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The effects of level of decentering ability in structuring interpersonal content on the vocal communication of emotional meaning.

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THE EFFECTS OF LEVEL OF DECENTERING ABILITY
IN STRUCTURING INTERPERSONAL CONTENT ON THE
VOCAL COMMUNICATION OF EMOTIONAL MEANING

by

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B.Sc., University of Windsor, 1965
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1973
ABSTRACT

The present study was designed to investigate the effect of the level of decentering ability on both sending and receiving vocal expressions of three types of emotional meaning. Female teachers were divided into High and Low decentering groups on the basis of their performances on the Role Taking Task. Using these teachers as Senders, audio tapes containing a constant-content statement, expressed in "angry", "indifferent", and "firm but kind" tones were produced. These tapes were played for another group of female teachers who were also divided into High and Low decentering groups. Using these teachers as Receivers, identifications of the emotional meanings of the expressions were obtained.

It was found that High Decentering Receivers identified the emotional meanings more accurately than did Low Decentering Receivers. It was also found that items produced by High Decentering Senders were more accurately identified than were items produced by Low Decentering Senders. These results were discussed in terms of the common abilities measured in the level of decentering ability and required in the tasks of producing and identifying emotional meanings. It was also found that the effect of level of decentering ability was greater on Senders than on Receivers. This was discussed in terms of differences in the tasks of producing and identifying emotional meanings.

When type of emotional meaning was taken into account, it was
found that differences between High and Low Senders occurred with "Angry" items. This was discussed in terms of the relatively high activation level of "Angry" items.
ACKNOWLEDGMENTS

The writer wishes to express gratitude to several individuals for their particular contributions to this research.

Dr. R. M. Daly's influence on this work began long before the first word was written. It was his encouragement to develop one's individual conceptualization of personality and interpersonal interactions which led to the formulation of a dissertation which was personally relevant and meaningful to the writer. Likewise, it was the writer's professional and personal experiences with Dr. C. Holland which offered renewed confirmation that this investigation was as meaningful to the writer as a dissertation could be.

Appreciation is extended to Drs. M. Morf and W. Libby for their assistance in helping the writer focus this work so that it could communicate what it was designed to convey. A thanks goes to Miss Irene Schultz, not only for typing the manuscript, but also for assisting in the numerous details which to many appear trivial but to a graduate student are critical. Also, thanks goes to William McDermott for his scoring of the RTT stories used for the interjudge reliabilities.

Finally, but most importantly, a life-long gratitude goes to my wife, Dorit, and my two children, Michele and John, who have given up much time with their husband and father so that he could do this work. To them I offer a renewed dedication.
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CHAPTER I

INTRODUCTION

The act of communicating involves a sender, a message and a receiver. The message also has some sort of information, which is in the form of a code. Each of these three components - sender, message, receiver - can vary along one of several dimensions, or can be held constant at a specified level. As a result of such manipulations, the act of communication can be studied. It is the primary purpose of this study to investigate the effects of certain variations in these components. Let us begin by considering a model within which such an experimental study could be described.

In describing the requirements of a psychological experiment, Woodworth and Schlosberg (1954) provide the following paradigm:

\[ S \rightarrow O \rightarrow R \]

where \( S \) symbolizes a series of events in which the experimenter (understood) applies a certain stimulus (or situation) to an organism (O) and observes the organism's response (R). By rearranging the elements involved, the following equation can be constructed: \( R = f(S,O) \). That is, the response is a function of stimulus and organismic factors. Inclusion of "O" (organismic factors) becomes necessary, as an explanatory factor, when the same stimulus is followed by different responses, depending on the organism responding. Such a
model allows investigation, not only of the external environment, but also of individual differences between the organisms in the study.

A stimulus has been defined as "any energy change which excites a receptor; employed loosely of any object or event which has such an effect" (Drever, 1964, p. 283). In many areas of psychological research, the stimulus is varied, systematically, along some dimension, and the investigation of the effects of these variations on the organism's response(s) is the primary purpose of the investigation. In these experiments, one of the tasks of the experimenter is to have a priori knowledge of the characteristics of the stimuli being presented, so that he can: 1) systematically vary them, and 2) meaningfully predict their effects. Since, in many studies, the stimuli are inanimate (and usually man-made), knowledge of their characteristics is easily accessible and thus varying them, systematically, presents no great difficulty. For example, in studying the effects of variations in the weight of objects on the judged variations of "heaviness", E can construct objects varying in whatever degree he wishes and thus can easily obtain a priori knowledge of the variations in the stimuli. Even when using human behaviour as stimuli, E can obtain a priori knowledge of various physical characteristics. For example, if he wishes to study the effects of variations in voice intensity, he can instruct Ss to speak at various intensity levels, measure these, and systematically select those he will use as stimuli. More complex requirements arise, however, if E is interested in studying the effects of organismic differences on response-stimuli (responses used as stimuli) as assessed by other Ss. To systematically vary such
response-stimuli, E must: 1) have a priori knowledge of how the stimulus-producing Ss differ on the organismic variable he is interested in studying, 2) provide a situation in which the production of the response stimulus requires the utilization of that organismic characteristic, and 3) select a type of response which can be manipulated for presentation to other Ss. Fulfilling the above requirements would thus allow a systematic study of the effects of such response-stimuli in terms of the organismic differences with which they were associated. This study will utilize such an approach.

