touching, etc.). These categorizations
might help in judging the functions and meanings of different
behaviours in specific contexts.

Consideration of context. The importance of context
has been shown by Argyle et al (1968) who reported that for
dyads certain situational characteristics (such as lighting,
sex, and relative age of the interactants) resulted in one

member of the group always feeling himself to be the "observed" one, regardless of the actual frequency of interactions or looks directed towards him. Duncan et al (1968) found a significant interaction between the nonverbal components of the experimental instruction, and the subjects' perception of the experimental task.

Another most important context variable, usually not given much importance in prior research, is the presence of the other person. It has been argued that kinetic behaviour, supplementing verbal expression, can occur even when there is no onlooker visible to the speaker (Freedman et al, 1972; Hoffman, 1968). However, it has been shown in a number of other studies that without the visual presence of the other person, gestures are usually reduced to a minimum or change to a different quality. Autistic gestures, such as body rubbing and body touching, hand rubbing, fidgeting, etc, which supposedly "have no defi- nite meaning either for the subject or for the individual to whom the subject is responding" (Krout, 1939), increase and replace the gestures usually reserved for interpersonal verbal exchanges. These latter gestures are other directed, away from the body, "open" movements which Freedman et al (1967)classify as "object directed". Mahl (1968) compared face to face with back to back conversations in interviews. In the back to back condition, there was a significant increase in autistic gestures, but subjects did not report

feeling more uncomfortable. This report is interesting in view of Sainsbury's assertion (Sainsbury, 1955) that autistic gestures are indicative of nervousness, anxiety, tenseness, etc. Mahl found that the amount and expansiveness of postural shifts, on the other hand, was equal in back to back and in face to face conditions.

Cohen & Harrison (1973) asked subjects to give directions to a confederate to places on campus in a face to face versus an intercom situation. In the face to face condition, subjects used significantly more hand illustrators than in the intercom situation. No differences in frequency of use were found in difficult versus easy explanation tasks.

The use of object directed gestures is not peculiar to face to face interpersonal situations. Sometimes, object directed gestures will occur even without the presence of the person addressed (for instance in telephone conversations), but this seems an exception rather than the rule. It has to be concluded, therefore, that specification of the kind of movement might be of importance in considering interaction along with context variables. Gestures,in particular,seem to be affected by a communication context with another person visually present.

Nonverbal behaviour in a cognitive function. In addition to "emotional overflow" and "code aiding maintenance of social order", one more possible function of nonverbal behaviour has been suggested. A number of theorists have

assumed that gestural behaviour precedes cognitive repre-
sentation, speech and social development (for instance,
Piaget, 1962; Vigotsky, 1962). However, as Dunning (1971)
points out, the service that gestural behaviour performs
in the communication pattern of adults is still unresolved.
(For discussion of this issue see Berger, 1958, Deutsch,
1947). Researchers viewing nonverbal behaviour in the context
of verbal interaction have toyed with the idea that certain
forms of nonverbal behaviour are not only an act of trans-
mission but "the body's participation in the symbolizing
process" (Freedman et al, 1972). Kinetic behaviour is seen
as "representational" and as a cognitive process rather
than as an emotional discharge. Dittmann & Llewellyn (1969)
show that hand movements usually occur at pauses or at the
start of phonemic clauses and conclude, therefore, that they
may be presumed to take part in syntactic planning. Hoffman
(1968) sees gestures as helping give direct pictorial ex-
pression of thoughts and feelings only partially expressed
in words. He also found the rate of hand movements related
to verbal fluency and reports that inhibition of gestures,
by restraining of the hands, affects speech. Steingart &
Freedman (1972) see hand movements as related to grammatical
form of the sentence uttered.

If kinetic behaviour or some forms of it (gestures
usually seem to be singled out in research) are viewed as
parallel to verbal expression and as participating in the

symbolizing process, it would be expected that ideas which
are difficult to express would evoke more gestures in an
effort to aid the verbal explanation. Baxter et al (1968) tested
the hypothesis that talk about hard to express conversation
topics would evoke more gestural activity than discussion of
familiar conversation topics and that linguistically less
well differentiated individuals would display more nonverbal
activity. Much to their surprise, they found that linguisti-
cally well differentiated individuals discussing familiar
conversation topics displayed <u>high</u> amounts of gestural
activity. Freedman et al (1972) attribute this to insufficient
differentiation of the quality of gesture. In an investigation
of the relationship of gestural movements to cognitive differen-
tiation, they found that field dependant individuals (low
differentiation) engaged in more hand-to-hand, body focused
movements. The study also varied the context of interaction,
with a sequence of "warm" followed by a "cold" interviewer,
and vica versa. Again, field dependant subjects employed more
body focused movements when interviewed by a cold interviewer
first. Autistic movements persisted when a warm interviewer
replaced the cold one. This is attributed by Freedman et al
to "threat persistence". However, when initially introduced
to the warm interviewer, field dependant individuals showed
more motor primacy gestures than field independant subjects.
No significant differences were found for field independant
individuals (highly differentiated in linguistic categories)
"except an increase in rate of motor primacy movements when

dialogue was changed to an association task. " No such specific change was noted among field dependant subjects. Freedman et al conclude that "while there is a broad range of body focused activity which is quite unrelated to psychological differentiation, gestures appearing in the communicative flow can provide the observer with in-direct cues on the relative difficulty of representing thoughts by words (the process of verbal encoding) if the context is known".

Thus, the suggested function for at least a sub-category of nonverbal behaviour - gestures - is narrowed down. Maybe gestures are not only a part of informational transmission in general but specifically an intricate part of verbal language. As a result, the range of choice with regard to inferences widens: should emotional, or cognitive correlates be inferred from the occurence of gestures?

Chapter 2

THE MEANING AND FUNCTION OF GESTURES IN THE COMMUNICATION PROCESS

Shortcomings of the cognitive hypothesis

Freedman et al (1972) and others imply that the main function of object directed hand movements is their aid in the symbolizing process. Is this basic proposal sound? If it were, there should be a consistent relationship between specific variables (for instance, level of difficulty of the thought to be expressed, or difficulty of expression in general, due to limited differentiation of the subject) and the occurence of the specified type of gesture. Everyday observation confirms that individual use of hand movements is not consistent over time and is also not consistent with level of difficulty. Sometimes the official presentation at the speaker's podium or in the lecture hall will evoke less kinetic movement than the chit chat with friends after the presentation. In addition, the chit chat is likely to be on a simple conversation topic, such as what happened last week, what X had said to Y, etc. Clearly, if difficulty of the idea to be expressed were an important variable, the presentation or lecture should initiate more use of gestures. If, on the other hand, occurence of gestures were related to the individual's difficulty in expressing himself in general, due to limited linguistic differentiation, the use of gesture should occur consistently over time. Again, everyday observation will easily disconfirm this assumption.

