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A MULTI-CHANNEL ANALYSIS OF MOTHER-CHILD INTERACTION

by

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A THESIS

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The undersigned certify that they have read and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled A Multi-Channel Analysis of Mother-Child Interaction submitted by Mitchell Levine in partial fulfillment of the requirements for the degree of Master of Education.

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ABSTRACT

In the mother-child dyad, interaction behavior of mother, child, and dyad was coded into certain channels within the verbal and nonverbal modes.

The study's objective was to explore the possibility of inter-channel and inter-mode relationships at the pragmatic level of communication.

Thirty-two mother-child dyads from a representative middle socio-economic area of the City of Edmonton were selected. The children ranged between four years and four years, eleven months old, and did not have any kindergarten experience. Videotape recordings of mother-child interactions were taken. The tapes were analysed in terms of verbal and nonverbal channels. Specifically, the verbal channels of acknowledgment, interaction, and frequency were correlated with Brady's (1969) and Darrah's (1971) nonverbal channels--total, positive, negative, range, and glancing.

The findings demonstrated 79 significant inter-mode and inter-channel correlations within both the person and dyad units, indicating redundancy at the relational level of communication. Results also pointed to different maternal control and instruction styles, both with implications for dyad communication patterns and child cognitive development. Some evidence was found for 'sex of child' being a meaningful interaction variable.

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CHAPTER I

INTRODUCTION

Statement of the Problem

Recent research and theory dealing with human interaction stresses that communication is a multi-channel phenomenon (Sebeok, Hayes and Bateson, 1964; Mehrabian, 1971). When people relate, they employ such channels as speech, voice pitch, eye movement, and hand gesturing to transmit messages. While the number of channels is large, each one is contained within either of the two basic communication modes--verbal and nonverbal.

Messages of two different types are usually being conveyed simultaneously during normal human interaction. One type of message concerns the content or theme of discussion while the other indicates the quality of the relationship between the discussants (Watzlawick, Beavin and Jackson, 1967; Wiener and Mehrabian, 1968). Theory holds that content messages are relayed almost exclusively by the verbal mode channels while relational messages are conveyed chiefly via nonverbal channels (Mehrabian, 1971).

Other recent research (Mishler and Waxler, 1968; Rommetveit, 1968), however, suggests that the transmission of relational messages is not restricted to the nonverbal mode. Indications are that verbal mode channels may also carry relational or pragmatic information. In a simplified sense, such multi-modal redundancy has long been

recognized (Davitz, 1964). For instance, the words "I love you" accompanied by a tender smile or caress provide a striking and obvious example of verbal-nonverbal redundancy at the pragmatic level of communication. However, Watzlawick, et al. (1967), contend that the above example is an isolated and rare occurrence; words seldom serve a 'command' or relational function. They argue that words are inappropriate for continual relating about relationship. This type of communication more typically (and functionally) occurs out of awareness, i.e., nonverbally.

Nevertheless, the verbal mode contains channels other than words themselves, such as those derived from the sequencing and patterning of word groups (Weinreich, 1963), that may, on further investigation, demonstrate pragmatic significance. Further, these channels, if operating beyond the awareness of the communicants, could transmit relational messages throughout the course of an ongoing interaction. As such, they would be operating analogously to and concomitantly with nonverbal channels, demonstrating that redundancy is an important concept not only in message structure and meaning but also in the behavioral patterns accompanying messages, i.e., the pragmatic level. However, these verbal channels have yet to be conclusively identified, and empirical correspondence between them and nonverbal channels remains to be found.

Brady (1969) and Darrah (1971) investigated the area of mother-child communication. The theoretical basis for their research was Hess and Shipman's (1965) proposition that the development of a child's cognitive abilities is mediated by social factors in his environment. For example, social variables such as maternal language style were shown to

either facilitate or inhibit a child's cognitive achievement. Brady and Darrah hypothesized that another important locus of social control might be found within nonverbal communication channels. They found nonverbal factors which both abetted and retarded child cognitive achievement, thus confirming their predictions about the importance of the nonverbal communication in human development. It seemed likely that Brady's and Darrah's data, having demonstrated the existence and significance of their nonverbal channels, could be expanded to include an investigation of verbal mode channels.

II. Purpose of this Thesis

The intent of this thesis is to:

1. Use the nonverbal channels developed by Brady and Darrah.
2. Select verbal channels that relate to the pragmatic level of communication.
3. Investigate the possibility of inter-relationships among channels, and between channels in the verbal and nonverbal modes.

The specific verbal and nonverbal channels selected are:

maternal acknowledgment
maternal interaction
maternal verbal frequency
maternal glancing
child acknowledgment
child verbal frequency
child glancing
dyad acknowledgment
dyad nonverbal behavior
dyad glancing
sex of child

Relationships found would provide further empirical support for the theory of multi-channel and multi-modal congruence at a pragmatic level of communication.

III. Limitations

This investigation was limited to the study of 'indicative' communication. That is, the researchers coded the dyadic messages with no attempt to find out how the subjects themselves were interpreting them.

The sample was restricted to 32 middle socio-economic class mother-child pairs, from which 20-minute videotaped samples of interaction were taken.

The nature of this research was exploratory. No specific hypotheses were generated.

CHAPTER II

REVIEW OF RELATED LITERATURE

I. Communication--The Scope

This section concerns the definition and delimitation of those aspects of communication related to this study.

Communication, broadly defined, is the encoding of experience in behavior (Wiener and Mehrabian, 1968). Behavior, seen as the manifestation of experience, has communicative significance, to the extent that it has overt or shared meaning. Thus, any or all behavior is potentially communicable.

Watzlawick, et al. (1967), also consider 'communication' to mean the behavioral concomitant of experience. They posit that all behavior in an interactional situation has communicative value and from this supposition conclude that,

> . . . it follows that no matter how one may try, one cannot NOT communicate. Activity or inactivity, words or silence all have message value: they influence others and these others, in turn, cannot NOT respond to these communications and are thus themselves communicating (: 49).

In interaction, therefore, one cannot deny or hide one's experiencing. It will be conveyed.

That aspect of communication defined as the act of experiencing has no limits to its scope. One may distinguish through experience a practically endless variety of stimuli. The relating of that experience, however, must of necessity have limitations. Cherry (1961)

expresses this aspect of communication as ". . . a sharing of elements of behavior, or modes of life, by the existence of sets of rules" (: 6).

Rules governing communication encompass both its sequencing (process) and structure (levels). The process essentially consists of three phases: encoding, the attaching of meaning to experience; transmitting, the sending of meaning in message form; and decoding, the translation of the message. This study focusses exclusively on the transmitting of messages, the middle phase of the communication process.

Communication structure comprises an integration of three levels of rules governing messages: syntactics, rules pertaining to relationships between signs; semantics, the symbolic meanings of signs; and pragmatics, the behavioral dynamics associated with messages.

This study focusses on the pragmatic level as an area of investigation. To create a metaphor, pragmatics is the delivery of a letter (semantics) in its envelope (syntactics); it is the style and color of the envelope, the manner of delivery and the context within which it takes place. The pragmatics of human communication is a highly complex subject. It includes not only the various kinds of behaviors available together with their subtle shades of interactional meaning but also the higher-order awareness of those behaviors. (The expressing of the awareness of self in interaction Watzlawick called 'metacommunication'.)

The search for pragmatic units of analysis has been undertaken along two dissimilar but converging lines. The difference between the approaches concerns the size of the behavioral unit to be studied. The structuralists (Scheflen, 1969; Barker, 1963) accentuate behavioral patterns (sequences, acts, etc.) or larger natural organizers for smaller units. The empiricists (Birdwhistell, 1963; Dittmann, 1962), in contrast,

emphasize the study of the smaller units (words, gestures, etc.), and use statistical techniques to investigate relationships between these communicative elements. This study takes an empirical approach in that it is concerned with the coding and relating of smaller behavioral units.

Empiricists are faced with the task of categorizing communication behavior into interpersonally meaningful units. Wiener and Mehrabian (1968) conclude that the present state of the art in communication analysis is primitive at best. They feel that all present hypotheses concerning what types of behavioral units demonstrate psychological importance are tentative. Instead, they submit for consideration the use of an heuristic device as an aid in the continued exploration of interaction. The device concerns the conceptualizing of all communication in terms of channels.

> Channel will define any set of behaviors in a communication which has been systematically denoted by an observer and which is considered by that observer to carry information which can be studied (in principle at least) independently of any other co-occurring behaviors (: 51).

They go on to state that:

> Channel may be seen, then, as a conceptual device which can help reduce the complexity of a communicative event by examining the components in a communication, first, in isolation and, next, when interacting (: 51).

The concept of channel, then, is simply a coherent set of behaviors which carry information in an interaction. 'Channel' is an arbitrary designation, based on some organizing principle, for a group of behaviors, to permit the study of communication.

Mehrabian and Wiener note, as do Mahl and Schulze (1964), that channels can be conveniently grouped into two modes--verbal and nonverbal. The following are examples of channels from the verbal and nonverbal modes.

verbal --		word meaning, syntax, style, immediacy,
nonverbal --	extralinguistic	-- voice tonal quality, pitch, pauses, rates of speech
	kinesic	-- facial expression, posture, body movement, distance, context

In summary, this thesis is investigating that part of communication process involving message transmission. The messages are to be analysed as to their pragmatic significance or behavioral implications. The message units will be grouped into channels in the verbal and nonverbal modes. Next follows a consideration of research related to the verbal and nonverbal channels used in this study. The chapter concludes with a discussion of multi-channel interaction.

II. Verbal Mode

A. Acknowledgment Channel

The self, in interactionist philosophy, is not a fixed entity but is best depicted as a function of one's interpersonal environment. According to this philosophy, a healthy sense of self must involve a corresponsive relationship between environment and individual. These postulates are succinctly stated by noted interactionists.

> Man's awareness of himself is essentially an awareness of functions of relationships in which he is involved . . . (Watzlawick, et al., 1967: 28).

> . . . the self concept is continually to be rebuilt if we are to exist as people and not as objects . . . (Cumming, 1960: 113).

> A society may be termed human in the measure to which its members confirm one another (Buber, 1957: 101).

The self concept of the child typically emerges within the transactional patterning of relationships with 'significant others' in his family group. This developmental process involves the child assimilating the norms and behavioral expectations extant within his home. It also involves the child expressing his awareness of his own needs, desires, and expectations as they happen within him. The picture is one of two intact regulative systems--child and family--adapting to each other.

It has long been known that for the child to develop and maintain a healthy sense of self his relationship with his family must be positive. This is essentially a two-sided process. The child must be socialized; his interpersonal behavior must be continually modified to better fit the patterns of both family members and the community. The child must also be respected; that is, his expression of his needs and feelings (which, in essence, constitute his early view of himself) must be acknowledged. Watzlawick, et al. (1967), stress the overriding importance of one's need for acknowledgment.

> As far as we can see, this confirmation of P's view of himself by O is probably the greatest single factor ensuring mental development and stability that has so far emerged from our study of communication (: 84).

Some families do not confirm the organismic integrity of their children. These families relate in patterns that tend to produce in the child an adapted but pathological (non-integrated) self. Studies of families containing schizophrenic members confirm the existence of these non-acknowledging patterns.

> The characteristic family pattern that has emerged from the studies of families of schizophrenics does not so much

> involve a child who is subject to outright neglect or even to obvious trauma, but a child who has been subjected to subtle but persistent disconfirmation . . . (Laing, 1961: 100).

Clinicians posit that disconfirmation or non-acknowledgment is psychologically even more destructive to the self than is rejection. Watzlawick, et al., contrast non-acknowledgment (i.e., negation) and rejection, drawing the following distinction between them.

> Rejection, no matter how painful, presupposes at least limited recognition of what is being rejected and, therefore, does not necessarily negate the reality of P's view of himself (: 85).

In sum, one can appreciate the importance of the acknowledgment continuum when applied to the study of the health of human systems.

Non-acknowledgment, on the behavioral level, has been studied by many researchers although each has labelled the process with a different term. Elliptical statements (Mishler and Waxler, 1968), mystification (Laing and Esterson, 1970), imperviousness (Bowen, Dysinger and Basamania, 1959), and fragmented communication (Wynn and Singer, 1963) all refer to the same type of non-self-confirming interactional behavior.

The code used in this study to measure degrees of acknowledgment employed Ruesch's (1958) concept of the tangential verbal response. Ruesch discusses the criteria of a response which, taken together, indicate its tangential nature.

> The reply inadequately fits the initial statement.
> The reply has a frustrating effect.
> The reply is not geared to the intention behind the original statement as it is perceivable through words, action, and context of the situation.
> The reply emphasizes an aspect of the statement which is incidental (: 38).

Ruesch's criteria were utilized as the basis for an acknowledgment code constructed by Mishler and Waxler (1968). They conceptualized the

tangential response as lying at one pole of a responsiveness continuum, the other pole of which was complete acknowledgment. Mishler and Waxler employed this code as one of many interaction measures in an attempt to distinguish patterns of normal families from those containing a schizophrenic member. Their findings indicate that normal families are significantly more acknowledging in their interactions. Normal families also interrupt more but are more responsive even in their interruptions. Also, members of normal families seem to understand each other even when their speech is fragmented. In contrast to 'schizophrenic' families, therefore, normal families relate in a network of meaningfulness and acknowledgment.