Having discussed the influence of an organismic variable in the production of stimuli, let us look at the influence of an organismic variable in the production of responses. In many areas of investigation, E is mainly interested in the effects of his stimuli on the "average" or "typical" subject. To determine this, he may use a large number of people. Differences among these Ss are considered error variance and attempts at controlling them are made through, among other procedures, the implementation of adequate sampling techniques. Some researchers, however, are interested in the effects of their stimuli on groups of Ss, these also being differentiated on some variable. Here, too, such a categorization variable is termed "organismic" in that differences in responses made by these Ss may be partially attributed to characteristic differences between the organisms in the groups. Within each group it is important to control for individual differences, but differences between groups can be varied by systematic selection.

Given the above, an act of communication could be studied by considering the sender, as an organism with specified characteristics,
producing stimuli, and the receiver, as an organism with specified characteristics, producing responses to those stimuli. However, it should be noted that when a sender makes a response, he is not only producing a stimulus for the receiver but also for himself. Likewise, when the receiver makes a response, it is not only a stimulus for E, but also for himself, and in an interaction situation, for the sender. It should also be noted that the act of studying an act of communication is not immune from influencing the communication. Let us look at a schematic diagram of these relationships (Fig. 1). Within this model several comparisons can be studied, depending on the organismic characteristics of the sender and the receiver. Also, no assumption is being made regarding the causative sequence of the "organismic" and "behavioural" variables. Whether the former "cause" the latter, or the latter "cause" the former is not being studied. The model depicts a cyclical process in which each influences the other. It is only for the purpose of study that variables may be investigated in a given sequence, e.g., organismic
variable of sender — message — organismic variable of receiver — response to message. That a sender's message might influence his organismic characteristics and, through this, future messages, and that a receiver's responses might influence his processing of messages and, through this, future responses is indicated by dotted lines. Also depicted by dotted lines are the influences of the receiver's response on the sender, such as would occur in an interaction sequence.

The model presented above represents a rather comprehensive approach to studying acts of communication. It lends itself to a wide variety of studies, both in terms of design and content. Let us now turn to a more circumscribed application of this model to the present study. This study will involve only those relationships indicated by solid lines. Let us begin with the experimental situation as it is applied to senders, messages, and receivers. The experimental situation refers to the various manipulations made by E. It includes procedures and instructions given to, and recordings made of, senders. It includes manipulations of the messages (e.g. randomization) in preparation for presentation to receivers. Finally, it includes procedures and instructions given to receivers, and recordings and analyses made of their responses. In effect, it represents the role of the experimenter in the experiment. As indicated in the diagram, the experimental situation is influenced by Es' analyses of responses. In the present study this influence primarily takes the form of theoretical formulations and literature research. Let us now turn to a brief outline of the variables involved.

The organismic variable on which both senders and receivers will be categorized falls under the general rubric of 'cognitive
processes" and under the more limited area called "information processing". Information processing has been defined as "the characteristic ways in which an individual selects, organizes, stores, and uses information in adapting to various aspects of his world" (Schroder and Suedfelt, 1971, p. iii). These processes have been studied from several different approaches, only one of which will be used in this study, namely "information processing" as viewed from the construct of "conceptual complexity". The situation within which the response-stimuli are to be produced will be one involving problem solving. It has been reported that it is in such situations that individual differences in "conceptual complexity" occur (Schroder et al., 1967).

More specifically, it will involve the presentation of a situation in which two students are disrupting a class, to which a response will be requested from the senders. The type of response to be used in the production of the response-stimuli will be vocal expressions of emotional meaning. Such responses are relatively easily recorded and manipulated for presentation to other Ss. They are also quite relevant to the organismic variable being studied. The theory and research related to the organismic variable and vocal expressions to be studied will now be presented.

**Conceptual Complexity and Level of Decentering Ability**

In the past five years a rapidly increasing number of publications using the word "cognition" have appeared. However, a perusal of some of these indicates that one author's definition of "cognition" or "cognitive processes" may not be the same as that of another author. One major approach which may be subsumed under the rubric of "cognitive
processes" is the model of information processing as a personality theory (Schroder and Suedfelt, 1971). As stated above, this model involves the characteristic ways in which an individual selects, organizes, stores, and uses information in adapting to various aspects of his world. Just as there are several major approaches to the study of "cognitive processes", so are there several theories within the information processing model. As mentioned above, one of these approaches has, as its major construct, "conceptual complexity" (Schroder et al., 1967; Schroder and Suedfelt, 1971). This construct maintains that much of human thought involves conceptual structures for combining information items. These structures are referred to as integrative, conceptual rules. In this system, the number of different ways an individual learns to combine and relate a set of information items is referred to as the level of conceptual complexity. Different levels of integrative complexity define different ways of processing information. In introducing the construct of "conceptual complexity", Schroder et al. (1967) offer the following differentiation:

"Compared to that of lower animals, human 'thought' is characterized by the generation of more alternatives. More meanings can be attributed to objects, and a greater number of connections (relations) between these meanings arise. In this way, human thought is less stimulus bound; action can be delayed; a given stimulus gives rise to a greater number of outcomes, creating more uncertainty and ambiguity. Taking an extreme case, the moth has no alternatives when faced with a 'light' and immediately flies toward it, whereas a human engaging in complex thought processes can perceive stimuli in many ways and can consider many ways of interrelating these perceptions for his adaptive purposes. In this sense, human thought has more degrees of freedom.