Freedman et al make a comparison only between object versus body focused movements. That is, they consider the style of movement. They do not consider the meaning of no movement, which

in itself poses interesting questions regarding the functions
of hand movements. Often an individual speaks fluently without
any gestures, body or object directed, whatsoever. Careful
observation in everyday environments will confirm that this is
not a case of exceptional individuals, but rather that such
incidences of the non-occurence of hand movements are quite
typical for every person when observed over time. Research
attempting to show a relationship with cognitive factors has
been strictly experimental and is based on statistical avera-
ges. It therefore has not had to face the dilemna of having to
explain the inconsistency in the use of gestures in individual
subjects over time. If the main function of gestures were to aid
the cognitive symbolizing process, what happens at those times
when individuals talk fluently without the use of movement, or
stammer but are still "frozen" in their movements"

The suggestion that gestures have a mainly cognitive
function, representing the body's participation in the symbo-
lizing process cannot be accepted. Freedman et al's research
findings are limited. A linguistically less differentiated per-
son, finding it hard to express thoughts in words, might certain-
ly learn to recognize the help of "descriptive gestures, and
thus gestures can be used intentionally in a cognitive function.
Obviously, however, gestures are not always put to such use. The
important question is, under what conditions will they be?

Freedman et al assert that "gestures provide the observer
with indirect cues of the relative difficulty of representing
thoughts by words" and that their categories of motor be-
haviour "may provide the observer with visible evidence

distinguishing individuals limited from those not limited in their psychological differentiation, <u>once the communi-</u> <u>cative context is known</u>" (italics added). The observer, under most circumstances, will not know the communicative context to its full extent. To cite an obvious example suggested by Freedman et al's own study: One usually would not know what had just occured to the other person before one met him and started talking to him. Prior "cold" influen- ces and "threat persistence" could be influencing present reactions. Many other emotional or cognitive context variables could be of importance. As yet, most of them are undefined. Freedman et al tested one <u>cognitive</u> context variable - difficulty of thought to be expressed - and found it to have little influence. They tested one <u>emotional</u> context variable - cold versus warm interviewers - and it showed significant influences on gestural behaviour. The search for the full context is only beginning.

One emotional context variable of possible importance comes to mind. It is important because it has been present consistently in experimental research. This is the motivation to talk, to communicate. Freedman et al, as well as other researchers mentioned earlier, have worked with individuals who willingly participated in the experiment and obviously wanted to communicate or talk as efficiently as possible. The experimental situation is certain to influence the subjects' emotional involvement in the situation. The subject may be influenced by competitive performance factors and evaluation.

He has agreed to be in the experiment and may now want
to comply to the experimenters' expectations, etc. Moti-
vation or wish to communicate is thus an emotional variable
of a very basic kind in the context of the occurence of
gestures. Cognitive inferences thus might be made only after,
and as subsidiary to emotional inferences.

Validity of Emotional Inferences

Studies discussed earlier, searching for a link between
nonverbal behaviour and arousal, have found correlations
between various feelings or emotions and the occurence
of kinetic behaviour. Often gestures in particular were
mentioned (Sainsbury, 1955; Spiegel & Machotka, 1974, etc.).
The argument was over what specific feeling or emotion could
be inferred. As in the early experimental studies on emotio-
nal recognition in facial expressions, investigators mentio-
ned in an earlier section (see page 19) have not restricted
themselves in their interpretations to broad categories of
emotions, but rather have attempted to relate movements to
finely differentiated feelings and attitudes. Differentiation
of emotion, however, has always been a problem. Theories of
emotion concerned with the number of dimensions that would
be necessary to describe discriminable differences in the
expression of emotion have mostly narrowed the range to an
evaluative dimension of positive-negative, plus an activity
dimension (active-inactive). Nor has the physiological
differentiation of feelings and emotions been successful
(Woodworth & Schlosberg, 1954; Korman, 1974). It is therefore

doubtful that nonverbal behaviour researchers will find a simple answer to the differentiation of emotion in behaviour. Arousal and activation theories, which provide the theoretical base for the idea that emotion will "overflow" into behaviour (Duffy, 1948; Woodworth, 1954; Morgan & Stellar, 1950, etc.), have pointed out that if the answer to differentiation is not to be found in physiological or behavioural patterning, it might well be situational factors that are the determinant. Considering the attitude and feeling research discussed earlier (see section on "nonverbal behavior as index of temporary mood states), an approach using less differentiated interpretations appears recommendable. Gestures have been found to correlate positively with widely varying feelings and attitudes, such as honesty, persuasiveness, feeling friendly, etc. For all these, a base feeling could be postulated. This feeling may be a positive, open other directedness, attempting to establish an emotional acceptance relationship with another person. A shorter term characterizing this feeling might be "involvement with the other person". Situational and other context variables could then lead to variations in feelings and attitudes mentioned above.

If this particular basic feeling is applied to the verbal interaction context, it could answer the question posed earlier: Under what conditions will gestures be employed in verbal interactions? Gestures will occur if the speaker feels emotional involvement with the listener. Therefore, in verbal interactions we have to consider

emotional intent and perception as separate from cognitive

intent and understanding. This points to a necessary

distinction in useage of the word "communication". Communi-

cating and talking are usually treated as if they were iden-

tical. Often these two terms are not distinguished on the

basis of any clear cut criteria. The following definition

was reached by Wiener et al (1972) after an extensive review

of the useage of the term "communication": "Communication is

actively making one's experience public to some other person".

Three examples, however, will demonstrate the ambiguity

of this definition: (1) A person, trying to convey his

feelings to another person, maybe a friend. (2) A person

giving a presentation at a meeting, freely talking about

his ideas and research, without the use of notes or memo-

rized sentences. (3) A person at a presentation, but this

time reading a prepared statement. Are all three communicating?

The conscious, cognitive intent, according to Wiener et al's

definition, might be the same in all three cases. The

individuals are actively making public their ideas or

experience. In all three cases the end result might be

understanding the conveyed cognitive meaning by the audience

or listener. What is different are the observer's feelings.

Sometimes one has the impression that the speaker is just

talking to keep his audience occupied, entertained, or what-

ever, while his innermost thoughts are not really being

expressed. If the speaker has no interest in the reaction

of the other, "communication" is reduced to verbal state-
ments. At other times, one gets the impression that the
speaker is fully involved with his material and his
audience.

Intent to establish a relationship with the listener
is much more likely to evoke physiological arousal than
is the "couldn't care less" attitude. Arousal and activation
theories describe how the cerebral cortex is diffusely
stimulated and activated by discharge of the reticular
formation, resulting in activation of the organism. Arousal,
therefore, will express itself in behaviour. If openess
exists in the communication, the behavioural direction
will be consistent with internal intent and feeling. The
gestures will be other directed, and open. If the speaker
is rejected, arousal may be expressed in self directed
"body directed" movements. If there is no listener visible
the direction determinant is missing, and movements become
autistic or body oriented.

In true communication, as distinguished from "talking"
there will be concern with the ongoing emotional relation-
ship that is created.