Relating the above results to the mother-child dyad, it may be proposed that the mother's acknowledgment behavior is an important variable in determining the kind of self concept developing within her child. It is expected that mothers even within an homogenous social stratum will differ in their verbal acknowledgment behavior. Further, it is suggested that these differences will be reflected in their other behaviors. Such findings would support Ruesch's (1958) contention that acknowledgment and its opposite, the tangential response, are transmitted as multi-channel phenomena.

In sum, interactionist theory has identified acknowledgment as crucial for the development and maintenance of self concept. Clinicians have found high rates of acknowledgment in normal families. In contrast, they have identified patterns of non-acknowledgment in families of schizophrenics. Ruesch believes that acknowledgment is communicated multi-modally but so far the concept has been studied only in the verbal mode. This thesis seeks to identify acknowledgment as a multi-modal entity.

B. Verbal Interaction Channel

The verbal interaction channel comprises another method of coding verbal data in an effort to comprehend the meaning of human interaction. In contrast to acknowledgment which reveals if, or how much, one dyad member is responding, verbal interaction distinguishes how this responsiveness is being conveyed. In other words, acknowledgment indicates the degree while verbal interaction demonstrates the manner of interaction.

Theory and research in verbal interaction factors arise from two disparate sources--psycholinguistics and child development. These two areas have not yet been integrated to any extent. The following discussion will, therefore, consider theory and research separately.

1. Theory--

Theoretical propositions concerning the interactive function of the verbal mode have been put forward chiefly by persons in the area of psycholinguistics. For example, Urmson (1963) has indicated that certain grammatical elements can function,

> . . . as signals guiding the hearer to a proper appreciation of the statement in its context, social, logical or evidential (: 239).

That is, these linguistic elements are part of the message and yet stand apart from the content of that message. Thus, their pragmatic function is essentially metacommunicative and as such they are more akin to elements of behavioral indication in the nonverbal realm. Rommetveit (1968) comments on the unusual nature of these word groups.

> This implies that they are NOT parts of the linguistically mediated message as such, but rather comparable to facial expressions . . . and paralinguistic features . . . . We are here faced with a paradox: a specific part of the linguistic medium remains extrinsic relative to the linguistically mediated message, serving essentially the same function as paralinguistic and other expressive behaviours (: 62).

These rather anomalous linguistic elements thus serve to qualify and contextualize the message in which they are embedded. They are labelled 'pragmatic operators' (Weinreich, 1963) in that they define (i.e., operate) the behavioral (i.e., pragmatic) implications of the message they accompany.

There are several categories of pragmatic operators. The following are a list of these categories together with linguistic examples:

(1) Parenthetical verbs: e.g., "I believe"--which qualify the speaker's degree of certainty with respect to an event external to himself;

(2) Pragmatic modes: e.g., assertive, imperative, and interrogative sentence frames; and

(3) Emotive "comsigns": utterances that within a given speech community signal a particular affective state of the speaker (Morris, 1964).

In sum, pragmatic operators comprise a group of verbal elements which communicate how a person wishes his message to be taken. They are not part of the message as such, but contribute information about the message. Pragmatic operators thus function analogously to and perhaps concomitantly with nonverbal elements. They too can express relational elements such as affect, intensity, and status, thereby providing the message with a communicative frame.

2. Research--

Researchers, particularly in the area of child development and parent-child relations, have intuitively recognized the existence of pragmatic elements within the verbal mode. The last twenty years has

seen the development of many variations of communication analysis devices typically labelled 'verbal style' or 'interaction' codes. These various systems of coding verbal as well as nonverbal interaction have been catalogued in the volumes Mirrors of Behavior (Simon and Boyer, 1969).

Verbal interaction codes have been applied to diverse areas of study. Researchers have found reliable differences in many aspects of verbal communication relating to differences in socio-economic class (Hore, 1968; Bee, et al., 1969; Walter, Connor and Zunich, 1964), aspects of personality (Moustakas, Sigel and Shalock, 1956; Hatfield, et al., 1967; Saxe and Stollak, 1971; Rubinstein, 1967), cognitive ability (Hess and Shipman, 1968; Brophy, 1970), and mental health (Feinsilver, 1970; Leighton, Stollak and Ferguson, 1971; Goldfarb, Levy and Meyers, 1972).

Two studies from within the above group are of particular interest to this thesis--those by Brophy (1970) and Moustakas, et al. (1956). These studies, although focussing on different aspects of mother-child communication, both involved the creating of new and important codes of verbal interaction.

Brophy analysed maternal verbal teaching behaviors as a possible factor in the acceleration or inhibition of child cognitive development. Previous to his investigation, little attention had been paid empirically to variables of instruction processes although the theoretical framework had been constructed (Ausubel, 1963; Gagne, 1962; Bruner, 1966). Brophy's investigation dealt with operationalizing Hess and Shipman's (1965) thesis that behavior deficits in the culturally disadvantaged child result from lack of meaning or relatedness in his instructional environment.

Brophy divided an instructional process into two parts. The first segment focussed on the maternal instructing behavior which preceded the child's response. The second segment comprised teaching which occurred after the child responded. Comparing groups of middle and lower socio-economic class mothers, Brophy found that significant differences between classes occurred,

> . . . when the parental behavior being studied involves stimulation and enrichment rather than correction or self-care training, when the activity is complex or abstract rather than concrete and simple, or when it involves the teaching of desired behavior rather than the suppression or elimination of undesired behavior (: 91).

In other words, the part of the instructional process found to provide most meaning and cognitive stimulation was the verbal sequence preceding the child's action, and, further, middle class mothers used this period to greatest advantage. Brophy labelled the above instructional style proactive and designated the corrective post-response style reactive.

In sum, Brophy's proactive and reactive instruction styles may be viewed as polar opposites on a verbally mediated process continuum perhaps best termed 'structuring.' As such, these teaching styles constitute components of a verbal communication channel which may have significance for the more general study of parent-child interaction.

Another important process channel which can be verbally mediated is that of interpersonal control. Strategies of control, or attempts to influence the other, are important aspects of human interaction. Sigel (1960) theorizes that in the parent-child relation the parent, for various reasons, has a distinct power advantage and that the way in which the parent chooses to manifest this power has marked consequences for his child's development. Other researchers in addition to Sigel have

recognized the importance played by parental influence strategies in determining child cognitive ability (Olim, Hess and Shipman, 1967; Busse, 1969; Goldschmid, 1970) as well as emotional health (Mishler and Waxler, 1968; Kogan and Wimberger, 1971).

Cognitive ability studies typically distinguish types of parental control by their facilitative or inhibitory effect on the child. Hess and Shipman (1965) elaborate on this concept.

> . . . . The growth of cognitive processes is fostered in family control systems which offer and permit a wide range of alternatives of action and thought . . . such growth is constricted by systems of control which offer pre-determined solutions and few alternatives for consideration and choice (: 869).

Olim, Hess and Shipman (1967) identified an important control factor in maternal influence styles. They found that mothers employ three kinds of control approaches: (1) status-normative, wherein the mother gives rules and expects the child to uncritically comply; (2) personal-subjective, with the mother taking the child's reactions into account; and (3) cognitive-rational, by which the mother uses rational principles and logical consequences. Mothers who employ status-normative control tended not to use the other approaches. In addition, status-normative mothers' language was less complex, they tended to command rather than instruct, and their children tended to score lower on cognitive tasks.

Busse (1969) found results similar to the above: flexible thinking in child related to maternal control. Mothers who exhibited high rates of material manipulation and low numbers of commands had sons scoring high on flexible thinking. Jackson (1969) discovered an interesting paradox related to intrusive maternal control. The more the mother directly controls the child's behavior in trying to have him learn

a cognitive task, the less capable is the child of performing the task on his own. Acheson (1969) used physical contact as a measure of maternal control. He found that such maternal interference was negatively related to child response latency and positively related to errors. Acheson's finding, like Jackson's, implies that maternal interfering control is not desirable in terms of either the adjustment or the learning style of the child. Goldschmid (1970) summarizes the maternal control theory in relation to the child's development of conservation.

> As to the relation between cognitive and social variables, there are undoubtedly environmental conditions which serve either to enhance or inhibit development of the child's cognitive structure. In this study, for example, it was found that children who are not dominated by their mothers tend to have higher conservation scores (: 59).

In sum, research indicates that dominating maternal control styles inhibit while rationally oriented techniques facilitate child development. In addition, control styles are directly observable; they can be distinguished in maternal interaction behavior.

Moustakas, Sigel and Shalock (1956) pioneered a broadly based exploration of mother-child communication. They developed a comprehensive verbal interaction code,[1] which they hypothesized would be sensitive to the modes of influence an adult can use with a child. Their study chiefly concerns the development and exposition of the code categories, observer training methods, reliabilities, and other methodological concerns, although they also report some preliminary findings.

The Moustakas, et al., interaction code was considered appropriate for use in this thesis for two reasons. First, it essentially constituted

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[1]The original form of this code constitutes the Appendix.

". . . a procedure for objective description and recording of adult-child interaction" (: 209), and hence is appropriate for use in an exploratory study. Second, the verbal code categories constitute a pragmatic or behavioral level of analysis in that they are identical to Weinreich's pragmatic modes discussed earlier in this section. Hence, the Moustakas, et al., code seemed appropriate for the study of multi-modal relationships at the pragmatic level of analysis.

In sum, the verbal interaction channel comprises various linguistic components which function pragmatically. That is, they give a relational context to the verbal message they accompany. Researchers in mother-child interaction have identified linguistic factors relating to such behavioral dimensions as 'structuring' and 'control.' These dimensions, in turn, have been found to have implications for child development. A verbal interaction code developed by Moustakas, et al., was considered appropriate for use in this thesis.

C. Verbal Frequency Channel

The verbal frequency channel designates that verbal channel under which are combined the measures of rate of speech and amount of speech. There is some argument as to whether these measures fall within the verbal (linguistic) or nonverbal (paralinguistic) mode.

The paralinguistic mode (Trager, 1965) includes measures of communication that are neither verbal nor kinesic. These measures include what is described as voice set, voice quality, and the vocalizations accompanying language material. More specifically, under these headings fall: voice pitch, loudness, rhythm, rate and flow of speech, and the non-talking noises such as crying, clearing the throat, etc.. Although what is called rate of speech is included under the paralinguistic rubric,

its use in paralinguistic research more properly refers to the transient fluctuations that accompany changes in the communicator's affective state (Siegman and Pope, 1965; Mahl, et al., 1964).

The measures in this thesis are not concerned with short-term phenomena. They involve overall rates and amounts of verbalization or, more descriptively, "styles" of speaking. For this reason, they will be designated as verbal mode channels.

Mishler and Waxler (1968) utilized such a 'styles of speaking' code as part of their investigation of family interaction. Like other interaction theorists (Bateson, 1960; Haley, 1959), Mishler and Waxler conceptualized communication structure as serving the function of interpersonal control. They predicted that when the time dimension is restricted in interaction the controlling of time becomes an important and acceptable influence strategy. The more a person talks and the longer his speeches, the greater will be his influence in determining the direction of conversation. As Mishler and Waxler state

> Attention-control strategies are one of several techniques for exerting power and influence. Talking a great deal and maintaining control over long segments of time not only serve to channel and limit the direction of interaction but also allow for the exertion of other control strategies as well (: 137).

Mishler and Waxler used the factors of 'statement length' and 'participation rate' as measures of attention-control. Statement length was defined as the proportion of first acts (similar to the 'communication unit' as used in this thesis) to all acts for a speaker. Participation rate referred to each speaker's acts in proportion to his family's acts.

Mishler and Waxler employed the above measures of verbal frequency to detect differences in the interactions of 'normal' and 'schizophrenic' families. Comparing family triads containing sons, the researchers found that the verbalization rates of fathers within 'normal' families were significantly higher than those of the sons, while in 'schizophrenic' families, this relationship was reversed, with the son and mother verbalizing to a much greater extent.

From the above conceptualization the assumption might be made that verbalization as a method of control could, depending on its extent of use, either facilitate or inhibit the participation of the other person or persons in an interaction. Brady (1969) in fact tested such an hypothesis and, using different measures of verbalization and control, confirmed the relationship ($p < .10$). He found that mothers scoring high on the control dimension of the Parent Attitude Research Inventory (PARI) had children whose rates of participation, as measured by their average number of words per CU, were significantly lower than those for other children. Brady also found evidence of a positive control factor in the dyad behavior. The child's gross number of words, another indication of his participation level, exhibited high correlation with mutual glances ($p < .05$). This finding constitutes evidence of both a verbal and a nonverbal behavior (i.e., words and glances) serving a similar instrumental function--facilitation of interaction. The child indicated both verbally and visually his level of participation in the ongoing interaction with his mother.

The present thesis utilizes the verbal frequency measures of rate of speech and amount of speech. Generally, they may be considered synonymous with Mishler and Waxler's measures of 'participation rate'

and 'statement length,' respectively.

In sum, the verbal frequency channel, comprising rates and amounts of verbalization, represents an attention-control dimension. This channel, in adult behavior, becomes a control strategy that inhibits participation by others. In mother-child interaction, child verbalization indicates high involvement and is therefore considered a positive factor. Child involvement is expressed multi-modally, with participation being conveyed through verbalizations and glances. Attention-control may be expressed multi-modally as well, a possibility to be investigated in this thesis.