The difference between man and the higher-order animals lies not so much in the ability to learn or to utilize the meanings of a larger number of stimuli, but rather in the ability to learn and to utilize
(more) alternate meanings of the same stimulus and to build up and use (an increased number of) different patterns of interrelationships within the same set of meanings. This change, from lower to higher levels of thought, is a matter of degree, paralleling the evolutionary scale across species and developing with age (to an upper neurological limit under optimal environmental conditions) within species." (p. 5).

(Although not mentioned by Schroder et al., 1967, it is interesting to note here that it has been found in studies of neuroanatomy, that although "vertical units of cortical structure are fundamentally similar in all mammals, the chains with short links increase in complexity in higher forms, especially man, whose brain contains enormous numbers of short axon cells" (Truex and Carpenter, 1964, p. 468). These authors suggest, from this data, that most cortical cells in man are concerned with associative functions. Although it is premature to make any definitive conclusions regarding the relationship between this finding and the psychological processes described above, such striking compatibility of findings from two different areas is encouraging).

In this model, variations in levels of conceptual complexity occur, not only between species and, developmentally, within the human species, but also between human adults. Thus, this variable can be considered in terms of individual differences.

One characteristic which is related to level of conceptual complexity is the number of alternative ways (rules) available for processing information, given the same situation. More important than this, however, are the available combinations of these alternatives, which may be used in generating responses to various stimuli in a particular situation. In "lower" levels of conceptual complexity,
the rules are fixed. This is represented in thought structures which are rigid and thus are unable to coordinate more than one perspective. With this type of system, although a large amount of information might be processed at high speeds, the rules used in processing information are minimally modifiable. On the other hand, "higher" levels of conceptual complexity are characterized by flexible rules. At these levels, are thought structures which are integratively complex and are able to take many perspectives and various ways of interrelating these perspectives.

Although many gradations of structural levels could be described along the conceptual complexity dimension, Schroeder et al. (1967) limit their description to four: Low, Moderately low, Moderately high, and High integration indices. They do this solely for convenience of communication and because of the present stage of measurement in this area. The "Low" integration level describes simple intervening structures which are characterized by compartmentalization and by a hierarchical integration of parts. At this level, stimuli of a particular situation are organized in only one manner. There is no conceptual apparatus that can generate alternatives, the result being fast "closure" in choice or conflict situations. The "Moderately low" level does have conceptual apparatus which can generate alternatives. Thus, several alternative ways of structuring the stimuli can occur. However, at this level there is no coordination between these various alternatives. Thus, once a rule is engaged, these structures function similar to "Low" integration structures. At the "Moderately high" level, as well as having various alternatives available for responding to a particular situation, the alternatives
can be coordinated (e.g., matched, compared or related). At this level a person can observe the effects of his own behavior from several points of view; he can simultaneously weigh the effects of taking different views. The awareness of "self" (and the "self" as a causative agent) is greatly enhanced, although it does not reach its peak until the next level. At the "High" integration level the comparison rules utilized at the last level can be further integrated, and it is possible to generate or apply general laws that systematize a large and differentiated body of information generated by simpler structures in various ways.

The description of the four levels of integrative cognitive functioning given above represents only a very small portion of the many characteristics and implications of each level as proposed by Schroder et al. (1967). Thorough examination of all of these characteristics and implications will require years of study. A beginning has been made by Schroder, but even more interesting is the fact that other workers, beginning from completely different theoretical foundations, are constructing strikingly similar kinds of ideas and relationships, even though their terminology may differ. One such convergence can be made from the work of M. H. Feffer (1959, 1967, 1970).

Feffer's work is based on the Piagetian concept of "decentering activity" (Piaget, 1950). The concept of decentering activity essentially involves the ability to take more than one point of view. At its higher levels, this ability to consider alternative positions occurs without disregard for other alternatives. Thus, several possibilities can be considered simultaneously. The beginning of
this ability occurs when the child is capable of subordinating immediate sense impressions to thought in organizing experience. For example, when a child begins to recognize that a particular object is the same, regardless of the angle at which it is viewed, an ability to simultaneously decenter, with regard to that object, can be inferred. The development of this ability has been illustrated in various ways by Plaget (1950). In one such demonstration, an equal amount of water is placed into two jars of the same size and shape and the water from one jar is poured, in view of a child, into progressively wider and shorter jars. The child is then questioned to determine his judgment in regard to the comparative quantities in the two jars. Some children make abrupt changes in the judgment of the respective quantities. Such lack of consistency is attributed to the overriding influence of one characteristic (e.g., wider) to the detriment of the other (e.g., shorter). A child may change his judgment in either direction (i.e., more or less) depending on the characteristic upon which he centers at a particular time. By attending to different characteristics at different times he is decentering (shifting focus from one part of the perceptual field to another), but these shifts are sequential and as such do not permit a balanced view. In mature thought, a much more mobile balance occurs in that the individual is able to consider several aspects of the situation at the same time. This is called simultaneous decentering and allows for more accurate judgments.