Communication as an Interaction Process
Between Speaker and Listener

Wiener et al (1972) have criticized the one-sidedness
of much nonverbal behaviour research which tends to show

an inclination to look at observer's inferences as an answer to all questions about the meaning of kinetic behaviour. This results in an unbalanced proportion of decoding to encoding studies. Yet, they themselves fall into the same trap by going the an extreme in reversing the mistake they criticize in others. Their definition of communication ("actively making ideas, experience, or thought public") puts all emphasis on the speaker. Similarly Freedman et al's conclusions and interpretations are centered around an elementistic look at the speaker only, singled out from the process of verbal interaction.

Communication, as defined above, involves an _emotional quality in the interaction_ in an ongoing relationship. The essential _communication_ factor, absent in talking, is the feeling created by the actual ongoing relationship during encounter in both the stimulus person and the observer. Both the emotional intent of the speaker and the listener's impression of it are therefore intricate parts of communication. Experimental investigation requires a consideration of both these aspects.

Chapter 3

AN INVESTIGATION OF THE ROLE OF HAND
MOVEMENTS IN COMMUNICATION

It is suggested that 'talking' is different from
'communicating' because of an internal motivation to
establish an emotional tie with the other person, to
establish understanding and an acceptance reaction in the
other person. In addition, the speaker must be interested in
the reaction of the listener, and there must be the perception
of such emotional intent by the listener. It is hypothesized
that if other directed gestures are present when one is speaking
in a face to face situation, more than purely cognitive expla-
nation or conversation is being attempted. (Under the category
of "other directed hand movements", all hand movements occuring
at a distance from the speaker's body are included.) It is also
hypothesized that the occurence of other directed gestures
indicates to an observer the speaker's emotional involvement
with the person being addressed. As shown in the review section,
body movement and gestures, in particular, have in the past been
found to be positively correlated with the occurence of various
attitudes. It was suggested that the basic feeling of opening up
towards another person in an attempt to establish an emotional
understanding might be an essential component in inferring atti-
tudes and traits such as friendliness, truthfulness, etc. which
the speaker possesses. On the other hand, anxiety, an emotion
inferred by many researchers from the occurence of gestures, could
result in mental and physical retreat away from the anxiety
causing conversation partner or situation, or in extensive
reaching out.

Six predictions follow from these hypotheses:

(1) Speakers making frequent use of other directed gestures
will be perceived as more emotionally involved in the
conversation than speakers using few or no other directed
hand movements.

(2) Speakers making frequent use of other directed gestures
will be perceived as more sociable, friendly, and honest,
in general, than speakers using few or no other directed
hand movements.

(3) No consistent relationship exists between a speaker's
use of other directed gestures and impression ratings
regarding anxiety of the speaker.

(4) Speakers making frequent use of other directed gestures
will rate themselves as more involved in the communication
situation than subjects (speakers) making infrequent use
of other directed gestures.

(5) Speakers making frequent use of other directed gestures
will rate themselves as more sociable, friendly, and honest,
in general, than speakers using other directed gestures
infrequently.

(6) Self ratings on anxiety will not be directly related to
the use of other directed gestures.

The first three predictions above have to do with
the observer's impression or perception of the speaker's
involvement in communicating. Predictions four through
six have to do with the speaker's perception of his own
involvement in communicating. A test of these last predictions
is important in determining the veridicality of the observers'

impressions. The two sets of predictions were investigated separately.

OBSERVER IMPRESSIONS

Methodology

Test Tapes. In order to control for possible differences in presentation which would have occured with "live" speakers, videotapes, without sound, were used to present speakers unfamiliar to the observers. The absence of sound ensured that the observers' reactions were not affected by verbal content. The observers recorded their impressions on coded questionnaires. A simple questionnaire (Appendix 1) was designed to reflect, in ratings from one to ten, the observers impressions of "involvement of the speaker". An attempt was made to differentiate the speaker's "involvement with the topic of discussion" from "involvement with the audience". There was also an attempt to differentiate between "involvement with the audience"for self-centered reasons, such as a personal concern about getting one's ideas across, and "involvement with the audience" because of a genuine interest in the listener. Such differentiations are encouraged by questions one to three in the questionnaire. Questions four to seven are designed to get at the observers' impressions of the speaker's attitudes, such as anxiety, honesty, friendliness, and sociability. The latter three involve the basic feeling of attempting to establish an emotional relationship. The ratings on questions one to seven ask only for consciousness regarding the impression

formed <u>per se</u>, but not necessarily for conscious awareness
of the cues responsible for these impressions. To test for
potential conscious awareness of the specific cue "gestures"
questions eight and nine were included.

Five different persons (three female, two male) were
videotaped during fourth year psychology seminar presenta-
tions. All knew that their talk was to be recorded and had
agreed to the taping. Filming was done through a one-way
mirror. The entire presentation of approximately two hours
was recorded for each of the five persons. The speakers
were filmed so that only the speaker showed on the video-
tape. From these original recordings, two test tapes were
made. Test Tape One consisted of a total of three minutes
of excerpts for each speaker from the original tapes, during
which the speaker used other directed gestures (any gesture
showing a characteristic directionality towards the audience
or listener and occuring at a distance from the body sur-
face), frequently or constantly. Test Tape Two consisted of
a total of three minutes of excerpts of the same person's
presentation while using no hand movement at all. With the
exception of sound, the tapes were not edited in any other
way. Smiles, turning towards persons in the groups, etc.,
if occuring, were visible on both Tapes One and Two.

<u>Equipment</u>. A Sony Portable Videocorder, model AV
3400 was used for recording, and a Sony portable monitor with
a ten inch screen was used for viewing of the $\frac{1}{2}$ inch videotapes.
A Heuer Trackmaster Second Timer was used for timing.

Subjects. Thirty-six students (22 male, 14 female) enrolled in first year psychology courses, served as subjects in the experiment. Ages ranged from 19 to 35 years with a mean of 23.4.

Procedure

Subjects in their customary course discussion groups saw either Test Tape One or Test Tape Two. The tapes were assigned randomly to the groups. When the subjects arrived in class, they were told that an experiment in person perception was going to be conducted, and everyone was asked to cooperate. However, the choice to leave was open to any individual having specific objections against participation. No one chose to leave. Subjects of the group to be tested were then asked to move their chairs to allow for comfortable viewing of the television screen. Copies of the questionnaire were distributed, and the explanatory introduction read aloud by the experimenter. Subjects were then invited to ask any questions to clear potential ambiguities in their task. The first three minute segment (Stimulus Person One) was then shown. After conclusion of this segment, the monitor was turned off, and subjects were asked to record their impressions on the questionnaire. No specific time limit was set, but it was made clear that the subjects should not spend too much time in evaluating their judgements, but rather should use "first impressions". After everyone in

the group had finished, the subjects were asked to re-

direct their attention to viewing Stimulus Person Two on

the screen. This sequence continued through presentation

of Stimulus Person Five. After recording their impressions

on the last stimulus person, members of the subject group

were asked to record any possible personal acquaintance

with any of the stimulus persons seen on the tapes. None

of the subjects reported having even superficial acquain-

tance with any of the speakers.