III. Nonverbal Mode

A. Importance

> . . . we respond to gestures with an extreme alertness and, one might almost say, in accordance with an elaborate and secret code that is written nowhere, known by none, and understood by all (Sapir, 1927).

From moment to moment in an ongoing human relationship, nonverbal messages are being sent and received. While the verbal discourse may concern any matter from the trivial to the philosophical, nonverbally, a continuous interplay of messages is occurring quite probably out of the communicants' awareness. In this subterranean pas de deux, the language of the body, through touching, facial expression, tone of voice, posture, gesture, etc., speaks of relationships. Attraction or repulsion; involvement, ambivalence, or detachment; power or weakness, constitute major relational dimensions conveyed chiefly via the nonverbal mode.

> . . . wherever relationship is the central issue of communication, we find that digital language is almost meaningless, . . . the relationship aspect will be predominantly analogic (nonverbal) in nature (Watzlawick, et al., 1967: 63).

Mehrabian and Ferris (1967) provide empirical support for the nonverbal mode's importance as an affect transmitter in their estimation that it accounts for over 90 per cent of the effect of a communicated feeling. It is not surprising, therefore, that in experiments involving multi-channel communication of affect[2] observers relied on the nonverbal message when faced with inconsistencies between verbal and nonverbal modes. Freud (1938) recognized that his clients' nonverbal expressions represented a more immediate, if less 'royal' road, to the unconscious than the analysis of dreams.

> He that has eyes to see and ears to hear may convince himself that no mortal can keep a secret. If the lips are silent, he chatters with his finger tips; betrayal oozes out of him at every pore. And thus the task of making conscious the most hidden recesses of the mind is one which is quite possible to accomplish (: 77-78).

In sum, the nonverbal mode is an extremely important, although barely adequately described, aspect of human communication. Its chief function, however, is clear--to transmit messages concerning the ongoing relationship. It is, above all, a pragmatic mode.

B. Functions--Related Research

Much recent research has focussed on the transmission of emotions via specific nonverbal channels. Sainsbury (1955) discovered that in counselling sessions clients' rate of hand movements (i.e., gestures)

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[2]See the next section, Multi-channel Communication, for details and references.

increased during discussion of disturbing topics. Dittmann (1962), in a more elaborate investigation, found that observers of various posture-gesture combinations could discriminate five distinct mood states of the communicator. Bain (1973) studied communication of emotional intent by facial expression. His findings indicate that the face is a reliable transmitter of feeling states although it can convey some states (e.g., happiness) more discernably than others (e.g., disgust). Finally, Hall (1963), investigating body positions, found that certain body orientations and inclinations demonstrate one person's liking for another.

In sum, research has conclusively demonstrated that nonverbal behavior of various kinds serves to express a person's states of feeling.

The nonverbal mode performs other functions in addition to the transmission of affect. At times, nonverbal channels may carry the entire message in a communication. Evidence of this is seen in the elaborate codes of gestural signals found within various cultures. The meaning of a signal (e.g., a kiss, punch, finger pointing, hand wave, etc.) may vary among cultures but within a culture its intent usually needs no verbal qualification. The nonverbal realm also serves as an organizer for the more complex signalling involved in relationship patterns. Members of specific cultures learn seemingly by absorption such unconscious 'rules' as how to perform courtship-like behavior (Scheflen, 1965), the correct distance for relating to members of the same sex (Hall, 1966), and what parts of others' bodies may or may not be touched (Jourard, 1966).

Body language can give an instant and longlasting impression of one's personality. Ruesch and Kees (1959) state that,

> . . . muscular contractions leave their imprints on the skin and skeletal system, permitting at least some inferences--from posture and facial expression--not only what is happening at the moment but also what has happened in the past. In general, modulations of facial expression bear more particularly upon momentary experiences--a sudden smile, for example--whereas body posture seems to reflect more fixed attitudes and generalized moods (: 64).

Certain bodily expressions are found characteristic of certain personality types. Rosenfield (1966), studying female undergraduate dyads, found that overall gestural activity, especially smiling and arm moving, was greater for approval-seeking subjects. Also, those subjects most fearing rejection engaged in a significantly greater number of postural shifts. Rosenfield suggests that smiles reveal the nature of the affective state while gestures inform about the intensity of the affect. Friedman (1972) divided gestures into two categories: object-focussed movements (away from the body and related to speech content) and body-focussed movements (involving self-stimulation and unrelated to speech). He found evidence that differences in the use of object- and body-focussed movements relates to differences in the person's degree of cognitive differentiation and language complexity.

In sum, the preceding studies indicate that various personality factors manifest themselves through nonverbal behavior.

Nonverbal behavior has been investigated as an indicator of receptivity to interpersonal contact. Exline and Winters (1965) suggested that mutual glances provide immediate cues about relationship intensity.

> . . . one observes another's visual behavior and infers . . . the degree and affective sign of the other's involvement in a momentary interpersonal relationship. . . . Put differently one learns from the behavior of the other's eyes something of the other's desire, willingness, or ability to relate. . . (: 320).

Argyle and Dean (1965) hypothesized that relating is contingent on establishing and maintaining a nonverbal approach-avoidance balance. They posited that eye contact and distance operate in such a way that approach-avoidance tendencies are equalized at combined levels of eye contact and distance chosen as comfortable by interactants. Support for this position comes from findings by Exline, et al. (1965), that amount of eye contact falls as physical proximity increases. Hore (1968) found that a mother's readiness to help her child was indicated by a high rate of glancing. Specifically, high maternal visual attentiveness ensured a large number of information-sharing mutual glances.

In sum, glancing serves to connect people in interaction, thereby allowing the communication of further information (e.g., emotions, decisions to approach or avoid, help).

Finally, nonverbal behavior performs the important function of qualifying or contextualizing any verbal exchange.[3] For example, facial or vocal messages may either reinforce or contradict feelings that are communicated verbally (Mehrabian, 1968).

In sum, the importance of the nonverbal mode in communicating relational messages has been discussed. In this capacity, nonverbal channels serve the following functions: affect transmission, signalling, expressing personality factors, interpersonal contacting, and, finally, qualifying verbal messages.

C. Brady and Darrah's Studies

Brady (1969) investigated the possibility that nonverbal interaction could be an important factor in the development of a child's

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[3] This function is discussed in greater detail in the next section, Multi-channel Interaction.

cognitive abilities. Brady derived his hypothesis from Hess and Shipman's (1965) thesis that there are social (as well as psychological and biological) determinants of cognitive development. Hess and Shipman believe that meaning (or relatedness) constitutes a most significant factor in the child's immediate environment. Further, they find one social locus of meaning in maternal language styles. Mothers' language can be coded along an authoritarian-rational continuum. Authoritarian control styles have been shown to inhibit while rational control styles facilitate a child's cognitive development.

Brady hypothesized that certain nonverbal channels would, like language, function as loci of influence. Specifically, he proposed that mutual glances, a factor found significant by Exline and Winters (1965) and Hore (1968), would correlate with both low authoritarian maternal control and high child cognitive achievement. Brady's findings confirmed this hypothesis. Mutual glancing was found to relate to low maternal control (as measured by the PARI), the child's verbal participation, and his cognitive achievement.

Darrah (1971) suggested that a more exhaustive examination of the nonverbal mode would reveal channels which both facilitate and inhibit cognitive achievement. Darrah initially categorized the behaviors of smiles, head movements, touches, glances, elbow leans, body movements, and crossing of arms, as either positive or negative. From these categories, he created two more which he called 'total' and 'range.' Darrah also combined nonverbal behaviors of both mother and child, creating dyad scores. He expected these four categories (positive, negative, total, and range) to correlate differentially with maternal control and child achievement. His findings were that the nonverbal categories (with the

exception of 'negative') correlated with maternal control. Also, there were some significant relationships between the four nonverbal categories and various measures of child cognitive achievement.

In sum, the findings of Brady and Darrah lend additional support to the mounting research evidence that the nonverbal mode communicates both affect and control in dyadic interaction, and that these factors ultimately influence the child's cognitive development.

D. Summary

In review, the area of communication has been delimited to the study of message transmission at the pragmatic or behavioral level of analysis. The concept of 'channel' is used to categorize and study factors from the two communication modes--verbal and nonverbal. Research and theory relating to both verbal and nonverbal channels has been discussed. The channels have been shown to include dimensions of control and affect. These dimensions are both relevant to a pragmatic analysis of communication. Research has found relationships between the selected communication channels in the adult and the emotional and cognitive development of the child. Thus, the verbal and nonverbal channels chosen are appropriate for the purpose of this thesis, which is to investigate inter-channel and inter-modal relationships. The next section comprises research related to a multi-channel analysis of communication.

IV. Multi-channel Communication

> The interrelationships between paralinguistic and linguistic features of acts of speech are. . . extremely complex and constitute still a very virginal field as far as empirical studies are concerned (Rommetveit, 1968: 61).

Thus far, the discussion of verbal and nonverbal channels has implicitly conceptualized messages as being sent in discrete packages. This is not the case in reality. Weitz (1974) comments that, "What we are confronted with is an alive, reacting person giving off all sorts of messages simultaneously in competing channels" (: 263).

Empirical researchers, unlike the bolder structuralists, are not as yet prepared to grapple with the whole person as communicator. However, in recent studies experimentalists have broadened their perspective to at least consider the effects of two or three channels operating at one time. Their research has developed along two conceptually and methodologically different lines. The first approach focusses on the meaning of the message as indicated by how subjects respond to it. These researchers want to know what communicative value the behavior has for the persons receiving it. Appropriately, the behavior as well as the research approach is called 'communicative.' There have been many recent studies in this area (Mehrabian, 1967, 1969; Mehrabian and Ferris, 1967; Mehrabian and Wiener, 1967; Exline and Eldridge, 1967; Ekman and Friesen, 1967; Bain, 1973) exploring such issues as decoding of various channels, relative communicative importance of various modes, and reception of inconsistent communication.

The second approach is concerned not with what a group of receivers may observe but with the relationship the experimenter is able to establish between two or more channels of communication. As an example, frequency of foot taps might be related to a verbal measure or a stress factor. The foottapping would then be an indicator of the other variable. Studies of indication examine only the sender within the communication system and tell us nothing directly about whether a naïve

receiver can decode the message. Examples of work in this area include research by Dittmann (1962), Sainsbury (1955), and Exline (1963). Their findings have demonstrated that such nonverbal indicators as body movement and eye contact relate to stress and competitiveness, respectively.

While the same behavior can be studied by either the communicative or indicative approach, the research questions relating to that behavior are quite different. Communicative research asks whether subjects can decode the piece of behavior consistently; indicative research asks what other behaviors the piece of behavior relates to and how it relates to them. This thesis is concerned with indicative research.

Both methods of studying multi-modal communication have shown that relationships and patterns exist among various communication channels. Ekman (1965), in a brief survey of studies involving the interaction of verbal and nonverbal behavior, delineates six functions that the nonverbal mode can serve in relation to the verbal mode. These functions are: repeating, contradicting, substituting, qualifying, accenting, and maintaining. Although Ekman considers only the specific case of the nonverbal mode in its relationship to the verbal, the communicative functions as considered in this thesis will be generalized to include any communication channel in relation to any other channel. A discussion follows concerning each of the above functions of multi-channel communication.

A. Repeating

Behavior from one channel can repeat the substance of a message from another channel. For instance, if verbal behavior describes an

affective reaction, nonverbal behavior can simultaneously project a similar affect. If verbalization is being used to describe something, gesturing may serve to enhance or qualify the image. Similar multimodal congruencies have been found with the phenomenon of forgetting. Freud (1938) recognized that speech errors symbolized the act of delaying or blocking a communication by forgetting. Vetter (1969) quotes Ekman (1965) on the congruent connection between body positioning, facial expressions, and speech.

> . . . spontaneous body positioning and facial expression have a special communicative value in relation to the verbal behaviour and are not just noise. They especially mediate information about momentary changes between stress and catharsis during an interaction consistent with concomitant verbal behaviour (: 217).

Boomer and Dittmann (1964) found a significant relationship between the overall frequency of movement of the head, hand, and leg, and the frequency of speech disruptions for clients in a psychotherapy session. Using Mahl's (1963) finding that speech disruptions are reliable indicators of anxiety levels, it may be hypothesized that body movement also could be associated with anxiety. Hence, both speech and movement that directly accompanies it might be manifestations of anxiety. Baxter, Winters, and Hammer (1968) support this notion with their findings that speakers who use elaborate gesticulation do so when they are talking fluently about a topic with which they are familiar. Their low anxiety is manifested in the fluency of both verbal and nonverbal behavior. Charney (1969) found that people in dyadic communication indicated their increasing relatedness through more than one channel. Not only did their vocalizations become more congruent but also one person's upper body position tended to increasingly mirror that of the other interactant.

Charney believes that both behaviors serve as cumulative signal systems for relatedness.

B. Contradicting

Behavior via one channel can directly contradict messages sent via another channel. As Ruesch and Kees (1959) state:

> By means of the duality of verbal and nonverbal communication the human being is able to create impressions based on differences between the things he says in words and the thing he communicates through action (: 86).