Feffer (1959, 1970) has extended this concept of decentering activity to an analysis of the cognitive structuring of interpersonal content. This extension rests on the assumption that the same
processes are involved in both impersonal cognition (the relation between person and thing) and interpersonal cognition (the relation between person and person). In place of physical dimensions are placed role dimensions. In primitive self-organization the various role dimensions are experienced as antagonistic polarities, while in mature self-organization they are simultaneously coordinated and reconciled, as for example, in the modulation of an aggressive impulse by the simultaneous realization of the victim's perspective. Although more theoretical description will be presented below, it may be more meaningful, at this time, both in understanding this extension and its relationship to "conceptual complexity", to examine the rationale behind the instrument used to assess differences in the ability to decenter, when structuring with interpersonal content.

The procedure developed for this purpose is called the Role Taking Task or RTT (Feffer, 1959). Briefly, the person makes up a story involving two or more people (called actors) which he then retells from the point of view of each of these "actors". A more detailed description of this procedure will be presented in Chapter II. For the present purpose it will suffice to describe the rationale underlying the scoring criteria. The concept of decentering which underlies the RTT suggests that an actor, as an item of social content, may be described from more than one point of view. The different roles represent different points of view, and the actor is the object upon which refocusing takes place from these points. The RTT is evaluated in terms of the degree to which the subject is able to shift from one orientation to another (focusing upon his actors from different roles), while at the same time maintaining continuity between his various versions of the initial story. It is
assumed that in successful role-taking the individual is evidencing a type of decentering that is simultaneously coordinated with previous and anticipated focusings. On the other hand, the lack of consistency or coordination between viewpoints which characterizes inadequate role-taking performance is taken as indicating shifts of focus that are not concomitantly guided by other perspectives, that is, sequential decentering. Four major categories were constructed to assess the level of decentering ability: Simple Refocusing (SR); Character Elaboration (CE); Perspective Elaboration (PE); and Change of Perspective (CP). A look at the criteria for each of these levels will point out the theoretical relationship between "conceptual complexity" and decentering ability. Simple refocusing refers to a minimum ability to refocus on RTT content. It requires only that material be given in the initial story pertaining to an actor and that, while taking the role of that actor, material is given in a "self entry" (material given about an actor from the point of view of the same actor).

At this level, there is evidence only for "one point of view". This is quite similar to the "Low" integrative level of conceptual complexity as proposed by Schroder et al. (1967). Character elaboration requires not only a "self entry" but also an "elaboration entry" on that same actor (material on that actor from the point of view of another). That is, the subject is able to refocus upon an actor from more than one point of view. He thus gives evidence of being able to consider more aspects of a situation than is indicated by Simple Refocusing. Note the similarity between Character Elaboration and the description of the "Moderately Low" level given above. Perspective Elaboration requires the same quantity of material
as Character Elaboration, but, the subject, to score at the PE level must indicate an appropriate inner-outer orientation in his self and elaboration entries. That is, the self entry must be "inner-oriented" and the elaboration entry must be "outer-oriented". The subject, at this level, demonstrates the ability to coordinate the various perspectives in terms of this additional dimension of differentiation. Here too, it is remarkable that such a close correspondence with the "Moderately high" level of conceptual complexity can be made (for the latter it was said: "as well as having various alternatives available to a particular situation, the alternatives can be coordinated"; also, "the awareness of 'self' - and the 'self' as a causative agent - is greatly enhanced"; p. 10). Finally, to achieve a score of Change of Perspective the subject must have two Perspective Elaborations, involving the same two actors. In Schröder's system this takes the form of: "the comparison rules utilized at the last level can be further integrated", (p. 7). The theoretical and, more specifically, definitional similarities between the concepts of "conceptual complexity" and "level of decentering ability" should now be apparent. Given such striking theoretical similarity, it is not surprising that positive empirical findings relating measures of these two constructs have also been obtained (Wolfe, 1963).

Level of Decentering Ability and Behaviour

Theoretical Research

Having briefly considered some of the characteristics involved in the various "levels" of decentering ability and how they are related to other conceptionalizations such as "conceptual complexity", 