Results

Questionnaire responses were analyzed using a mixed

ANOVA design for one between subjects and one within

subjects variable (Myers, 1972). The results are shown

in Table 1. An analysis of the results indicates that

observers who saw Test Tape One (use of other directed

gestures), compared with observers of Test Tape Two (no

use of any hand movements) reported significantly more

favourable mean ratings for all stimulus persons on all

questionnaire items with the exception of ratings on

anxiety. Thus, the speaker frequently 'reaching out

towards the other ' in physical terms, is perceived as more

interested in the audience and conversation topic; and more

favourable inferences about general traits such as honesty,

sociability, and friendliness are drawn.

Inspection of the ANOVA table shows that the ratings

of interest in the topic, interest in making oneself under-

stood and interest in the audience (the three categories used

Table 1

SUMMARY OF ANOVA's FOR OBSERVERS IMPRESSION RATINGS ON QUESTIONNAIRE ITEMS 1 - 7

ITEM	HANDMOVEMENTS (H)			STIMULUS PERSON (StP)			H x StP		
	MS	F	Error MS	MS	F	Error MS	MS	F	Error MS
Interest in topic	123.25	*** 42.06	2.93	17.8	*** 5.89	3.02	3.93	1.30	3.02
Interest in making understood	91.12	*** 22.78	4.00	8.19	1.71	4.78	4.49	0.94	4.78
Interest in audience	79.38	*** 25.44	3.12	17.31	* 4.07	4.25	7.08	1.67	4.25
Socia-bility	18.60	* 5.39	3.45	9.22	* 2.55	3.12	5.41	1.49	3.62
Friendli-ness	20.48	* 4.72	4.34	20.93	*** 7.22	3.90	9.23	** 3.18	2.90
Anxiety	1.12	0.14	7.93	20.1	*** 6.22	3.23	22.38	*** 6.93	3.23
Honesty	42.32	** 12.34	3.43	22.09	8.09	2.73	3.58	1.31	2.73

*** p < .001   ** p < .01   * p < .05

H: df= 1
StP:} df= 152
H xStP:}

to reveal potentially perceived specification of the kind
of involvement) are significant at the .001 level when the
hand movement - no hand movement tapes are compared.
Ratings for sociability and friendliness as general perso-
nality traits are significant at the .05 level, and ratings
for honesty as a personality trait at the .01 level. The
difference between the .01, .05 versus the .001 level may
suggest that observers are more cautious in making inferences
about personality, or at least in making statements regarding
such inferences on the basis of first impressions. This
conclusion is supported somewhat by the observers' voiced
doubts during the experimental sessions about the validity
of doing ratings on questionnaire items four to seven.
Subjects feeling reservations about making inferences of a
general kind were reassured that all that was required of
them was to make guesses at the stimulus person's personality,
and that if they felt that even such guesses were unjustifi-
able, they could leave the relevant ratings blank. No subject
actually took the latter option, but the doubts may be
reflected in the significance level for trait inferences
as compared with ratings about individual speakers in the
momentary situation. This suggests that the arousal in the
speaker in "communication" is a situation-oriented feeling
that is perceived and interpreted as such in the viewer. It
also suggests that perceivers do, if only reluctantly, make
inferences about general behavioural traits, utilizing the

basic feeling perceived and that the particular, presently perceived feeling in this study does relate in significant ways to the formation of impressions about friendliness, honesty, and sociability.

The Stimulus Person effect in the ANOVA shows that stimulus persons are differentially effective in securing high ratings when the use of gestures is partialled out on most questionnaire items. Despite the remaining, unknown determiners of impressions, gestures have a significant overall effect resulting in higher mean ratings for the entire range of individual ratings on stimulus persons using hand movements.

The interaction effect of the hand movement variable and stimulus persons was not significant except in the case of friendliness. On the basis of the occurence of other directed hand movements, inferences about "friendliness" as a general personality trait can therefore be drawn with caution only, and require further investigation. All other interaction effects, however, again with the exception of anxiety ratings, were not significant; that is, the simple effect of the hand movement variable was constant at all levels of the stimulus person variable. The results are therefore not limited to individual stimulus persons only.

Data pertaining to anxiety ratings revealed that individual stimulus persons were rated significantly ($p < .001$) different. Similarly, the interaction effect was significant

(p<.001), but the main effect was not found significant
in itself. Therefore, it must be concluded that the relation
of hand movements, as employed in this study, to anxiety
is perceived and interpreted differently by different
observers and,furthermore,varies with the stimulus person.
This again confirms the predictions. It also suggests the
instability of the interpretation of gestures in relation
to anxiety and nervousness across observers. Some observers
did mention general movement or "too many gestures" as a
specific cue in their decision that the stimulus person was
an extremely nervous speaker. Others interpreted movement
of the same stimulus person as "relaxed, and obviously
enjoying the conversation". Comments such as these, on
questionnaire items eight and nine were, however, infrequent.
They varied widely, had no obvious direction,and were un-
suitable for statistical analysis of any kind. Only two
subjects mentioned gestures in particular as a cue used
in the impression formation process.

The results fully support predictions one to three.

SPEAKER SELF IMPRESSIONS

Originally it had been planned to obtain self ratings
by the videotaped speakers in order to test predictions
four through six. These predictions are (1) Speakers
making frequent use of other directed gestures will rate
themselves to be more involved in the communication

situation than subjects using other directed gestures in-
frequently. (2) Speakers making frequent use of other
directed gestures will rate themselves as more sociable,
friendly and honest, in general, than speakers using other
directed gestures infrequently. (3) Self ratings on anxiety
will not be directly related to the use of other directed
gestures. Due to the high rate of non-return of the self
rating forms by the original speakers, a second study had
to be conducted to investigate speakers attitudes regarding
their feelings and concerns towards their communication
partners.

The procedure of this experiment was suitable to
test for the kind of involvement: involvement primarily with
the topic of conversation versus involvement primarily with
the listeners as the main object for other directed gestures.
In other words, does the arousal come from within the
speaker, "overflowing" into the context, or is it induced
from without. It was hypothesized that other directed
gestures are evoked by the specific qualities of an interaction
process between speaker and addressee and, thus, that arousal
is not independent of the context. The following prediction
was added to the previously stated predictions: Frequency
of occurence of other directed gestures should be equal
over various topics of differential interest to the speaker,
as arousal will be determined by interest in the listener
and audience rather than in the topic itself (Prediction 7).

Methodology

    <u>Subjects</u>. A new subject pool was formed, attempting
to duplicate a natural communication situation as far
as possible. This situation did not allow for direct
experimental control of motivation to communicate. How-
ever, as pay was offered for participation, it was expected
that some subjects would participate mainly for financial
reasons and others because they basically liked the idea
of getting together with other persons to discuss different
topics. Thus, self reports on interest in the audience,
assuming honesty in these reports, should correlate,
according to the hypothesis and predictions, positively with
the frequency of other directed gestures.