As has been considered elsewhere in this thesis, normal face-to-face human communication contains both words and actions. Watzlawick, et al. (1967), believe these verbal and nonverbal channels to serve different functions--words expediting the content aspect and gestures, etc., conveying the relationship aspect. Mehrabian (1971) defines what dimensions the relationship aspect includes:

> . . . only a very few basic dimensions of human feelings and attitudes are conveyed nonverbally. These are variations in like-dislike, potency or status, and responsiveness (: v).

Contradictions in communications can thus arise when people attempt to directly verbalize liking, status, or responsiveness, i.e., those dimensions conveyed nonverbally. For example, Birdwhistell (1952) noted that a person can verbalize liking for someone else while simultaneously indicating through facial expression his dislike for that person. Messages that contradict the verbal may also be sent via posture (Mehrabian, 1969), tone of voice (Rubenstein and Cameron, 1968), or gestures (Efron, 1941).

Mehrabian (1968) cites sarcasm as a common example of the contradictory simultaneous interaction of communications channels.

He defines sarcasm as,

> . . . a message for which the information transmitted vocally contradicts the information transmitted verbally. Usually the verbal information is positive and the vocal is negative. . . (: 53).

The resultant effect of such sarcasm is, of course, negative but the receiver of such a message usually has trouble confronting the sender. Typically, people in our culture prefer to express negative emotion nonverbally [less immediately as Weiner and Mehrabian (1968) would put it] and the layman has very few terms at hand for characterizing the subtleties of nonverbal behavior.

Mehrabian (1971) makes the following generalization regarding the effect of contradictory communication:

> When any nonverbal behavior contradicts speech, it is more likely to determine the total impact of the message. In other words, touching, positions (distance, forward lean, or eye contact), postures, gestures, as well as facial and vocal expression, can all outweigh words and determine the feelings conveyed by a message (: 45).

The double-bind, felt by some to be a necessary precursor to a schizophrenic reaction, is another communication phenomenon dependent on conflicting multi-channel messages. In this situation, there is a complementary distribution of power; that is, there exists one powerful person and one who is relatively powerless. A parent-child relationship is a common example of such a power imbalance. In the double-bind situation, messages are sent from parent to child in an atmosphere of pseudo-acceptance. The parent verbalizes his love or need of the child while nonverbally communicating restrictiveness, distrust, and dislike. This type of inconsistency is likely to happen in families isolated from their communities and closed to external

influences (Laing and Esterson, 1970). The parent, fearful, holding rigidly to narrow values, in the course of his contact with the child transmits a basic inconsistency: "I accept you when you are who I need you to be and I reject you when you are anyone else." For the child, this parental message poses the following dilemma:

> If I try to be who they want, I deny myself.
> If I try to be myself, I get denied or rejected.

The only possible solution to this double-bind, especially for that child who is unable to step outside the family boundary, is to send inconsistent, confusing, and self-disconfirming messages back to the parent. The results of such protracted interaction for the child can be schizophrenic-like behavior (Weakland, 1961).

C. Substituting

Behavior from one channel can be a substitute for a piece of behavior from another channel. For instance, learned nonverbal signal conventions can take the place of words. A kiss, wave of the hand, a fist, or even a finger, can be used to communicate in place of words. Such substitution commonly occurs when negative affect is involved. Wiener and Mehrabian (1968) give the following example:

> At a party negative feelings about someone from a minority group, who is present, might be communicated by strained conversation, proxemic variations (eg., distance or orientation) or other extralinguistic cues, whereas the same feelings may be communicated more explicitly in verbal contents, were the individual absent (: 58).

When intensity of feeling is being communicated simultaneously in several channels, an interesting substitution effect is thought to take place when one of the channels is blocked. Wiener and Mehrabian (1968) expect that the intensity of expression in other channels will increase. For instance, a person may express the increased intensity

of feeling that accompanies the onset of anxiety through any of the following channels: verbal, verbal control, speech disruption, speech rate, gaze aversion, body tension, etc.. For a person who can verbalize his anxiety, speech disruptions or increase in rate of speech may not be as pronounced as for a person unable to verbalize anxiety.

D. Qualifying

Behavior from one channel can comment on, or qualify, behavior in another channel. This communication about communication is termed 'metacommunication.' Consider the following sentence:

> "Customers who think the waiters are rude should see the manager."

This statement can be interpreted two different ways and its meaning would remain humorously ambiguous if not qualified. For example, if the statement were to be spoken, then its intent could be elicited from the speaker's vocal inflection. The vocal inflection, in qualifying the statement's meaning, would thus be a metacommunication. Shyness, embarrassment, and pride are examples of qualifying messages also communicated via nonverbal behavior.

The context of an interaction may serve a metacommunicative function. For example, in dyadic interaction, any given speech may be coded as either an acknowledgment or a tangential response. Which one it is depends, of course, upon the content of the speech immediately preceding. The context thus becomes metacommunicative by defining how the speech is to be interpreted.

The nonverbal mode is considered by Watzlawick, et al., to be the mode for metacommunication. In their book Pragmatics of Human Communication, they propose the following axioms concerning interaction.

1. Every communication has a content and relationship aspect.
2. Content is transmitted via digital (verbal) communication. In normal interaction, relationship messages are transmitted almost exclusively by analogic (nonverbal) communication.
3. The relationship message qualifies the content and is, therefore, a metacommunication.

Their conclusion, therefore, is that relationship messages (i.e., metacommunications) are conveyed by the nonverbal mode.

However, there may be important exceptions to the above conclusion. For example, the verbal mode contains linguistic elements called 'pragmatic operators'[4] whose function, it will be recalled, is to qualify and contextualize the linguistic message which they accompany. Another example is the verbal channel of 'immediacy' (Wiener and Mehrabian, 1968) which comprises words that indicate the psychological distance of the speaker from both the speech and addressee. Both examples indicate that verbal channels can and do send messages about relationship and thereby serve a metacommunicative function. Watzlawick, et al., state that ". . . relationships are only rarely defined deliberately or with full awareness" (: 52). By this, they imply that the verbal mode plays an insignificant role in metacommunication because it operates in full awareness. A premise of this thesis is, however, that there are some verbal channels (such as 'immediacy' and 'interaction') which transmit messages out of the awareness of the communicants, in essence operating analogously to nonverbal channels. This concept is

[4]Pragmatic operators are discussed in this chapter under 'Verbal Interaction.'

essential to the present thesis in that it forms a theoretical basis for expecting relationships between verbal and nonverbal channels.

Watzlawick, et al., also contend that "The more spontaneous and 'healthy' a relationship, the more the relationship aspect of communication recedes into the background" (: 52). While this may be true for successful relationships, it does not hold for those in need of change. Psychotherapy commonly instructs people to metacommunicate verbally. Clients learn to become aware of, describe, and ultimately control such aspects of communication as their nonverbal behavior and patterns of relating to others.

In conclusion, the metacommunicative function may not be served only by the nonverbal mode. People can verbalize about their feelings and awareness of relationships. Also, verbal channels carry relational messages out of awareness, thereby performing a moment-to-moment metacommunicative function. There is thus a theoretical basis for functional, and possibly structural, correspondence between the verbal and nonverbal modes.

E. Accenting

A behavior from one channel can accent or underline a message from another channel. In human interaction, a very large number of signals may be sent including sounds, combinations of sounds, movements, combinations of movements, etc.. Were these signals to have no patterning, i.e., no conventional labelling or sequencing, little if any information could be exchanged. For example, most languages are overdesigned for transmitting information; that is, their syntax is such that a unit of information may be indicated simultaneously by more than one element of the language. This phenomenon is termed 'redundancy' by

Cherry (1961) who defines it as the,

> . . . property of language, codes and sign systems which arises from a superfluity of rules, and which facilitates communication in spite of all the factors of uncertainty acting against it (: 19).

This phenomenon may be found in any or all of the levels of language--syntactic, semantic, and pragmatic. Wiener and Mehrabian (1968) suggest that the pattern of relationships among communication channels can produce semantic redundancy.

> The interrelationship of messages in the channels when read as a unity (a) eliminates indeterminacy in the individual messages transmitted in each channel or (b) emphasizes the individual message transmitted in each channel by giving the entire message an additional component which is not present in any one of the channels. Redundancy is exemplified when one person says to another, 'go away' with a staccato gesture of the arm away from himself (: 79).

Scheflen (1969) more specifically finds that many kinesic behaviors act with language and appear to reduce ambiguities of speech. Kendon (1972), in an article on speech-related movemented, discusses Efron's pioneering research in this area.

> . . . he (Efron) described how a speaker may beat time to the rhythm of his speech, marking out the points of emphasis with strokes of the hand or arm; how he may diagram in space the logical relationships between the things he is talking about; or how he may illustrate what he is saying by a series of symbolic gestures (: 178).

This use of gesture points to the existence of a functional dichotomy in the nonverbal mode. Gestures may serve a cognitive as well as affective purpose in communication. This cognitive-affective dichotomy is, of course, a well-known attribute of the verbal mode, and makes possible another communication phenomenon--linked and unlinked expression. In linked expression, two or more channels transmit a similar message, for example, verbal and vocal positive affect. Unlinked expression

refers to the simultaneous transmission of two or more messages that do not relate to each other. For example, one can communicate verbally and gesturally about some abstract idea while at the same time vocally conveying excitement about some immediate happening. In other words, unlinked expression refers to the human's capacity to transmit together two unrelated experiences.

F. Maintaining

Behavior from one channel can serve to maintain the flow of communication from other channels. For example, certain nonverbal cues, head nods, eye movements, and shifting of position can indicate a willingness to stay in contact and maintain participation in the interaction. Kendon (1967) studied visual and other behaviors in interactions between pairs of college students. He discovered a recurring pattern of looking at the points where speaker-listener roles were exchanged. Duncan (1969) describes this pattern in greater detail:

> . . . as A comes to the end of his utterance, he will look at B, and continue looking as B begins speaking. B, on the other hand, looks away as he begins his response (: 131).

Kendon found that when the above visual pattern did not occur there was a verbal communication delay or even breakdown. In more recent investigations, Kendon (1972) has discovered other nonverbal behaviors, called speech-preparatory movements, which act as reliable precursors to speech.

> The larger the speech unit, the more body parts there are involved in this movement. For locutions, for instance, only the head and the gesticulation limb are involved. For locution groups, there is a shift in the trunk as well. For very high level units. . . there is a major change in the speakers total bodily position (: 205).

In sum, this section presents communication channels from the verbal and nonverbal modes, together with research relating to these channels. In addition, six ways in which these channels might interact are discussed. The interactive functions considered are: repeating, contradicting, substituting, qualifying, accenting, and maintaining.

This thesis cannot, at this time, propose the kind of specific hypotheses described above concerning the possible functions of multi-channel interactions. Its purpose is to identify possible communication channels and to look for possible relationships with channels previously considered. To the author's knowledge, only Mishler and Waxler's (1968) study of family interaction utilizes more than one of the types of communication channels employed in this thesis. Their preliminary findings discuss the channels separately; they have yet to publish results of any interaction effects they might have found. Nor do they speculate as to meanings which such channel interactions might have.

Therefore, the thesis must instead address itself to the prior question of whether the data show any evidence of multi-channel interaction.

V. Sex of Child--A Variable in Interaction

Parents relate differently to their sons and daughters (Sears, Maccoby, and Levin, 1957). These differences in parent-child interaction are considered an important factor in the development of the child's sex-role identity (Mischel, 1966; Lynn, 1966).

The mechanisms of parental influence have been studied by social learning theorists who generally divide the process into two parts:

modelling and reinforcement. Mischel comments on the importance of parental reinforcement in shaping children's masculine and feminine behaviors.

> The greater incidence of dependent behaviors for girls than boys, and the reverse situation with respect to physically aggressive behavior, seems directly explicable in social learning terms. Dependent behaviors are less rewarded for males, physically aggressive behaviors are less rewarded for females in our culture, and, consequently there are mean differences between the sexes in the frequency of such behavior after the first few years of life (: 58).

Lynn, however, views the parental contribution to child sex-role development as somewhat more complex. Lynn believes that differences in mother-son and mother-daughter interaction styles are due, not only to the 'reactive' factor of reinforcement, but also to 'proactive' features such as social expectancies, parent-child contact time, and modelling effects, all of which are manifested in the more micro-level interaction variables.

According to Lynn, mothers quite naturally define feminine behavior and through modelling plus selective reinforcement transmit this appropriate role to their daughters. With sons, however, the mother has problems defining and teaching male-appropriate behavior. She cannot effectively model masculine behavior, and probably has a poorly articulated concept of what masculinity should be . Further, the mother typically reacts punitively to demonstrations of such behavior (e.g., aggressiveness) by her son. Also, the disproportionately large amount of time young sons spend with their mother versus their father affords them little opportunity to experience the appropriate model. The greater status accorded the male role in our society presents the young male with additional stress. There is more pressure for boys to acquire

sex-appropriate behavior. Boys are quickly punished for acting feminine. Girls, however, may be "tom-boys."

The son, meanwhile, is still faced with acquiring the proper sex-role identification. Lynn suggests that this early search for masculinity is a predominantly negative experience.

> Masculine-role behavior is defined for him through admonishments, often negatively given, e.g., the mother's and teachers' telling him that he should not be a sissy without precisely indicating what he <u>should</u> be (: 513).