we may now turn to a more detailed theoretical description of decentering ability and how this "organismic" variable may be related to overt interpersonal behaviour. As alluded to above, Feffer (1970) proposes that structuring of reality takes the form of complementary polarities which in impersonal events are experienced as physical dimensions (e.g., tall, wide, etc.) and in the interpersonal area are experienced as role dimensions. An example of the latter, particularly relevant to this study, are the polarities of teacher and student. His second proposition involves the relationship between polarities. The way in which polarities are related is a determining factor with respect to the quality of the event. Isolation between polar dimensions underlies primitive structuring in the interpersonal realm. Given such isolation, there is inherent distortion since focusing on a given dimension is either uncorrected, or at best, partially corrected by sequential focusing. For example, when a teacher rigidly constructs the school situation only in terms of herself as "teacher" and a boy in her class as "student", she, at best, is utilizing sequential decentering. From this structure, such actions and reciprocals as giving-taking, asking-answering and dominating-submitting, are fixed by the respective roles. Such a cognitive organization may be said to be unstable in that it can assimilate only a narrow range of events. Also, in such an organization, polarities take on exaggerated, antagonistic proportions, and, at best, serve to balance each other in a fluctuating manner. On the other hand, in more advanced cognitive structuring, polar dimensions are not only not isolated but are also related in a more complex organization. An example of such reconciliation in the impersonal realm is seen when changes in
the height of an object are coordinated with changes in its width.
In the interpersonal realm, the various role dimensions, which in
primitive self-organization are experienced as antagonistic polarities,
are, in mature self-organization, simultaneously coordinated and
reconciled, as for example, in the modulation of an aggressive impulse
by the simultaneous realization of the victim's perspective. In such
a case, coordination of antagonistic role polarities, by considering
both perspectives, has inhibited an intended action. Due to this
increased complexity of cognitive organization, a greater variety of
behaviours are available and, as a result, a greater range of events
can be assimilated without destruction of the interpersonal event.
In this sense, such a cognitive organization may be said to be more
stable.

In summary, the way in which an individual structures his world
in terms of his and another's roles is reflected in the range of his
available overt responses. A very good demonstration of this has
been provided by Asch's analysis of two men carrying a log (Asch,
1952). In such a situation, if the movements of each person are
influenced not only by the reactive movements of the other, but, also,
by each person's anticipation of what the other will do in response
to an intended action on his part, they will have greater success.
Also, if each individual's cognitive system includes anticipation
of all possible role-reciprocal variants of log-carrying behaviour,
this activity will more likely be maintained, or conserved, over a
wide range of contingencies (as for example, if one of the participants
stumbles). Having presented some theoretical formulations relating
decentering ability and behaviour, we may now turn to empirical findings
in this area.
Empirical Research

The first empirical study related to the above mentioned theoretical formulations was primarily concerned with providing a measure of self-organization as described above (Feffer, 1959). In this study, estimates of cognitive level, derived from the RTT performance, were compared with assessments of cognitive maturity, independently derived from a verified measure of developmental level - the Rorschach developmental indices. The Ss were thirty-five white male adults. They were first given the RTT and, in a subsequent session, the Rorschach test. RTT performance was analyzed by the author, independently of any knowledge of the Ss' Rorschach performance as well as any other aspect of Ss' behaviour. Also, variations in verbal productivity were controlled. For each analysis, the sample was divided into a developmentally "high" and a developmentally "low" group on the basis of scoring above and below the median in the particular Rorschach category involved. Significant differences between RTT scores were obtained between "high" and "low" groups divided on the basis of the Composite Index (a Rorschach measure of cognitive level of developmental functioning involving differentiation and integration). The data were further examined to explore the possibility that the obtained relationship might be attributable to the operation of chronological age, WAIS Vocabulary, or educational level. No such relationships were found within the ranges of the Ss in the study - chronological age (26 to 50 yrs.); WAIS Vocabulary (raw score - 29 to 78; scale score - about 7 to 19); educational level (5 to 20 yrs. completed). On the basis of the results of this study it was inferred that adequacy of role taking (as measured by the RTT) is related to general level of cognitive
development (as measured by the Rorschach Composite Index).

Another approach to investigating whether or not cognitive maturity may be inferred from decentering ability was utilized in a study by Feffer and Gourevitch (1960). In this study, children of various chronological ages were given the RTT as well as a series of impersonal cognitive tasks which were developed by Piaget and his co-workers and which were directly interpretable in terms of balanced decentering. It was predicted that older children would show a greater degree of balanced decentering than would younger children, in their structuring of impersonal cognitive tasks as well as in their role-taking performance. A positive relationship was also predicted between RTT and Piagetian task decentering scores. The Ss were 68 children ranging in age from 6 to 13 yrs. The transcriptions of RTT and impersonal task performance were coded to avoid reciprocal influence. It was found that both the RTT and impersonal decentering scores were significantly greater for the 10 to 13 yr. olds as compared to the 6 to 9 yr. olds. Verbal productivity and WISC Vocabulary were not related to these results. When comparing RTT and impersonal task decentering scores with each other, controls were implemented for the influence of age and verbal intelligence. With these controls, RTT and impersonal decentering scores were found to be significantly and positively related. In summary, this study offers further construct validation for the RTT index of cognitive maturity (positive results of changes with age) as well as empirical support for Feffer's extension of Piaget's concepts of cognitive structuring to the interpersonal realm (impersonal and interpersonal scores positively related).
Another study offering construct validity for the RTT was conducted by Wolfe (1963). This study attempted to relate Conceptual System levels as described by Harvey et al. (1961) and as measured by the Situational Interpretation Experiment (Schroder and Hunt, 1959) to RTT performance. Subjects were 910 adolescents, ages 10 to 21 years, enrolled in grades 6 through 12. It was found that, at all levels of age and intelligence tested, RTT performance of Ss in the higher Conceptual Systems levels (Levels III and IV) was superior to those in the lower Conceptual Systems levels (Levels I and II). These Conceptual Systems levels were the precursors of the levels of Conceptual Complexity described above (Schroder et al., 1967; Schroder and Suedfeld, 1970).