    Eighteen subjects (10 male, 8 female) participated in
the study in the role of speakers as well as observers and
listeners. Ages ranged from 18 - 52 years, with a mean of
24.1 years. All subjects were students in introductory
psychology classes and volunteered to participate in the
experimental discussion groups. All subjects were aware at
the time of signing up for participation that they would be
paid $ 5.00 after conclusion of the experimental session.
When signing up for participation in the experiment, subjects
were given Instruction Sheet A (Appendix 2) explaining the
task. Each subject thus had time and opportunity to prepare
to talk on three topics of his or her choice. One topic had
to be of great interest to the speaker; one held little or no
real interest; and one topic had to involve negative interest.

Questionnaire. With minor changes in appropriate wording, the questionnaire previously used for observers' impression ratings (Appendix 1) was also used for self ratings. However, in this study questions regarding honesty as a general trait were not included as self ratings on this particular variable were most likely to be distorted.

Equipment. A Sony Portable Videocorder, Model AV 3400 was used for recording, and a Sony portable monitor with a ten inch screen was used for viewing the $\frac{1}{2}$ inch videotapes. A Heuer Trackmaster Second Timer was used for timing.

Procedure

The experimental sessions took place in a soundproof seminar room with chairs in a pre-arranged half circle, spaced approximately $1\frac{1}{2}$ feet apart and facing a one-way mirror. Each chair had a cardboard sign with a code number on it. Subjects were introduced to the camera equipment behind the one-way mirror in the adjoining recording room and were assured that their talks and discussion would be recorded for experimental scoring purposes only. They were asked to pay as little attention as possible to the cameras which were not visible to them. Observation during the sessions and verbal reports given by the subjects after the experiment showed that little attention was paid to the filming equipment after the sessions got underway.

Instruction Sheet B (Appendix 3) was passed out. The subjects were asked to read these and to ask any possible questions before beginning the discussions. A light used

for signalling time to change speakers was demonstrated.
Subjects were asked to use the first few minutes to get
acquainted with each other and to start their talks when
the first signal light was given. The experimenter then
went to the recording room, closing doors to the seminar
room and leaving the group on its own.

After three minutes, the pre-arranged light signal
was given for subject one to start his first presentation.
During the individuals' talks, the camera was focused on
the speaker taking close-up recordings. Discussions conti-
nuing for more than four minutes after the original three
minutes of presentation were signalled to be terminated.

After all participants had presented and discussed
all three topics, the experimenter re-entered the seminar
room, thanked them for their cooperation, listened to and
encouraged comments on the discussion session and its
atmosphere. Finally, subjects were asked to fill out two
questionnaires. The Self Rating Questionnaire (Appendix 4)
was presented first and explained according to the instruction-
paragraph. After everyone in the group had finished these self
ratings, the Observer Impressions Questionnaire (Appendix 1)
was distributed. Instruction Sheet C (Appendix 5) was read
aloud to the subjects, and they were asked to complete their
ratings on team members, using the code numbers from the
cardboard signs on the chairs. After conclusion of their
ratings, subjects were thanked again for their cooperation

and paid the promised amount of $ 5.00.

Scoring the videotapes. Subjects varied in their
use of the actual proposed three minute presentation time.
Therefore, only the first two minutes of actual speaking
time were scored for the frequency of other directed
gestures. Frequency of gestures was recorded in seconds
per two minute period. The reliability of scoring was
determined by having two judges independently score five
presentation segments of speakers in different groups. The
time scores for other directed movements obtained from each
of the two judges provided a correlation coefficient of
.92. This shows high agreement by the judges on the occurence
and duration of other directed hand movements.

Results

Table 2 shows seconds of other directed gestures for
all subjects across the three experimental conditions
(Topic One, Two and Three). Individual frequencies of the
occurence of other directed gestures over topics, as dis-
played in this table, are remarkably stable for most speakers.
Observation of style of movement on the videotapes pointed
to similar individual consistency in variables such as
average duration of each gesture, speed of movements, and
radius of gestures. The tapes also showed an apparent
repertoire of individually characteristic movements such
as left to right motions, circle motions, etc.

The data were analyzed using an Analysis of Variance

Table 2

SECONDS OF OTHER DIRECTED GESTURES USED BY SUBJECTS
DURING PRESENTATION OF TOPICS
1, 2 and 3

Subject	Topic 1 (great personal interest)	Topic 2 (negative personal int.)	Topic 3 (no interest at all)	Total
S 1	6	1	0	(7)
S 2	6	15	6	(27)
S 3	70	46	8	(124)
S 4	19	7	7	(33)
S 5	48	54	71	(173)
S 6	50	40	38	(128)
S 7	3	7	0	(10)
S 8	44	68	59	(171)
S 9	8	9	11	(28)
S10	10	21	10	(41)
S11	10	48	33	(91)
S12	12	25	21	(58)
S13	11	40	25	(76)
S14	35	26	25	(86)
S15	16	20	21	(57)
S16	5	45	38	(88)
S17	31	35	40	(106)
S18	54	72	64	(190)

for a One Factor Repeated Measurement Design (Myers, 1972).

Table 3 shows the results of this analysis. They indicate

that subjects' varying interest in the topic as a variable

has no effect on frequency of use of other directed

gestures. This supports the prediction that the use of

other directed gestures is determined by the interaction

context of interest in the other person or relationship to

that person,rather than by emotional arousal based on

factors independent of the communication partner.

However, the data did not strongly support another

hypothesis more crucial to the original assumptions. The

correlation coefficient for the relationship between self

ratings on interest in the audience and frequency of gestures

was +0.37 (Table 4, p.57) . For significance at the .05 level

(N=18) a correlation coefficient of .399 would have been required

(one-tailed test).Similarly, the positive correlation of .34

(see Table 4) between self ratings regarding interest in

making oneself understood and frequency of other directed

gestures falls short of being significant. Self ratings on

"sociability" nearly reach the required level of significance

(r_{rho}= .38) while correlations between self ratings on

anxiety and friendliness and frequency of occurence of

other directed gestures are low and not significant

(+0.17 and +0.13 respectively).

In comparison, correlations between observer's ratings

(Table 5, p. 58) and the frequency of gestures used by

the speaker are high and significant for all questionnaire

Table 3

ANOVA FOR FREQUENCY OF GESTURES USED DURING
PRESENTATION OF TOPIC
1,2 and 3

Source	df	SS	MS	F	
T (Topic)	2	754.7	377.35	2.60	(Treatment effect: n.s.)
S (Subject)	17	18366.82	1080.40		
ST	34	4928	144.94		

Table 4

RELATIONSHIP OF FREQUENCY OF USE OF GESTURES TO
SELF RATINGS

Rating on	r_{rho}	Required for significance	
		Level of Significance for one-tailed test	
		.05	.025
Interest in making understood	+0.34	**Level of Significance for two-tailed test**	
		.10	.05
Interest in audience	+0.37	df	
		16 .399	.4683
Sociability	+0.38		
Anxiety	+0.17		
Friendliness	+0.13		

Table 5

CORRELATIONS OF SPEAKER'S USE OF GESTURES AND
OBSERVERS IMPRESSION RATINGS

Rating on	r_{rho}	Significance Level
Interest in making understood	+0.66	$p < .005$
Interest in audience	+0.71	$p < .005$
Sociability	+0.64	$p < .01$
Anxiety	−0.44	n.s.
Friendliness	+0.64	$p < .01$

items. Gestures thus again showed the capacity of inducing favourable impressions when used frequently.