In sum, girls begin to learn the feminine role quite readily in positive interaction with their mothers. Boys, in contrast, learn that maternal efforts to shape their masculine role result in problems of a difficult and unpleasant nature.

It is the position of this thesis that the qualitative differences described above in mother-son and mother-daughter interaction could possibly be evidenced through differences in the mother and child communication channels employed in this study.

CHAPTER III

METHODOLOGY

I. The Sample

Brady (1969) used the 1967 census data from the City of Edmonton to determine an area that was representative of middle socio-economic status (SES). The following data, as set out by Brady, indicate the representativeness of the sample according to criteria established by Hore (1968) and Blishen (1958).

TABLE I

DESCRIPTIVE SOCIO-ECONOMIC DATA

SES (Blishen Index)	Mean:	54
	Range:	43 to 75
Combined Average Number of Years Education for Mother and Father	Mean:	11.5
	Range:	8 to 18
Combined Income of Mother and Father	Under $5,000 per annum	N 2
	Between $5,000 and $10,000 per annum	N 21
	Over $10,000 per annum	N 7

Brady (1969) summarized the data as follows:

> Socio-economic data indicated the sample was upper-middle class. Hore's (1968) sample of high SES and low SES had average Blishen Indexes of 71.15 and 45.94 respectively. This sample had an average Blishen Index of 54 which fell between Hore's samples. The other two indexes of socio-economic status positioned themselves similarly in relation to Hore's sample (1968, p. 25-26). The number of people earning over $10,000 per annum and the mean Blishen Index of 54 for the present sample indicated that the socio-economic status was upper-middle class (: 37).

All of the children used in the research were of normal intelligence. The ages of the children ranged from four years to four years eleven months. None of the seventeen boys or fifteen girls had kindergarten experience. To insure that none of the children taking part in the study were of below-average intellectual ability, the Van Alstyne Picture Vocabulary was used. This text has a correlation of 0.71 with the Stanford-Binet for this age level. Also, the vocabulary section of the Wechsler Adult Intelligence Scale was used to insure that no mothers were below-average in verbal ability. These minimum conditions were met by all subjects.

II. Experimental Procedure

The personnel of the Audio-Visual Media Department of the University of Alberta, under the direction of Brady (1969), made videotape recordings of the thirty-two mother-child dyads interacting in a structured situation. (The nonverbal behavior of only thirty of the dyads was analysed because of videotaping difficulties.) The mother and her child were seated at a table and allowed to play for a period of time with a number of toys. Following the play period, the mother was to reorient her child to teach him how to separate a group of blocks on

the basis of their colour, shape and size, respectively. Then the child was required to verbalize his reasons for sorting the blocks the way he did. When the three block separation tasks were completed, the mother and child were shown three Children Apperception Test cards. They were requested to make up a story about each of these cards. When they completed this task they were taken to cubicles where the mother answered a parental attitude questionnaire (PARI) and a form eliciting socio-economic data. The child was administered a test of his learning style.

The videotaping procedure provided the behavioral data storage necessary to code nonverbal behavior and to transcribe the audio portion for the verbal data analysis.

III. Selection of Experimental Variables

The objective of this research was to explore possible relationships between different channels and modes of communication. Therefore, channels were selected which represented two basic modes of human behavior, verbal and nonverbal. Figure 1 presents a summary of the selected channels.

	MOTHER	DYAD	CHILD
Verbal	Interaction Behavior (Statement, command, etc.)		
	Acknowledgment	Acknowledgment	Acknowledgment
	Verbal Frequency (CU's per unit time)		Verbal Frequency (Gross words per unit time)
	Verbal Output (CU's per RU)		
Nonverbal		Nonverbal Behavior (Total, positive, negative, range) (Darrah, 1971)	
	Glancing (Brady, 1969)	Mutual Glance (Brady, 1969)	Glancing (Brady, 1969)

FIGURE 1

EXPERIMENTAL VARIABLES

A. The Acknowledgment Code

The Acknowledgment Code used here is a modified version of that used by Mishler and Waxler (1968). This code was developed and utilized because it is essentially a method of analysing verbal data which indicates the relational quality of the communication. As such, it is of a different level of meaning than the other verbal code employed (Interaction Behavior), which considers the 'style' of a verbal transaction. Clinicians and psychiatrists have considered the patterns and degree of acknowledgment in a family an important indicator of the health of the unit (Ruesch, 1957; Wynne and Singer, 1963). The code measures the degree to which the intent and content of a particular statement are

acknowledged, or taken into account, by the following speaker. Thus, each statement is viewed both as a stimulus that calls for a response from the following speaker and as a response to the previous speaker's stimulus. The unit of interaction for this code is the response unit.[1]

B. The Interaction Code

The Interaction Code is a modified version of that developed and tested by Moustakas, Shalock, and Sigel (1956). Its purpose was to be a procedure for objective description and recording of adult-child interaction. Its construction of categories reflects the basic premise that dyadic interaction involves influence exerted by each member on the other in many different ways to bring about desired behaviors. The person uses the type of influence behavior appropriate to both his personality and his goal.

The criteria used by the authors in selecting the categories in the schedule were: comprehensiveness, relevance and meaningfulness, and ease of identification. In its original form, the instrument consisted of thirty-six categories, some containing sub-categories (see Appendix). However, it was found that in applying the original instrument to the data in this experiment some categories were either not appropriate or of such rare frequency as to be statistically insignificant. In a pre-test, the author found it necessary to modify the code by eliminating some of the categories and combining others to form more inclusive categories. The final form used in this present study consists of the following nine categories: statements, questions, elicitors, suggestions,

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[1] Briefly, the response unit is a speaker's full statement or speech, bounded by statements of other speakers.

instructions, commands, restrictions, negative information, positive information.[2]

C. The Verbal Frequency Codes

This type of behavior has been recognized (Mahl, 1963) as a distinct and important communication channel in studies of dyadic interaction. The three codes (mother's verbal frequency, mother's verbal output and child's verbal frequency) were derived from the data most readily available--mother's communication and response units and child's gross words (Brady, 1969).

D. The Nonverbal Codes

These measures were constructed and researched using the same sample as the present study. Hence, their existence makes possible the multi-channel comparison of behavior which is an objective of this study. For the derivation of these codes and the definition of their units, see Brady (1969) and Darrah (1971).

IV. Definition of Terms

A. Communication Unit (CU)

Semantically, a CU is a subdivision of spoken language which cannot be separated further without loss of essential meaning. Syntactically, the CU is composed of an independent clause between two silences (Loban, 1963).

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[2]Elicitors are utterances with questioning intonation indicating a previous question was not answered; negative information, statements indicating incorrect child action; positive information, statements indicating correct child action. Other categories are self-explanatory.

B. Response Unit (RU)

An RU is an aggregate of one or more CU's which comprise one speaker's full statement or 'speech.' Thus, its boundaries are the preceding and subsequent speeches of the other speaker (Mishler and Waxler, 1968).

C. Maternal and Child Acknowledgment Code

The unit of interaction for the acknowledgment code was the response unit (RU). This code is comprised of three possible categories:

1. Acknowledgment (R)--An RU that indicates a direct acknowledgment of the content or meaning of the previous speaker's RU.

Child: "I will put this block here."
Mother: "Yes, that is where it should go."

In this case, the mother's RU would be coded as an R (acknowledgment response).

2. Open (O)--An RU which acknowledges (by its existence) the other's presence but does not acknowledge the content of his speech. With the occurrence of an O, a new sequential pattern or theme of acknowledgment seems to follow from the mother's above statement:

Child: "I'm getting tired of this game, Mommy. Can we stop now?"

In this case, the child's RU would be coded as an O (open response).

3. Tangential (T)-- This type of RU may be defined as the production of an O when an R was 'requested' by the previous speaker. In other words, the T is a negation or behavioral denial of a request for acknowledgment.

Child: "I'm getting tired of this game, Mommy. Can we stop now?"
Mother: "Put the blue block on the middle pile."

In this case, the mother's RU would be coded as a T (tangential response).

D. Dyad Acknowledgment

For each mother-child pair, sequences of acknowledgment categories were coded. The sequences were coded in units of two (mother-child, child-mother) yielding a total of nine possible combinations: R-R, R-O, O-O, O-T, T-T, O-R, R-T, T-O, and T-R (see Figure 2)

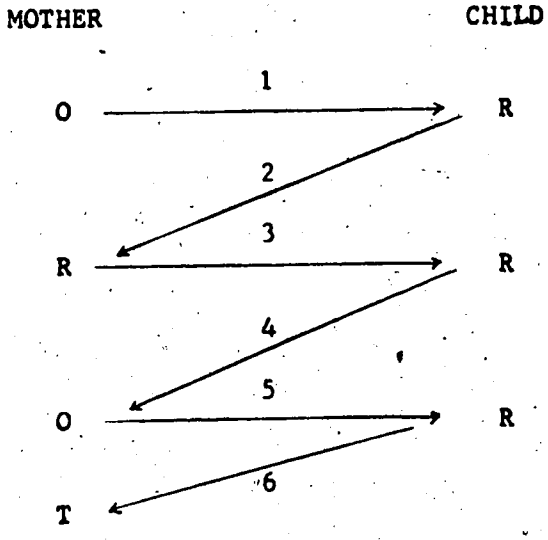

FIGURE 2

THE CODING OF DYAD ACKNOWLEDGMENT

For each sequence (e.g., R-O, O-T, etc.) a number from 1 to 5 was given suggesting the amount (closeness) of acknowledgment in that sequence. For example (see Figure 3), an R-R sequence (close acknowledgment) would be given a score of 1, while a T-T sequence (minimal acknowledgment) would be scored 5. For each dyad, all sequences (mother RU1-child RU1; child RU1-mother RU2; mother RU2-child RU2; etc.) were categorized, the percentage occurrence of each category calculated, the weighted score assigned each fraction, and a total aggregate score found.

Hence, dyads with low scores indicate closeness while dyads with high scores indicate distance with respect to acknowledgment.

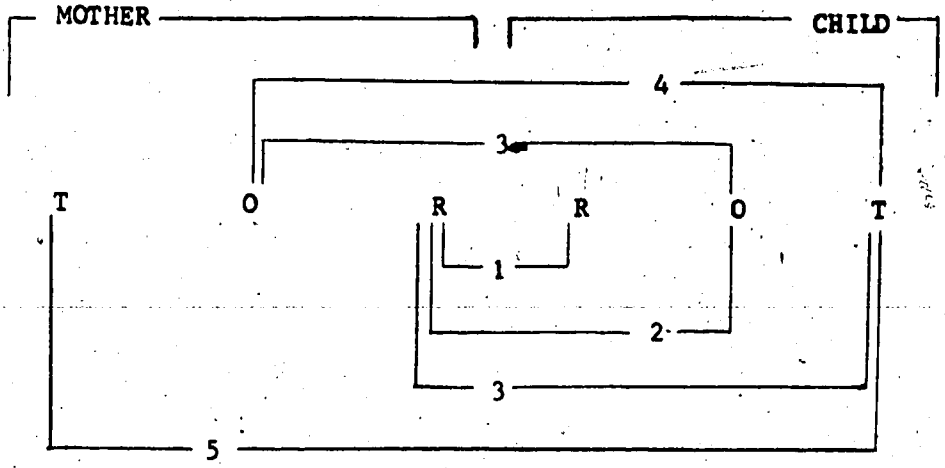

FIGURE 3

THE SCORING OF DYAD ACKNOWLEDGMENT

E. Maternal Interaction Code

The maternal interaction code is a modified version of one constructed by Moustakas, Shalock and Sigel (1956). The type of behavior coded is verbal and the unit of interaction used is the CU. This code is comprised of nine possible categories.

1. Statement--A maternal CU which describes a condition, feeling, or action.

"I am cold (afraid, leaving)."
"This is (here is) a block."

2. Question--A CU in which the mother asks the child for something.

"Why did you do it this way?"

3. Elicitor--An utterance usually occurring as one word or sound with a question form or inflection. Its purpose is to have the

child respond to a question the mother asked immediately before but that the child did not answer. The elicitor has the implication, "Will you answer me?" or "Answer me."

"Hmm?" "Eh?" "Well?"

4. Suggestion--A CU which orients the child towards performing a specific action or manipulating an object. The form of this declaration leaves the child the choice of accepting or rejecting the orientation.

"Let's put the blocks in a pile."
"You could play with the toys if you want."

5. Command--A CU which attempts to influence the child by ordering him to perform a specific operation or behavior. A CU which clearly implies an order.

"Sit up in your chair."
"Speak louder when you answer me."
"Now (put) all the rest of them."

6. Instruction--A CU in the form of a command but one which is specifically related to the task the child must perform.

"Put the coloured blocks in separate piles."
"Tell me what the baby foxes did next."

7. Restriction--A CU in the form of a command by which the mother attempts to reduce or curtail the child's behavior.

"Stop squirming in your chair."
"Leave the toys alone now."

8. Negative Information--A CU or statement indicating that the child is not performing a correct or desired action.

"No."
"You're wrong."
"You can't do it that way."

9. Positive Information--A CU or statement indicating that the child is performing a correct or desired action.

"Yes."
"You're right."
"You did it." "Oh, I see."