In two more recent studies, some internal characteristics of the RTT have been investigated. Using adult Ss, Feffer and Jahelka (1968) were interested in evaluating the nature of the relationship between the characteristics of the individual's initial story and the adequacy of his subsequent role-taking. It was found that the more the individual portrayed reciprocal social interaction in his initial story, the better he was able, in his role taking, to coordinate the viewpoints of the characters. This finding raised the possibility that an individual's RTT performance may be a result of what he has to work with, that is, his initial story, rather than being a measure of his decentering ability. Several hypotheses were constructed to test which of these two alternative explanations best fit the data. These hypotheses were based on varying the initial stories which the various groups would use in the role-taking stories. That is, S, in addition to the usual procedure of taking
the roles of the characters in his own initial production, also took the roles of characters in the stories of other Ss. Decentering level, as inferred from S's own initial story, could then be compared to the stimulus characteristics of the other's story in terms of their respective effects upon S's subsequent role-taking. It was found that differences in role-taking performance between "high" and "low" decentering groups remained constant and significant, regardless of the quality of the initial stories Ss were given. These findings are consistent with the position that the correlation between the quality of the initial story and subsequent role-taking is due to a dimension basic to both productions, namely, decentering level.

The second study dealing with processes involved in the RTT, investigated cognitive level as a function of defensive isolation (Lowenherz and Feffer, 1969). Using college students, this study evaluated the possibility that a failure to coordinate perspectives on the RTT occurs when the characters represent defensively isolated aspects of the self-structure. It will be recalled that this is a central part of the theoretical formulation of level of decentering ability. Primitive levels are characterized by isolation of role dimensions, whereas more complex levels involve simultaneous decentering (differentiation and integration of role dimensions). Thus, positive results in this study would offer strong empirical support for the theory and would increase the construct validity of the RTT measure. The Ss were given the RTT under two different conditions. Under one condition, Ss were assigned defensively isolated attributes, and then required to take the perspectives of these figures in their role taking. To determine defensively
isolated attributes, TAT stories were analyzed for attitudinal content and, for each TAT figure, one statement which best represented S's characterization of that figure was constructed. Twelve statements were constructed for each S, typed on ditto stencils and run off. Thus, although individually tailored, each packet of statements had the appearance of a group inventory. About five weeks after the first session, each S was given her individually tailored packet of statements and was asked to rank these from "most like me" to "least like me." Also, each was asked to dichotomize an identical set of statements into the categories of "personally acceptable" and "not personally acceptable." An attribute was defined as defensively isolated if S considered it as "not personally acceptable" and had placed it in either of the two most extreme rankings in the "less like me" direction. The other condition differed in that the assigned attributes were not defensively isolated. A non-isolated attribute was defined as one which S considered "personally acceptable" and which she had placed above the midpoint of her rankings in the "more like me" direction. It was found that RTT scores were significantly lower (p = 0.001) under the defensive isolation condition than under the non-isolation condition. This finding offers support for the hypothesis that a failure to coordinate perspectives occurs when these perspectives present defensively isolated aspects of self-organization.

As well as formulating constructs regarding cognitive organization within the individual, the theory, presented, offered formulations regarding the effect of differences in this organization on interpersonal behaviour. A study, testing hypotheses derived from these
implications, was conducted by Feffer and Suchotliff (1966). Thirty-six college students were given the RTT to determine their decentering ability in the structuring of interpersonal content. They were then paired into 18 dyads on the basis of similar decentering ability. These dyads were then evaluated in regard to effectiveness on a task requiring cooperative interpersonal interaction. In this task—Social Interaction Situation—a stack of 18 $3 \times 5$ index cards are placed before each member of the dyad. A single word is printed on each card. One member of the dyad, as donor, is required to communicate his test word to his partner, the recipient, via one-word association clues. The recipient, in turn, is required to guess at the test word in the form of one-word responses to each association clue of the donor. This form of interaction continues until the test word is communicated, or until a 90 second time limit is reached, at which point the word on the next card is attempted. Effectiveness of interpersonal interaction is defined by the length of time and the number of clues necessary for the dyad to solve their common problem, that is, the communication of the list of test words. In choosing the password situation as the basis for evaluating effectiveness in interpersonal interaction, the authors offered the following:

"On a descriptive level, the password game represented a form of interaction which could be standardized and experimentally manipulated, and which afforded quantitative estimates of effectiveness. More important, however, was the consideration that the password situation represented an analogue of the type of social interactions previously formulated in decentering terms, particularly with regard to the donor's role. The donor's relative adequacy in communicating the test word was viewed as being based upon his ability to select, from the myriad of
association possibilities available to him, the association clue with the most information value to the recipient. This selection, in turn, was considered to be a function of the donor's ability to modify his intended behavior not only in light of a general instructional set (that of communicating the test word), but also in the light of his anticipation of the recipient's previous responses. It appeared necessary for the recipient, on the other hand, to modify possible responses in the light of previous clues, his past responses, and the general instructional set of guessing the test word. The progressive modification and dovetailing of responses thus required to communicate and receive the test word appeared to rest importantly upon the relative ability of each participant to attend simultaneously to aspects of his experience from more than one viewpoint." (Feffer and Suchotliff, 1966, p. 418).