Inspection of tables six and seven points to a possible shortcoming of this study. All speakers claimed relatively high interest in the audience and in being understood. Also, all rated themselves as being,in general,quite high on sociability and friendliness. The range of ratings extends only from six to ten (with means of 7.9, 7.5, 7.8 and 8.2) in comparison to a range of ratings from two to ten (means of 7.02, 7.22, 7.03, 7.52) used by observers. The range of self ratings obtained is thus clearly not representative as it does not allow a comparison of the frequency of hand movements of speakers who admittedly have relatively low interest in their audience with the frequency of gestures for speakers claiming relatively high interest.

Despite the fact that nothing definite can be decided with regard to the hypothesis that frequency of occurence of other directed gestures relates to the speaker's feelings of involvement with the audience, several interesting trends are suggested by the data:

Table 6 (p.60-61) shows a comparison of self ratings with mean ratings given to the speaker by the audience. For a clearer overview, Table 8 (p.64) presents the same data in form of discrepancy figures between self ratings and audience ratings, ordered according to relative frequency of gestures used by individual speakers. It becomes clear

Table 6

SELF RATINGS GIVEN BY SPEAKERS, AS COMPARED TO IMPRESSION RATINGS GIVEN BY THE AUDIENCE ON THE SAME QUESTIONNAIRE ITEMS.

Subject	Interest in topic	Interest in making understood	Interest in audience	Sociability	Anxiety	Friendliness
1	9/3/5 (6)	8 (4.6)	9 (4.2)	8 (6)	2 (7.7)	8 (6.5)
2	10/6/1 (6)	9 (6)	10 (5)	10 (6.2)	2 (5.8)	10 (6.2)
3	10/2/5 (9)	10 (8)	10 (9)	10 (9)	2 (5.3)	10 (8)
4	9/5/2 (6.3)	6 (4.5)	7 (4.5)	7 (6.1)	7 (5)	8 (6.3)
5	9/2/8 (9)	8 (8.6)	8 (7.9)	8 (7.4)	7 (3.6)	8 (8.2)
6	9/6/9 (7.2)	7 (8)	8 (7.4)	8 (8.2)	4 (5.4)	8 (8.2)
7	4/1/9 (5.6)	6 (6.6)	9 (6.6)	7 (6.4)	5 (4.8)	9 (7.4)
8	10/5/7 (8.8)	10 (8.2)	8 (8.2)	7 (6.8)	8 (4.4)	7 (7.4)
9	10/7/10 (5.4)	8 (4)	10 (3.9)	8 (4)	5 (7.8)	7 (4.9)

(Audience ratings are given in brackets)

Table 6, cont.

Subject	Interest in Topic	Interest in making understood	Interest in audience	Sociability	Anxiety	Friend-liness
10	8/5/2 (7.9)	8 (7.6)	8 (7.6)	7 (7)	1 (4.2)	8 (7.6)
11	9/8/3 (8.3)	6 (8.5)	7 (7.3)	5 (6.8)	5 (5)	7 (8.5)
12	7/6/4 (8.5)	8 (8.3)	8 (7.3)	8 (7.6)	6 (4.3)	9 (8)
13	7/10/4 (8.8)	9 (8.8)	6 (8)	6 (7.8)	4 (3.5)	10 (8.5)
14	10/10/1 (7)	9 (7.9)	9 (8)	8 (6.8)	9 (8.3)	8 (7.5)
15	8/4/3 (9)	8 (8)	8 (8)	8 (7.6)	3 (3.2)	8 (8)
16	9/3/1 (7)	6 (7)	8 (7.5)	7 (6.5)	8 (5)	9 (7.5)
17	8/8/7 (10)	7 (7)	8 (7.5)	8 (7.5)	1 (3)	5 (8.5)
18	8/7/2 (6.5)	9 (8.5)	8 (8.5)	10 (9)	2 (2.5)	9 (8.5)

Table 7

RANGE OF RATINGS GIVEN BY OBSERVERS ON
QUESTIONNAIRE ITEMS 1 - 7

Rating on speaker	Interest in subject	Interest in making understood	Interest in audience	Sociability	Friendliness	Anxiety
1	5-7	4-5	4-5	6	5-7	7-8
2	6-7	5-6	5	6-7	6-7	3-9
3	8-9	8-10	8-10	8-10	7-10	3-8
4	6-7	4-5	4-5	6-7	6-7	2-7
5	8-10	7-10	7-8	6-8	7-10	1-8
6	4-8	6-10	6-9	7-10	6-10	2-9
7	4-8	5-7	5-7	6-7	6-8	3-9
8	6-10	6-10	6-10	5-9	5-9	1-7
9	4-8	2-5	2-5	3-5	3-6	2-9
10	7-9	6-8	5-9	6-8	6-8	2-8
11	7-10	7-9	6-9	4-8	7-9	4-6
12	7-9	7-9	5-9	5-9	7-9	1-8
13	8-10	7-10	7-9	5-9	7-10	3-5

Table 7, continued

Rating on speaker	Interest in subject	Interest in making understood	Interest in audience	Sociability	Friendliness	Anxiety
14	7	7-9	6-9	5-8	5-9	7-10
15	7-10	7-9	6-9	6-9	7-9	2-5
16	6-9	7-8	7-8	6-7	7-9	2-8
17	8-10	6-8	7-8	6-9	5-9	1-4
18	6-8	8-9	7-8	9-10	8-9	2-3

Table 8

DISCREPANCIES BETWEEN SELF- AND IMPRESSION RATINGS

+: self rating is higher than mean impression rating given by observers
-: self rating is lower than mean impression rating given by observers

SPEAKER	Seconds of gestures used in 6 min. talk	Making understood	Interest in audience	Sociability	Friendli- ness	Anxiety
1	6	3.4	4.8	2	1.7	-5.7
7	10	-0.6	2.4	1.4	1.6	0.2
2	13	3	5	3.8	3.8	-3.8
9	28	4	6.1	4	2.1	-2.8
4	32	1.5	2.5	0.9	1.7	2
10	41	0.4	0.4	0	0.4	-3.2
15	57	0	0	0.4	0	-0.2
12	58	-0.3	0.7	0.4	1	1.7
13	75	0.2	-2	-1.8	1.5	0.5
14	86	1.1	1	1.2	0.5	0.7
16	88	-1	0.5	0.5	1.5	3
17	106	0	0.5	0.5	3.5	-2
3	124	2	1	1	2	-3.3
6	128	-1	0.6	-0.2	-0.2	-1.4
8	171	1.8	-0.2	0.2	-0.4	3.6
5	173	-0.6	0.1	0.6	-0.2	3.4
18	190	0.5	-0.5	1	0.5	-0.5

from these two tables that there is a tendency for
agreement between self ratings and audience ratings to
decline with very low frequency in the use of other direc-
ted gestures. Persons in the "low frequency group" (Speakers
1,7,2,9, and 4) certainly did not at all create the impres-
sion they thought they conveyed or wanted to convey.