F. Maternal Verbal Frequency Codes

1. Total number of mother's CU's taken as a fraction of the total number of mother's RU's (#CU's/#RU's).

2. Total number of mother's CU's taken as a fraction of the length of the session in minutes (#CU's/Time).

G. Child Verbal Frequency Code

This code consists of the total words spoken by the child during the session taken as a fraction of the length of the session in minutes.

H. Dyad Nonverbal Code

This code consists of the four categories constructed by Darrah (1971). 'Total' indicates that mother and child nonverbal behavior has been combined into one aggregate score. These categories are as follows:

1. Total nonverbal behavior
2. Total positive nonverbal behavior (Total Pos.)
3. Total negative nonverbal behavior (Total Neg.)
4. Total range of nonverbal behavior.

For the definitions and derivation of these categories, see Darrah (1971). In the present study, the scores (i.e., numbers of nonverbal behaviors) in these categories were taken as a fraction of the length of time of the session, thus creating frequency scores of nonverbal behavior.

I. Maternal, Child, and Dyad Glancing Code

This code consists of the following three categories constructed by Brady (1969).

1. Mother-child glance
2. Child-mother glance
3. Mutual glance

For the definitions of these categories, see Brady (1969). In the present study, the data on glancing behavior was expressed as a frequency of glancing. The number of glances were taken as fractions of the length of time of the session in minutes.

V. Statistical Analysis

A. Verbal Measures

Inter-rater reliability for the verbal measures was established in a pre-test of the instruments. Following a consistent level of inter-rater functioning (r=.82), this researcher proceeded to score the profiles. As the modified forms of the codes use the same unit of analysis as did the original codes, the reliability scores of the original[3] instruments will be reported (Table 2).

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[3]The original Acknowledgment Code refers to the one developed by Mishler and Waxler (1968). The original Interaction Code refers to the one created by Moustakas, et al. (1956).

TABLE 2

RELIABILITY SCORES OF ORIGINAL ACKNOWLEDGMENT AND INTERACTION CODES

	Mean	Range
Acknowledgment Code	91	86-96
Interaction Code	92	

Both the figures represent observer reliability which refers to the ability of two persons to agree upon the occurrence of a specific event in time. This mode of analysis demands that the reliability of code judgments be acceptable for every act taken singly rather than simply for the total proportion of acts aggregated into a code category at the end of a session. Thus, both instruments demonstrate a high degree of reliability in this more stringent test.

B. Nonverbal Measures

Acceptable rates of inter-rater reliability were established using Spearman Rank Correlation Coefficient with the nonverbal measures. Darrah (1971) reported,

> . . . a correlation of 1.00 was obtained for five variables; a correlation of 0.90 to 0.99 was obtained for six variables, a correlation of 0.80 to 0.89 was obtained for four variables; a correlation of 0.70 to 0.79 was obtained for two variables. For only one variable the correlation was below 0.70 for the inter-rater reliability . . . (: 45).

Brady (1969) reported reliability rates for visual glancing measures of: mutual or dyad glance, 0.95; mother to child glance, 0.83; and child to mother glance, 0.92. It should be made clear that these figures refer to frequency of occurrence of nonverbal behaviors only.

Data on the duration of nonverbal behaviors were also collected by the above authors but are not being used in this study.

C. Hypotheses

The nature of this experiment is exploratory in that the author's intent was to look for possible relationships between many elements of communication. Therefore, because this research is exploratory in nature, no specific hypotheses are generated. Pearson product-moment correlations are used to discover relationships between variables. Alpha levels of 0.10, 0.05, and 0.01 are utilized to determine the statistical significance of the correlations.

CHAPTER IV

RESULTS AND DISCUSSION

I. Analysis of the Tables

The relationships among the ten communication channels and their constituent components are presented in Tables 3-25.[1] Although the number of significant correlations was large (79), a consistent pattern of relationship between the components became discernible. Specifically, almost all components could be categorized as either 'facilitative' or 'inhibitory' by reason of their correlation with the nonverbal variables already so labelled by Darrah (1971) and Brady (1969). Further, even those variables not correlating with nonverbal components showed relationship to other variables that did. In this manner, it was possible to give almost every component a positive (facilitative) or negative (inhibitory) valence. In order to simply reading the results, a list of channel components with their valences is presented in Figure 4.

The results indicate a high number of significant correlations between components of various channels. Due to the large number of channels and components, the description of results will be organized as pictured in Figure 5.

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[1]The abbreviation T will be used in referring to a specific table. For example, Table 16 will be designated T16.

Tables 3-25 are presented collectively at the end of the 'Analysis of the Tables' section.

Channel	Valence of Channel Components: Facilitative	Mixed	Inhibitory
Verbal Acknowledgment	m Response m Open c Response c Open High Dyad Acknowledgment	c Tangential	m Tangential
Verbal Frequency	c Verbal Frequency		m Verbal Output m Verbal rate
Verbal Interaction	statements questions suggestions instructions positive information	elicitors	commands restrictions negative information
Nonverbal Behavior	total nonverbal positive nonverbal range nonverbal c-m glances m-c glances mutual glances		negative nonverbal

FIGURE 4

VALENCES OF CHANNEL COMPONENTS

	Significant Correlations			
	Intermode	Interchannel		
Level of Analysis	Verbal-Nonverbal	Fac-Fac[a]	Inh-Inh[b]	Fac-Inh
Person (Mother or Child)	(1)[c]	(2)	(3)	(4)
Dyad	(5)	(6)	(7)	(8)

[a]Fac = Facilitative Channel components
[b]Inh = Inhibitory Channel components
[c]Numbers refer to the sequence of presentation of results. For example, (1) will preface the paragraph presenting findings pertaining to intermode correlations at the person level of analysis.

FIGURE 5

ORGANIZATION OF RESULTS PRESENTATION

(1) Looking at the mother or child as the unit of analysis, i.e., the single person as communicator, intermode correspondence is demonstrated in the correlation between low child nonacknowledgment (verbal) and high child-to-mother glancing (T22, $p < .05$).

(2) Considering interchannel relationships, facilitative components of maternal positive information and acknowledgment correlate (T3, $p < .01$).

(3) Inhibitory components reveal the following correlations: maternal commands and tangentials (T3, $p < .01$), negative information and tangentials (T3, $p < .10$), commands and verbal output (T4, $p < .10$), verbal output and tangentials (T11, $p < .10$), verbal output and verbal rate (T25, $p < .01$).

(4) Inverse correlations showing negative correspondence occur for maternal statements and tangentials (T3, $p < .05$), positive information

and verbal output (T4, $p < .01$), statements and commands (T24, $p < .01$), and between suggestions and restrictions (T24, $p < .05$).

(5) Looking at the dyad, or person-dyad, intermode correspondence is demonstrated by the following components: dyad nonacknowledgment (verbal) and negative nonverbal behavior (T19, $p < .05$), dyad acknowledgment (verbal) and positive nonverbal behavior as well as range (T19, $p < .05$, $p < .01$), maternal tangentials (verbal) and dyad negative nonverbal behavior as well as range (T13, $p < .01$, $p < .05$), maternal verbal output and dyad positive, negative and range of nonverbal behavior (T16, $p < .10$, $p < .05$, $p < .10$), maternal instructions and child-to-mother glances (T5, $p < .05$), child tangentials and dyad positive nonverbal behavior as well as range (T21, $p < .01$, $p < .10$), all significant correlations in T7. Again, all of the above constitute examples of correspondence between components in the verbal and nonverbal modes.

(6) Interchannel correlations within the dyad or person-dyad unit are found for the following facilitative components: maternal statements and child interaction initiations (T8, $p < .10$), maternal positive information and child verbal output (T9, $p < .10$), maternal responses and child interaction initiations (T14, $p < .10$).

(7) Inhibitory components showing correspondence are: maternal commands, restrictions, and dyad nonacknowledgment (T6, $p < .05$, $p < .05$), maternal commands, restrictions and child tangentials (T8, $p < .05$, $p < .05$), maternal verbal output and child tangentials (T17, $p < .05$).

(8) Facilitative and inhibitory dyad-level components demonstrating negative correlations are: maternal suggestions, positive information and dyad nonacknowledgment (T6, $p < .10$, $p < .05$), as well as for the following maternal-child factors: statements and tangentials

(T8, $p < .05$), commands and verbal output (T9, $p < .10$), initiations and tangentials (T14, $p < .05$), verbal output and responses (T17, $p < .10$), and verbal output for both mother and child (T18, $p < .01$).

In sum, the results reveal that components from the various channels can be categorized as to their facilitative or inhibitory effect. In addition, these findings show a large number of intermode and interchannel correlations between components. The statistic relationships between components are consistent; pairs of facilitative components, as well as pairs of inhibitory components, show positive correlations while facilitative and inhibitory components show negative correlations with each other. Relationships between modes and, within modes, between channels have been demonstrated for both single person and dyad levels of analysis.

TABLE 3

CORRELATION OF MATERNAL INTERACTION
WITH MATERNAL ACKNOWLEDGMENT

Maternal Interaction	Maternal Acknowledgment MR	MO	MT
Statements	-0.12	0.36**[a]	-0.44**
Questions	0.25	0.10	0.20
Elicitors	-0.28	-0.08	-0.32*
Suggestions	0.17	-0.06	-0.19
Commands	0.06	-0.37**	0.59Δ
Instructions	-0.34*	0.35**	-0.06
Restrictions	-0.12	0.05	0.10
Negative Information	0.1	-0.32*	0.33*
Positive Information	0.50Δ	-0.33*	-0.23

[a] * = P < .10
** = P < .05
Δ = P < .01

TABLE 4

CORRELATION OF MATERNAL INTERACTION WITH MATERNAL VERBAL FREQUENCY SCORES

Maternal Interaction	Maternal Output (CU's) Per Response	Maternal Output (CU's) Per Unit Time
Statements	0.06	-0.01
Questions	-0.02	-0.17
Elicitors	0.28	0.37**
Suggestions	-0.21	-0.06
Commands	0.32*	0.28
Instructions	0.06	-0.25
Restrictions	-0.05	0.20
Negative Information	-0.02	0.09
Positive Information	-0.46	-0.11

TABLE 5

CORRELATION OF MATERNAL INTERACTION WITH MATERNAL CHILD AND DYAD GLANCING

Maternal Interaction	Glancing		
	Mother-Child	Child-Mother	Mutual
Statements	-0.24	0.23	0.09
Questions	0.22	-0.06	0.01
Elicitors	-0.28	-0.20	-0.39**
Suggestions	0.00	-0.22	-0.29
Commands	0.20	-0.23	-0.14
Instructions	0.14	0.40**	0.02
Restrictions	-0.28	-0.01	-0.01
Negative Information	0.13	-0.01	0.14
Positive Information	0.02	-0.24	0.17

TABLE 6

CORRELATION OF MATERNAL INTERACTION
WITH DYAD ACKNOWLEDGMENT

Maternal Interaction	Dyad Acknowledgment (Weighted Score)[a]
Statements	-0.07
Questions	-0.24
Elicitors	-0.05
Suggestions	-0.33*
Commands	0.43**
Instructions	0.13
Restrictions	0.42**
Negative Information	0.12
Positive Information	-0.36**

[a]Positive score means distant acknowledgment.
Negative score means close acknowledgment.

TABLE 7

CORRELATION OF MATERNAL INTERACTION WITH DYAD NONVERBAL BEHAVIOR

Maternal Interaction	Dyad Nonverbal Behavior			
	Total	Total Pos.	Total Neg.	Range
Statements	0.20	0.31	-0.11	0.25
Questions	-0.08	-0.10	-0.05	-0.01
Elicitors	0.19	0.23	-0.11	0.24
Suggestions	0.36**	0.52^Δ	-0.17	0.44**
Commands	-0.20	-0.43**	0.31*	-0.46^Δ
Instructions	-0.36**	-0.24	-0.25	-0.01
Restrictions	-0.13	-0.22	0.15	-0.25
Negative Information	-0.04	-0.04	0.19	-0.22
Positive Information	0.23	0.30	-0.02	0.21

TABLE 8

CORRELATION OF MATERNAL INTERACTION
WITH CHILD ACKNOWLEDGMENT

Maternal Interaction	Child Acknowledgment CR	CO	CT
Statements	-0.15	0.34*	-0.35**
Questions	0.63$^{\Delta}$	-0.69$^{\Delta}$	-0.12
Elicitors	-0.33*	0.32*	0.13
Suggestions	0.12	-0.11	-0.06
Commands	-0.14	-0.01	0.43**
Instructions	0.02	0.06	-0.22
Restrictions	-0.25	0.13	0.38**
Negative Information	-0.13	0.13	0.07
Positive Information	-0.06	0.03	0.09

TABLE 9

CORRELATION OF MATERNAL INTERACTION
WITH CHILD VERBAL FREQUENCY

Maternal Interaction	Child Verbal Output (Gross Word Frequency)
Statements	0.18
Questions	-0.13
Elicitors	-0.15
Suggestions	-0.02
Commands	-0.32*
Instructions	-0.14
Restrictions	0.07
Negative Information	0.09
Positive Information	0.35*