The predicted relationship between RTT decentering scores and measures of password effectiveness was confirmed in that the higher scoring RTT dyads passed words more quickly and with fewer clues than did the lower scoring RTT dyads.

Most of the studies reviewed above can be placed into two general categories. In the first group, involving the majority of studies, are investigations: 1) relating the construct of decentering ability to various other constructs (Feffer, 1959; Feffer and Gourevitch, 1960; Wolfe, 1963); 2) relating decentering ability to age (Feffer and Gourevitch, 1960; Wolfe, 1963); and 3) studying the processes involved in the RTT (Feffer and Jaheelka, 1968). The second category, represented by only one study, relates decentering ability to actual interpersonal interaction (Feffer and Suchotliff, 1966). Several reasons may be offered for the greater number of studies of the first type. From one point of view, a relatively new construct (Feffer's extension of the decentering concept to the interpersonal area) was first
reported in 1959) requires validation, which many of the studies of the first type were designed to provide. From another point of view, studies of the second type are more difficult to design. Also, they are more difficult to adequately carry out because of the practical limitations in implementing effective controls. One solution to such a difficulty is to design studies which, in a sense, "slow down" the interpersonal interaction sequence. For example, a study could be designed in which Ss differing in decentering ability would produce responses which would be used as stimuli for other Ss, also differing in decentering ability. While such a study would not involve direct interpersonal interaction, it could provide valuable information regarding individual differences in overt responses as a function of an organismic variable. In a sense, such an experiment offers some advantages (although it is obvious that there are also disadvantages) over the direct interpersonal interaction study, since the processes involved in interpersonal interaction are "slowed down" sufficiently for them to be studied in ways they could not otherwise be studied. For example, much more experimental manipulation becomes possible by such a procedure. This study will utilize such a procedure in investigating the effects of differences in decentering ability on the communication (sending and receiving) of vocal expressions of emotional meaning. We will now turn to a review of previous work dealing with the vocal communication of emotional meaning.

Vocal Communication of Emotional Meaning

In the act of communicating, the message may be transmitted on
one of the several channels (actually, a message may be sent along more than one channel or different messages may be sent along different channels simultaneously, but such multichannel communication is not the concern of this study). The concept of "channel" has been defined as "any set of behaviours 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 occurring behaviours" (Wiener and Mehrabian, 1968, p. 51). These behaviours are considered "carriers" of information in a communication.

Communication behaviours have been grouped under the following rubrics: (a) verbal content, e.g., word meaning and syntax; (b) extra-linguistic phenomena of communication, e.g., vocal expressions; and (c) kinesic or bodily phenomena in communication, e.g., facial expressions (Wiener and Mehrabian, 1968). This grouping is pragmatic, being based on divisions which have been found useful for investigation.

Also, to the extent that any of the subcategories under each of the general rubrics can be studied independently of other sets of behaviours within the general rubric, it also can be considered a channel. Such is the case with vocal expression - the channel studied in this investigation.

There is little debate that a vocal expression can communicate more information than can a typed transcription of the same statement. Thus, it has been stated "that normal human speech consists of two simultaneous sets of cues - the articulated sound patterns forming words, phrases and sentences and the discriminable qualitative features of the voice itself" (Soskin and Kauffman, 1961, p. 3). Since, in principle, these two sets of cues can be conceptualized
Independently, they can be (and have been) considered separate channels. If vocal expression, alone, is to be studied, E must find a way to experimentally manipulate this variable without the unwanted interference of the "semantic" channel. Several methods for doing this have been proposed (Kramer, 1963; 1964). These have included: 1) the use of "meaningless" content; 2) "ignoring" content; 3) acoustical methods; and 4) the use of "constant" content. The chief forms of "meaningless" content have been numerals and letters of the alphabet. In "ignoring" content methods, specific nonverbal properties of speech, such as speech or breathing rate, are measured. Acoustical methods include "filtered speech" in which verbal content is eliminated by passing recorded speech through a low-pass filter designed to hold back those higher frequencies of speech upon which word recognition depends. It is expected, in such studies, that many of the non-verbal aspects, such as intonation patterns, remain after passage through the filter. In the "constant" content method the same set of words is expressed by all Ss under all conditions. Thus, differences in the vocal expressions can be attributed to differences in Ss and to the different conditions. Each of these methods has its advantages and disadvantages.