Table 7 (p.62) presents the range of ratings given to
each subject on each questionnaire item. Anxiety ratings
tend to be spread consistently over a wider range than
ratings for any other variable. As mentioned before, observers
don't seem to agree on interpretations of movements as an
indication of anxiousness. Anxiety, by some observers, was
assumed to result in tenseness due to restraining of
arousal (and therefore a low frequency of movement was seen
as an indicator of anxiety) while others expected it to
"overflow" into behaviour (high frequency of movement to
release tension was therefore seen as an indicator of anxiety).

Discussion

It was suggested that true 'communication' involves
the observer's feeling that the communicator is interested
in conveying ideas and establishing a relationship between
himself and the listener. Results of both studies described
here clearly show that cues for the observers having such
an impression are tied to the frequency of hand movements
on the part of the communicator. However, it remains open

whether such perception is actually veridical. It was
mentioned in the result section of the second study that
the range of self ratings did not allow for a comparison
of the gestures of speakers with relatively high versus
relatively low interest in the audience. Nevertheless, some
speakers claimed high interest in the audience yet exhibited
low use of other directed gestures. Does this in itself speak
against the hypothesis presented? Three possibilities are
evident. (1) Other directed gestures are an important cue
in impression formation regarding emotional involvement of
the speaker but their occurence in the speaker actually
relates to other, unknown variables. (2) Speakers with high
self ratings, but low frequency of gestures may give a
distorted report about their actual feelings. (3) Self ratings
of speakers with low frequency of gestures may give a true
indication of their actual feelings, but these subjects
have problems in the behavioural expression of these feelings.

The very fact that the subject sample showed a normal
distribution in the frequency of gestures used, but skewness
in the distribution of self ratings suggests that either
the second or third possibility just mentioned is most likely.
In support of the second possibility, it has to be considered
that it may be overly optimistic to expect self assessment
in questionnaire form to be an undistorted   reflection of
actual feelings. Other studies have reported problems in
similar approaches. For instance, Jurich & Jurich (1974)

is a comparison of subjective and objective measures of
anxiety, report that their subjects seemed deliberately
to have chosen their answers in reporting their own
anxiety so as to appear less anxious. Jurich & Jurich
quote Edwards et al (1970) as pointing out that the social
desirability of an unanxious answer may cause a subject to
distort his perception of his own anxiety. Similar mechanisms
might have been contaminating results in the present study.

The third possibility mentioned above is partly suppor-
ted by incidences occuring in this study but not evident from
the data itself. For instance, it came to the attention of
the experimenter after the conclusion of both studies that
subject nine in the second study had repeatedly visited the
University Counselling Centre because of an inability to
make friends despite desparately wanting to do so. Other
speakers, as well as subject nine, in the low frequency
hand movement group showed a great tendency to discuss
"personal negative topics" - topics where they could not be
sure about acceptance from the little known members of the
audience. Their topics included: a pending divorce and
reasons behind it; strike breaking that one speaker had
personally organized; and, in general, views which directly
contradicted the expected philosophies of the average
university student. The high frequency hand movement group
in contrast, tended to talk about more "general" topics,
or topics which were "plus" for the speaker and were also not

likely to evoke any antagonism - returning to school after
a business career, etc.

Thus, low frequency use of other directed gestures
in subjects of the second study, tends to point towards
a problem of emotional expression. Although it is suggested
here that low frequency of other directed gestures is related
to non-involvement of the speaker, it also could be
indicative of "stiffness" produced by anxiety or other
emotional expression problems. The physical block against
reaching out towards the other might well be correlated
with psychological self centeredness. The person with prob-
lems in social interaction is probably preoccupied with his
own worries. He may be asking himself whether he will be
accepted, create a good impression, or be able to make
friends. The relationship to the other is important only
in providing answers to these worries, but not in itself.
The emphasis is on "receiving" rather than equally on
"giving". The wish to share with the listener something of
ourselves - of great importance in true communication- is
missing, and the listener or conversation partner is
reduced to a more or less feedback system.

Reich and bioenergetic theories would argue that
training in physical reaching out might overcome corres-
ponding internal "blocks" in feeling. William James
asserted that the appropriate feeling would follow a
specific behavioural reaction to a situation. Whatever
the essential point in improvement may be - correction of

behaviour in itself or, rather, the mental realization of
problems on account of recognizing one's reactive behaviou-
ral symptoms - nonverbal interaction training is already
applied in attempts to improve interpersonal relationships.
Some therapy groups claim success and improvement by using
non-verbal interaction situations to reproduce and make
participants realize the symptoms brought about by society,
such as isolation, loneliness, lack of cooperation, etc.
(Schwaerzel, 1974).

Maybe there is even a need for a more general program
on daring to express one's feelings behaviourally in
conversations and to learn how to do it in socially
acceptable ways. In the young child, the isomorphic
correspondence of behaviour and feeling is unbroken. If
the child is happy, he will physically jump up and down;
if angry, he will try to hit; if he feels close to someone,
he will reach out and touch. Telling a story is often
accompanied by motions physically acting out the contents,
parallel to the verbal description. However, socialization
procedures tell the child constantly to "keep quiet", and
even minor attempts to move while talking are often suppres-
sed by commands not to fidget, etc. In view of all the rules
about forbidden behaviour, we might learn to suppress the
behaviour and the corresponding feeling, rather than dis-
cover appropriate _and_ acceptable ways of expressing the
feeling.

To postulate the basic feeling of "involvement with the other" as the fundamental correlate for the occurence of gestures can explain contradictory results in studies reviewed earlier: for instance Rosenfeld's conclusion (1966) that gesticular rate correlated with relaxation versus Sainsbury's interpretations that it was correlated with anxiety states; also Mahl's findings (1966) that subjects reported feeling quite comfortable in a back to back conversation situation in which they showed increased use of autistic movements (in contrast to the general hypothesis that such movements indicate tenseness). If one feels open and relaxed, nothing will inhibit the other directedness of the emotional expression. In a condition of tenseness and anxiety, one might still try (and maybe even harder) to reach out for the other person, mentally and physically, especially towards the therapist, as was the case in Sainsbury's investigations. In the results of the Mahl study (Mahl, 1966) one has to take directedness into account. In absence of the visual stimulus of the other person, directedness of movement is lost.