TABLE 10

CORRELATION OF MATERNAL INTERACTION WITH SEX OF CHILD

Maternal Interaction	Sex of Child	
	Male (+)	Female (-)
Statements		-0.39**
Questions		+0.38**
Elicitors		-0.37**
Suggestions		-0.09
Commands		+0.40**
Instructions		+0.03
Restrictions		+0.06
Negative Information		+0.25
Positive Information		-0.27

TABLE 11

CORRELATION OF MATERNAL ACKNOWLEDGMENT WITH MATERNAL VERBAL FREQUENCY SCORES

Maternal Acknowledgment	Maternal Verbal Frequency	
	Output (CU's) Per Response	Output (CU's) Per Unit Time
Response	0.00	0.24
Open	-0.19	-0.30*
Tangential	0.34*	0.18

TABLE 12

CORRELATION OF MATERNAL ACKNOWLEDGMENT WITH DYAD ACKNOWLEDGMENT

Maternal Acknowledgment	Dyad Acknowledgment (Weighted Score)
Response	-0.29
Open	0.00
Tangential	0.46Δ

TABLE 13

CORRELATION OF MATERNAL ACKNOWLEDGMENT WITH DYAD NONVERBAL BEHAVIOR

Maternal Acknowledgment	Dyad Nonverbal Behavior			
	Total	Total Pos.	Total Neg.	Range
Response	0.15	0.08	0.04	0.07
Open	-0.13	0.09	-0.29	0.18
Tangential	0.02	-0.28	0.48$^{\Delta}$	-0.45**

TABLE 14

CORRELATION OF MATERNAL ACKNOWLEDGMENT WITH CHILD ACKNOWLEDGMENT

Maternal Acknowledgment	Child Acknowledgment		
	CR	CO	CT
Response	-0.41**	0.31*	0.39**
Open	0.35*	-0.20	-0.47$^{\Delta}$
Tangential	0.04	-0.13	0.18

TABLE 15

CORRELATION OF MATERNAL ACKNOWLEDGMENT WITH SEX OF CHILD

Maternal Acknowledgment	Sex of Child Male (+)	Female (-)
Response	-0.10	
Open	-0.16	
Tangential	+0.48 $^{\Delta}$	

TABLE 16

CORRELATION OF MATERNAL VERBAL FREQUENCY SCORES WITH DYAD NONVERBAL BEHAVIOR

Maternal Verbal Frequency Scores	Dyad Nonverbal Behavior Total	Total Pos.	Total Neg.	Range
Output (CU's) Per Response	-0.14	-0.35*	0.22	-0.32*
Output (CU's) Per Unit Time	0.22	-0.04	0.38**	-0.21

TABLE 17

CORRELATION OF MATERNAL VERBAL FREQUENCY SCORES WITH CHILD ACKNOWLEDGMENT

Maternal Verbal Frequency Scores	Child Acknowledgment R	O	T
Output (CU's) Per Response	-0.09	0.05	0.14
Output (CU's) Per Unit Time	-0.3*	0.22	0.38**

TABLE 18

CORRELATION OF MATERNAL VERBAL FREQUENCY SCORES WITH CHILD VERBAL FREQUENCY

Maternal Verbal Frequency Scores	Child Verbal Output (Gross Word Frequency)
Output (CU's) Per Response	-0.71^Δ
Output (CU's) Per Unit Time	-0.13

TABLE 19

CORRELATION OF DYAD ACKNOWLEDGMENT WITH DYAD NONVERBAL BEHAVIOR

Dyad Acknowledgment	Dyad Nonverbal Behavior			
	Total	Total Pos.	Total Neg.	Range
Weighted Score	-0.07	-0.39**	0.43**	-0.48$^{\Delta}$

TABLE 20

CORRELATION BETWEEN DYAD ACKNOWLEDGMENT AND CHILD ACKNOWLEDGMENT

Dyad Acknowledgment	Child Acknowledgment		
	CR	CO	CT
Weighted Score	-0.60$^{\Delta}$	0.48$^{\Delta}$	0.51$^{\Delta}$

TABLE 21

CORRELATION OF DYAD NONVERBAL BEHAVIOR WITH CHILD ACKNOWLEDGMENT

Dyad Nonverbal Behavior	Child Acknowledgment CR	CO	CT
Total	-0.04	0.11	-0.11
Total Positive	0.14	-0.00	-0.36*
Total Negative	-0.25	0.19	0.25
Range	0.21	-0.10	-0.33*

TABLE 22

CORRELATION OF CHILD ACKNOWLEDGMENT BEHAVIOR WITH MATERNAL, CHILD AND DYAD GLANCING

Child Acknowledgment	Glancing Mother-Child	Child-Mother	Mutual
Response	-0.02	0.01	0.00
Open	0.05	0.17	0.07
Tangential	-0.07	-0.42**	-0.19

TABLE 23

CORRELATION OF CHILD VERBAL OUTPUT
AND MATERNAL, CHILD
AND DYAD GLANCING

Child Verbal Output (Gross Word Frequency)	Glancing		
	Mother-Child	Child-Mother	Mutual
Output	0.12	0.30	0.42**

TABLE 2

CORRELATION MATRIX OF MATERNAL INTERACTION COMPONENTS

	Stat.	Quest.	Elicit	Sugg.	Comm.	Instru.	Restr.	Neg. Inf.	Pos. Inf.
Statements	-								
Questions	-0.47^	-							
Elicitors	0.15	-0.36**	-						
Suggestions	0.11	0.22	0.34*	-					
Commands	-0.59^	0.12	-0.12	-0.22	-				
Instructions	0.01	-0.19	-0.09	-0.23	-0.25	-			
Restrictions	-0.05	-0.31*	-0.17	-0.41**	0.18	0.12	-		
Negative Information	-0.10	-0.35**	-0.27	-0.41**	0.34*	0.03	0.17	-	
Positive Information	-0.13	-0.04	0.01	0.20	-0.22	-0.41**	-0.25	-0.01	-

II. Discussion of Results

A. Redundancy

The findings of this study indicate that both multi-modal and multi-channel redundancy occurs at the pragmatic level of communication. Components in each of the verbal channels--acknowledgment, interaction, and verbal frequency--correlated at levels beyond significance with components in the nonverbal mode. In addition, verbal channel components showed significant relationships among themselves.

The meaning of the term 'redundancy' has to be qualified at this point in order to get a measure of the relative importance of the findings. Broadly defined, redundancy refers to the structural and semantic properties of a language that results in information being repeated. As applied to human communication, redundancy has a three-fold definition. It can mean either:

1. The repeating of a message in one channel, i.e., sequential transmission;
2. The sending of a message in two or more channels simultaneously, or,
3. The sending of a message in two or more channels sequentially.

The findings of this study do not concern single channel redundancy. Further, the results cannot herein permit conclusions about the existence of simultaneous multi-channel redundancy. Such a possibility cannot be discounted, but neither can it be proven, as to do so would require a frame-by-frame analysis of all channels collectively. Therefore, this study, while pointing to the existence of multi-channel (and multi-modal) redundancy cannot effectively distinguish between its

two conditions--sequential and simultaneous.

The author is also aware that an assumption must be made when discussing the issue of redundancy. According to its definition, redundancy refers to the transmission of the same message. This is a very difficult factor to test when dealing with pragmatic meanings conveyed analogically. Also, it has been shown that different messages can be sent simultaneously in communication. The author cannot but conclude that in 'indicative' studies of communication, congruency of meaning as expressed through different channels will have to remain an assumption. In natural observational settings, moreover, it is practically untestable.

In sum, multi-modal and multi-channel redundancy has been indicated by the findings. The results cannot distinguish between the conditions of sequential and simultaneous redundancy. Also, the whole issue of the existence of redundancy rests on an assumption--that pragmatic messages conveyed analogically have congruent meanings.

B. Styles of Control

The results of this thesis indicate that the interaction code seems to be describing three different maternal control styles. Figure 6 presents the three categories together with their defining factors.

Mothers who rated high on the use of statements and suggestions seemed to be involved in a constructive relationship with their child. Their dyadic interaction was characterized by both close acknowledgment (T6, $p < .10$), positive nonverbal behavior (T7, $p < .01$), and range (T5, $p < .05$). This type of mother and her child tended to initiate a high number of new interaction themes (T3, $p < .05$; T8, $p < .10$) indicating

Styles of Control	Behavior Categories from the Maternal Interaction Code
Environment	Statements Suggestions
Attention	Questions Elicitors
Person	Commands Restrictions

FIGURE 6

STYLES OF MATERNAL CONTROL

perhaps that each member possessed strong self-reliance. Both, in contrast, negated each other's requests for acknowledgment significantly less than average (T3, $p < .05$; T8, $p < .05$), a possible indicator of high mutual respect. This pattern of high positive nonverbal behavior combined with high descriptiveness also characterizes the interactive style of child therapists (Moustakas, et al., 1956).

> . . . his most frequent response was in the nature of being there, watching and listening. Interpretation and orientation were the only other approaches used to any considerable extent by the therapist (: 131).

The 'environment control' mother, again, like the child therapist, used other control approaches--commands, restrictions, and questions--significantly less (T24, $p < .01$, $p < .05$, $p < .01$). Mothers using this control style had children who scored high on response latency ($p < .10$) and low on errors ($p < .10$)--two of Brady's (1969) measures of cognitive achievement. Busse (1969) found a similar result; mothers with high environmental structuring and low use of commands had sons scoring high on flexible thinking. Saxe and Stollack (1971) found positive, non-restricting

mothers paired with curious, high pro-social boys.

In sum, it is being concluded that the behavioral factors of 'statements' and 'suggestions' define one type of parental influence strategy, termed 'environment control,' and that this style has predominantly positive consequences for both parent-child interaction and child development.

A second control style, labelled 'attention control' was characterized by mothers who were high in the use of questions and elicitors. This style is less well defined than the others and, in fact, may be describing two separate processes. The questioning mother uses low numbers of statements (T24, $p < .01$) and restrictions (T8, $p < .10$). She has little need to restrict, as her child tends [redacted] high acknowledgment (T8, $p < .01$) and initiate very little [redacted] (T8, $p < .01$). The image is one of assertive interrogator and passive respondent. In contrast to the questioning mother, the mother using high eliciters, while also focussed on the issue of gaining her child's attention, seems to be having trouble controlling in this manner. Her chief problem stems from the fact that she has a child high on initiative (T8, $p < .10$) and reluctant to acknowledge her input (T8, $p < .10$). Other negative influences include this mother's tendency to oververbalize (T4, $p < .05$) which is another type of attention control strategy (Mishler and Waxler, 1968). In addition, there is a low rate of mutual glancing (T5, $p < .05$) indicating a paucity of nonverbal acknowledgment. The image in this dyad is one of a slightly anxious mother attempting to gain the attention of a rather independent child. The 'elicitor' mother asks relatively few questions (T24, $p < .05$) but, perhaps having them answered half-heartedly, poorly, or not at all, indicates through her use of elicitors

that she would like a more satisfactory reply.

In sum, both 'questions' and 'elicitors' appear to be varieties of attention control strategies with 'questions' indicating a higher degree of control, and 'elicitors' signalling control problems between mother and child.

The third control style, person control, is defined by mothers rated high on the use of commands and restrictions. In contrast to mothers using environment control, those employing person control strategies participated in a predominantly negative interaction with their children. Strong evidence of this negativity was reflected in the dyad nonverbal behavior, with low positive (T7, $p < .05$), low range (T7, $p < .01$), and high negative (T7, $p < .10$) nonverbal behavior marking a consistent trend. Supporting this were congruent negative components in the verbal channel, for example, high incidence of both mother and child tangentials (T3, $p < .01$; T8, $p < .05$). Further evidence of maternal control tactics (high verbal output, T4, $p < .10$) was found in conjunction with low child verbal participation (T9, $p < .10$). Again, as was previously stated, mothers high in the use of person control tended to not use the other influence strategies. The inverse relationship between person and environment control is supported by similar findings from other research (e.g., Olim, Hess and Shipman, 1967). Thus, the dyad wherein person control is employed presents a picture of conflict and unhappiness. Covert (nonverbal) skirmishing is accompanied by the tendency of both parent and child to deny each other's requests for acknowledgment, and by a lower involvement with the cooperative task.

In sum, this multi-channel study of mother-child communication defines three distinct styles of maternal control, each having different implications for the quality of mother-child interaction and possible consequences for child development. Environment control indicates a positive, expressive, mutually respecting involvement with healthy child initiative and cognitive performance. Attention control defines a neutral to moderate conflict situation involving a possibly anxious mother and an unresponsive or passive child. Person control indicates a negative, emotionally restricting environment with low child involvement and participation.

C. Styles of Instruction

The present thesis contains findings which support Brophy's (1970) hypothesis of proactive and reactive teaching styles. Within the maternal acknowledgment channel are two components, MO and MR, whose pragmatic meaning, as defined in their relationship to other components, suggests Brophy's proactive and reactive typologies.

The MO mother demonstrates an obvious concern for structuring and elaborating the task environment for her child. She organizes the situation; being high MO, she acknowledges the significance of her own input and initiates new themes as they occur to her. In doing so, she utilizes a higher percentage of statements (T3, $p < .05$) and instructions (T3, $p < .05$), both strong behavioral indicators of her proactive style. Her lower frequency of verbalization (T11, $p < .10$) suggests that the information she conveys is well-ordered and easily understood. In addition, the MO mother uses relatively fewer commands (T3, $p < .05$) and less feedback of either a positive or negative nature (T3, $p < .10$). This implies that her child is well in control of his own performance.

In interaction, she neither overly ties in with her child (-M[illegible] $p < .01$) nor negates his requests for acknowledgment (-MT, $p < .01$)[illegible], the child is both very responsive to her ([illegible] $p < .10$) and minimally disconfirming (T14, $p < .01$). The ove[illegible]cture is one of a mother, concerned with making the task situation [illegible]ningful and manageable, instructing a child who is responsive t[illegible] concern. Her instructional style is, in a word, proactive.

The MR mother, in contrast, seems little concerned with the teaching possibilities inherent in the task situation. She neither initiates a variety of interactions (-MO, $p < .01$) nor organizes the task for the child through instructions (T3, $p < .10$). Instead, she more readily responds to her child's task-oriented behavior, giving him higher than average rates of positive feedback (T3, $p < .01$). Her child, in turn, behaves as if he is attempting the task independent of her assistance. He acts less responsively (T14, $p < .05$) and is more non-cognizant (T14, $p < .05$) of his mother's requests. In essence, the MR mother has an involved, but minimally structuring, teaching style. Instead, she reacts to her child's problem-solving behavior, signalling her awareness when he has made a successful move.

In conclusion, it has been posited that Brophy's proactive and reactive instructional typologies are reflected in the MO and MR components of the acknowledgment channel. Brophy suggests that the proactive style,

> . . . is the best for socialization purposes, since it is used more by middle-class mothers who tend to be more successful in teaching socialization goals (: 93).

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[2] The abbreviation -MR means that MO shows negative correlation with MR. This result does not appear in the tables.

The results of this thesis indicate, however, that even within middle-class, mothers can be distinctively proactive or reactive in their approach. Were Brophy to expand the scope of his investigation to include interactive data (as this thesis has done), he might conclude that his instructional categories are merely instances of the more essential and pervasive interaction categories. In other words, a proactive teaching style may be but one manifestation of a proactive (MO) acknowledgment style.[3] Hence, a more direct link between teaching styles and child socialization may be drawn when the broader interactive significance of such styles is understood.

D. Sex-typed Styles of Interaction

The findings of this thesis support Lynn's (1966) hypotheses that there are different learning environments for boys and girls. More specifically, mothers use more positive methods of control with daughters than with sons. With daughters, mothers gave significantly more statements (T10, $p < .05$), indicating a more positive environment control approach. With sons, mothers rated higher on the use of both questions and commands (T10, $p < .05$), demonstrating the more negative techniques of attention and person control. Trends were also noted in the type of feedback mothers give. Mothers tended to give more positive feedback to girls and more negative feedback to boys at levels close to significance. Lynn (1964) found such feedback differences to be significant and labelled the two types 'convergent' and 'divergent.' Kogan, et al. (1971), reported that differential use of positive and negative feedback

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[3] The findings of this thesis show, moreover, that an MO acknowledgment style is correlated with child responsiveness, which may be an interactive indicator of child socializability.

discriminates mothers of normal children from those of disturbed children. consequences of differing feedback styles for child achievement were reported by Jackson (1969). He found that positive maternal feedback following a correct answer was related to high child performance, whereas negative feedback following an incorrect answer had no effect.

In sum, the findings of this thesis tend to corroborate the hypothesis put forth by others that the sex of the child helps determine the type of parent-child interaction, which in turn has implications for child sex-role and cognitive development.

CHAPTER V

IMPLICATIONS

I. Implications for Further Research

The results of this study suggest possibilities for the following further investigations.

(1) A replication study involving the channels used, specifically, acknowledgment, interaction, verbal frequency and nonverbal behavior, is warranted. Most of these channels have been recently defined. Therefore, additional research and refinement would enhance their meaningfulness as communication codes. Perhaps, in addition to an homogenous sample, different groups of mother-child pairs could be tested to see if the above channels discriminated between them.

(2) A repetition of the same study, this time using frame-by-frame analysis of channels, would determine if the redundancy found was simultaneous or sequential in nature. Also, such a micro-level analysis of the data could uncover patterns of interaction above the styles of relating discussed herein. For example, it is possible that the tangential response, although an indicator of negative interaction, serves the function of putting the communicants back into touch with each other. Such functional analysis would require sequential treatment of the data.

(3) The channels used in this study could be combined in further research with other interaction codes. For example, one such relevant code would comprise Wiener and Mehrabian's (1968) channel

of 'immediacy.' It would be useful to determine if psychological distance of speaker from addressee, as measured by speech factors, is reflected in his verbal and nonverbal analogic behavior.

(4) There has been little research in the development of communication styles and patterns as a function of time (see Horé, 1968). The question of the role that age and experience of the communicants would play in modifying or maintaining interaction patterns has not yet been addressed. The control problems inherent in such a study would be complex and perhaps a longitudinal design would be desirable.

(5) This study has supported others (Olim, Hess and Shipman, 1967; Hatfield, et al., 1967; Brophy, 1970) in demonstrating the existence and importance of styles of structuring and control. This author feels that the structuring dimensions (i.e., proactive and reactive) and the control strategies (environment, attention and person) may be expressions of more general interaction factors. Perhaps these dimensions and others could be collected in a factorial analysis to test this proposition.

II. Implications for Adult Re-Education

We, as adults, are just beginning to re-cognize ourselves (albeit, contemplatively) as expressive communicators. Studies such as this thesis reveal that we are merely scratching the surface of our communications abilities; that we don't really appreciate the richness, subtlety, mystery, and creativity that is simply, inherently, part of our social interactions. As we delve ever deeper into the labyrinth of communication structures and meanings, we are shocked to discover that

our expressive capacities may rival our perceptual capabilities in complexity and diversity.

One implication from this awareness is that we should foster the growth of creative expression in our children through 'expressive' education. But this idea, alas, is folly, and for two good reasons. First, adults don't really believe in expressiveness. Second, children (at least the ones who haven't been harmed) don't need to be taught to express. I will elaborate.

It is the greater proportion of adults, not children, who have lost touch with their expressive capacities. Adults, not children, no longer trust their 'participative' cognitions and, in some cases, no longer even experience this way. And it is adults, not children, who myopically see only the 'contemplative' dimension of education.

It is, therefore, we adults, not children, who are in need of expressive re-education. We are in need of mind-body reintegration. The evidence of this need is everywhere. Study after research study demonstrates the developmental health of parental high-expressive communicative dimensions (e.g., involvement, descriptiveness, proactivity) while uncovering the pathology of low expressive dimensions such as control, restrictiveness, passivity. Witness the dramatic increase of institutes devoted to adult expressiveness in such forms as self-awareness, interpersonal communication, emotional awareness, body language, primal therapy, creativity--the list is endless.

There remains, however, one small problem. The greater part of society, the 'silent majority' if you will, are not aware of their need. Bain (1973) understandably bemoans the fact that, at present, participative cognizing (which involves expressive, analogic perceptions

and reactions) is so little understood or valued in our society of contemplators. Human potential groups not discounted, Bain is still accurate in his assessment that a large segment of the adult population does not experience wholesomely--i.e., as whole people. Adults are typically wary of children and I suspect this fear is all in their minds. To be less obtuse, children can both experience and express that experience organismically. This is frightening to adults who would prefer to control both perception and expression.

Adults also 'control' school systems and it is foolish to think that those cut off from their expressive modalities can 'educate' anyone else. Schools can't 'teach' children much anyway.

Children, given the proper circumstances, are much more capable of teaching themselves. Information? Children possess tons of it and what they lack they can ask for. Perceptual and cognitive ability? Unless the child is physically or emotionally damaged, his mere existence ensures making 'sense' of his world. Expression? Healthy children, by school age, have developed a wealth of expressive modalities through play. A pre-schooler's learning is in full swing. As demonstration of his competence, what better evidence do we need than that he has learned our language and most of our social rules.

The question for schools, then, is not "What does the child need to be taught?" but "How can we help him <u>with what he's doing</u>?" The answer is simple in theory, but difficult in practice. Teachers can do no more <u>and no less</u> than help the child recognize his own existence and, more importantly, to keep re-cognizing that existence. The young child has all the equipment he needs to do this--he is 'together.' The teacher must act simply as a catalyst. To serve even this function, however,

schools require expressively-aware adults who are continually 'in process' themselves.

In sum, it is my belief that if children are to be kept alive (i.e., organismically whole) then children must experience schools as more than 'contemplation camps.' For this minor revolution to occur, however, society must adopt expressiveness as a value. This value can be made manifest most efficiently and effectively, not through child education but through adult re-education.

Perhaps, just perhaps, we can re-learn from our children.

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APPENDIX

APPENDIX

CATEGORIES FOR MOUSTAKAS-SIGEL-SCHALOCK SYSTEM

Clark E. Moustakas
Irving E. Sigel
Henry D. Schalock

Category
Nonattention
Neutral behavioral expression
Positive behavioral expression
Negative behavioral expression
Attentive observation
Recognition [Mm; Hm; Yes, I see; Oh; Let's see now.]
Statement of condition or action
Statement of situation [It's hot in here.]
Statement of emotional state [I'm afraid.]
Statement of action [I'm going to leave.]
Joint participation in activity
Offering information
Verbal information [Let me show you. . .; You do it this way. . . .]
Information by demonstration
Information by demonstration and explanation
Giving help
By assisting in completing task
By completing task
Reassurance [Don't worry. . . ; It doesn't matter. . . .]
Seeking information
Personal information [How do you like school?]
Impersonal information [What is this?]
Seeking help
By requesting assistance [Help me. . . ?]
By completion of task [Will you do this for me?]
Seeking reassurance [comfort, encouragement] [Am I doing this right?]
Seeking recognition [Look what I'm doing!]
Seeking praise [Isn't this nice?]
Seeking affection [Come and kiss me. . . . Hold me on your lap.]
Seeking reward [Will you give me some candy?]
Seeking permission [Could I. . . . Is it all right if I. . . ?]
Orienting
Boundaries [You may do what you like.]
Time [You have one more minut.]
Roles [Older people do it this way.; That's what the man said.]
By status, power, age
By indicating responsibility

Directing
  Suggestion [. . . if you want to. Would you like to. . . ?]
  Command and threat [Clean up or else.]
  Command [Put that down. Get me that. . . .]
Restricting
  By warning [Watch out or else you'll. . . .]
  By explanation [Don't. . . or else you'll. . . .]
  By threat of bodily punishment [Don't. . . or else I'll. . . you.]
  By threat of loss of affection [If you don't. . . I won't. . . .]
  By direct statement [Don't. . . . I don't think you should. . . .]
  By recognition and clarification [You'd like to. . . but. . . .]
  By limiting the use of objects [You may only use. . . .]
  By physical restraint
Forbidding
  By explanation [Stop. . . . I can't let you. . . because. . . .]
  By offering alternative [You can't. . . but you can. . . .]
  By recognition and clarification [I know. . . but stop.]
  By threat of bodily punishment [Shut up. . . . Stop. . . or I'll. . . .]
  By threat of loss of affection
  By direct statement [Stop that!]
  By removing object
  By physical barriers
  By physical restraint
  By warning [If you don't stop. . . you'll get hurt.]
Criticism
  Of person [Don't be stupid. Act your age.]
  Of person's production [That's sloppy, no good.]
  Of person and person's productions [When you. . . you act like a baby.]
Disciplinary action
  By isolation [Go to your room.]
  By deprivation of objects or space [You can't play with the gun any more.]
  By attacking person's objects
  By corporal punishment
  By deprivation of love or affection [Since you. . ., I'm not kissing you goodbye.]
Physical attack
Threat of attack
  By verbal expression [I'm going to hit you. . . .]
  By gestures
  By verbal and gestural means
Rejection
  By changing subject or interrupting with irrelevant statement
  By denying validity of statement or action [No! That's not a. . . .]
  As a person [I hate you. . . . Get away from me.]
  By ignoring or evading a non-response to a verbal seeking statement
Permission
  With qualifications [Yes, you may. . . if you. . . .]
  Without qualifications [Yes, you may. . . .]
Praise [That's a fine. . . . You did that well.]
Affection
  By physical means
  By verbal means [I like you.]

- Reward [For! . . I'm going to give you. . . .]
- Cooperation
  - Casual or straightforward [O.K. I'll play. . . . I'll do. . . .]
  - Enthusiastic [I would love to. . . . I'll do it now.]
- Compliance [I'll do it but I don't want to.]
- Noncooperation
  - With explanation [I won't. . . because. . . .]
  - With alternative [I won't. . . but. . . .]
  - Simple refusal [No. I won't. I don't want to.]
  - Strong refusal [No! No! No!]
- Ambivalent statement [I don't know if I should.]
- Interpretation
  - Restatement of content
  - Verbalization of motor behavior [I see you have made. . . .]
  - Restatement of verbalized feelings [You don't like it. . . .]
  - Recognition of feeling in motor behavior [You feel like. . . .]
  - Clarification of verbalized feelings
  - Clarification of feelings in total behavior [integration of past behavior]
  - Association of current and past events
  - Account of reality or translation of symbolic behavior
- Anxiety
  - Little or none
  - Some
  - Much
- Hostility
  - Little or none
  - Some
  - Much