The present data do not allow for unequivocal conclusions. However, since observers and listeners are obviously strongly influenced to make inferences about emotional involvement and interest on the basis of the use of gestures, it will be of importance for future research to investigate the non-use of gestures as a variable of importance in itself. "Non-involvement" as a possible category should be

included and research should be directed towards defining variables in a differentiation of non-involvement, anxiety, and emotional expression problems. Further questions of interest might be the following: the effect of hand movements on the development of an interpersonal relationship over time and their stability as a cue in maintaining observer's impressions of the speaker over time. Another important area of investigation is the personality variables of both the stimulus person and the observer. Such variables could affect the extent to which one uses gestures when feeling involved or the way in which an observer interprets and perceives gestures. Research should also be done to determine what other movements usually go along with the use of other directed gestures. The effects obtained in impression ratings certainly cannot be restricted to gestures alone, but rather suggest that hand movements may be the grossest and most obvious indicators, compared with more subtle body language signs. Preliminary scoring of the videotapes on speakers with regard to other categories of kinetic movement points to high co-occurence of other directed gestures, forward leaning towards the listener being addressed and eye movements directed towards the addressee.

Only extensive investigation of these and other research problems will lead to the point where causes, functions and meanings of nonverbal behaviours can be firmly specified.

Observer Impression Questionnaire

This research is concerned with impression formation. You will see five two-minute segments of videotapes of different persons in discussion-presentation sessions. After each segment you will be asked to rate the person observed according to impressions you have formed. In each segment please watch the specific person indicated to you. Watch in a natural, relaxed manner - as you would watch TV - ie. do not actively try to "find" reasons for specific impressions.

After each segment, you will have a few minutes to anwer the questions below.

Please circle the appropriate number:

1.) How interested to you think this person was in the material he/she presented?

(no interest
at all) 1   2   3   4   5   6   7   8   9   10 (extremely
                                                 interested)

2.) How interested do you think this person was in making himself/herself understood?

(no interest   (extremely
at all) 1   2   3   4   5   6   7   8   9   10 interested)

3.) How interested to you think this person was in the persons he/she was talking to?

(no interest   (extremely
at all) 1   2 , 3   4   5   6   7   8   9   10   interested)

4.) How sociable is he/she in general?

(not
at all) 1   2   3   4   5   6   7   8   9   10 (extremely)

5.) How friendly is he/she in general?

(not
at all) 1   2   3   4   5   6   7   8   9   10 (extremely)

6.) How nervous/anxious is he/she in general?

(not at
all)   1   2   3   4   5   6   7   8   9   10 (extremely)

7.) How honest is he/she in general?

(not
at all) 1   2   3   4   5   6   7   8   9   10 (extremely)

8.)
Anything else you would like to say about this person?

9.)
Was there anything in particular about the individual
that made you answer the questions the way you did ?
(please describe briefly, indicating what rating you are
referring to).

INSTRUCTION SHEET A

Research on: Person perception and interpersonal
communication

Task: Participation in a discussion group

(a) Presentation of three topics of your choice
(anything at all); you will be expected to talk
for approximately three minutes each on each
of the three topics.

(b) Completion of questionnaires after the discussion
session.

Pay: $ 5.00

Time required: approximately 1½ hours (9 minutes active
talking/presentation of your topics, 15 - 30 minutes
for completing questionnaires; the rest of the time your
task is to be "audience" while other persons in the group
are talking on their topics, and to respond to them, or
discuss their talk with them, after conclusion of their
presentation.

If you are interested to participate, please be prepared
to talk for the above mentioned time (three minutes each)
on:

(1) one topic that you are very interested in, personally
involved in, or that you find extremely important

(2) one topic that you are negatively interested in

(3) one topic which you personally find absolutely unim-
portant.

These topics can range from general, abstract problems or
philosophies (eg. your views on the world, politics,
women's lib...etc, etc.) to a more personal context. The
choice is up to you.

Please sign up for any of the times on the enclosed
schedule.

INSTRUCTION SHEET B

This research is concerned with interpersonal communication. Your task will be to form a discussion group. When the light signal is given for the first time, person A can begin presenting his first topic: the topic which is of great interest to you. Try to talk for approximately 3 minutes, but don't worry too much over timing. If your talk continues for too long, the light will signal you to end your presentation shortly. After the presentation, questions and a discussion involving all of you would be welcomed. Again, don't worry about time. After approximately four minutes of discussion, the light signal will appear, indicating that the next person's talk should begin soon. Progress to speakers B, C, D...etc. in similar manner as above and according to seating order.

After everyone has presented topic No. 1 (of great interest to you), start again with person A, and now present topic No. 2 (of negative interest to you). In the final round, please present topic No. 3 (of no importance or interest to you). If you have any questions, please ask now.

SELF RATING QUESTIONNAIRE

Please rate yourself on the following questionnaire
items. Don't spend much time thinking about any one
rating; rather, use your initial response. Information
on your self ratings will only be known to the experimenter
and will not be made available to anyone else. If you like
to ask any questions, please do so now.

1.) How interested were you in your presentation topic
    No. 1?
(no interest
at all)   1   2   3   4   5   6   7   8   9   10 (extremely)

2.) How interested were you in your presentation topic
    No. 2?
(not
at all)   1   2   3   4   5   6   7   8   9   10 (extremely)

3.) How interested were you in your presentation topic
    No. 3?
(not at
all)   1   2   3   4   5   6   7   8   9   10 (extremely)

4.) How interested were you in making yourself understood?
If you think this was an apparently constant factor in your
three presentations, please use only one rating. If, on
the other hand, you think your interest in making yourself
understood changed during your presentations, please use
three ratings, indicating which topic your are refering to.

(no interest
at all)   1   2   3   4   5   6   7   8   9   10 (extremely)

(no interest
at all)   1   2   3   4   5   6   7   8   9   10 (extremely)

(no interest
at all)   1   2   3   4   5   6   7   8   9   10 (extremely)

5.) How interested were you in your audience?

(no interest
at all)   1   2   3   4   5   6   7   8   9   10 (extremely)

(Do you feel you should give a different rating on this
point for your three different presentations? If yes, please
do so.

6.) How sociable are you in general?
(not at all) 1   2   3   4   5   6   7   8   9   10 (extremely)

7.) How nervous/anxious are you in general?
(not at all) 1   2   3   4   5   6   7   8   9   10 (extremely)

8.) How friendly are you in general?
(not at all) 1   2   3   4   5   6   7   8   9   10 (extremely)

INSTRUCTION SHEET C

The questionnaires you have just received are
concerned with impressions you have formed about
participants in this discussion group.

You have a number of questionnaires correspon-
ding to the number of persons present in this room,
excluding yourself. Each questionnaire is marked with
a code number. On the chairs of group participants
you will see the corresponding code numbers. Please
complete the appropriately coded questionnaire for
each person (excluding yourself). Progress quickly
with your ratings. Give your "first impressions" and
do not actively try to find reasons and justifications
for your impressions and ratings. Your responses will
be known only to the experimenter and will not be
made available to the person you are rating - so
please be open and honest in your responses.

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