One particular advantage of the "ignoring" and "constant" content methods is that they do not eliminate the effects of content, they control for these effects. This is an important distinction for it allows for quite different interpretations. Everyday speech is obviously not content free. As a result, findings based on "content free" methods can be applied to everyday communication only on the assumption of an additive model relating the two channels. Such an assumption has, at present, no basis for support. On the other
hand, the "ignoring" and "constant" content methods do not require such an assumption. While they control for the effects of content, they do not eliminate them. A mathematical analogy of this is that whatever the relationship - additive, multiplicative or whatever - the value (in this case, of the content) used in the relationship remains constant. An advantage the "constant" content method has over the "ignoring" method is that it allows for the use of content responses from receiver-Ss, something the "ignoring" content approach does not allow, since its analyses are only in terms of the physical properties of speech, such as rate.

Studies which have investigated the psychological effects of vocal expressions can be divided into two major categories: those which call for judgments from voice of relatively stable characteristics of an individual; and those which asked for judgments of emotional or affective variables which may change under varying conditions (Kramer, 1963). This study could be placed in the latter group. However, an important clarification should be made at this point, concerning what is being studied. The first study published by one of the recent workers in this area was entitled, "The communication of feelings by content free speech" (Davitz and Davitz, 1959). The phrase "the communication of feelings" led, at first, to confusion and, later, to greater clarification of what was being studied. Such a phrase is easily interpreted to mean that what was being studied was how the sender-Ss communicated their emotions or feelings. However, as the authors later pointed out, they did not expect, nor intend, the speakers actually to experience the feelings they expressed (Davitz, 1964). What they were primarily concerned with, was a communication
process, that is, with one person's (the receiver-S) understanding (as measured by a labeling response) of the emotional meaning of another's (the sender-S) expression. To help clarify the nature of their work, they changed the earlier terminology of "the communication of feelings", to "the communication of emotional meaning". This investigation is also better described by the latter phrase, since its primary concern is with an ability - namely with the ability to vocally communicate emotional meaning. From the point of view of the communication process, what is central is how the receiver perceives the expression, regardless of the actual feelings of the sender-S at the time of the expression. This is not to say that the sender's feelings are not important but only that this phase of the process is not what is being studied here. In fact, it is individual differences in the ability to express various emotional meanings upon request, given specified conditions, that is of interest here.

Individual Differences in the Ability to Vocally Communicate Emotional Meaning

Many research workers have confirmed that emotional meanings can be communicated nonverbally far beyond chance expectation (Davitz, 1964). Much of this work was conducted in the 1920's and 1930's, but it was not until the 1950's that researchers again became interested in this topic. More advanced recording equipment and greater theoretical and experimental sophistication may be offered as possible explanations for this resurgence. In spite of an increased interest in this general area, little has been done, until quite recently, on the individual differences in ability to vocally communicate emotional meanings. Prior to 1964 several investigators simply noted differences among speakers in ability to convey particular feelings. Fairbanks and Pronovost
(1939), while studying the pitch characteristics of the voice during the
expression of "emotion", reported a relative effectiveness, in terms
of the percentage of correct identifications, of their six actor-Ss' in
the expression of each of the five emotions studied (contempt,
anger, fear, grief, indifference). Individual portrayals varied from
95% in Fear, portrayed by one S to 33% in Fear, portrayed by another S.
In another study, Knowler (1945) asked college students to simulate
a tonal expression of each of several emotional states by articulating
the letters of the alphabet, from "a" to "k". The judges (also college
students) were asked to indicate which emotional state the speaker was
simulating. It was noted that there were marked differences in the
individual abilities of both sender and receiver Ss. Davitz and Davitz
(1959) had each of eight college students express ten feelings by
reciting parts of the alphabet. Each feeling was judged thirty times
for a total of 300 judgments about each speaker. Although, in each
of the eight cases, the probability of obtaining by chance as many
correct communications as were obtained was less than one in a
hundred, there were wide individual differences in the accuracy with
which persons both expressed and perceived emotional meanings.
Although all of the above studies noted individual differences in
the ability to vocally express or perceive emotional meaning, none
of them were primarily concerned with these phenomena. In fact,
in reviewing the research literature concerned with vocal expressions
of emotional meaning, Davitz (1964) pointed out that "there is no
experimental evidence concerned primarily with individual differences
among speakers in their ability to express feelings" (p. 27). In
the last several years there have been a few studies which have
attempted to fill this gap.

Levy (1964) obtained tape recordings of content-standard vocal expressions of emotional meanings from seventy-seven graduate students. Ss were asked to recite a three-sentence paragraph in an attempt to convey each of ten emotions. The recorded items were played to judges who were asked to identify the emotional meaning being expressed in each item. Ability to express emotional meanings to others (referred to as "expression" score) was measured by the mean number of correct identifications made by judges for each S. These same recordings were also used to measure the same S's ability to identify their own expressions. From one to two weeks after the recordings were collected, each S listened to his own 20-item tape and was asked to identify the emotional meaning being expressed in each item. Ability to identify one's own emotional meanings (referred to as a "self-perception" score) was defined as the total number of his own emotional expressions correctly identified. Also, a measure of each subject's ability "to identify vocally expressed emotional meanings of others" was obtained using a 37-item content-standard speech instrument developed by Belcòch (1964). Ability "to identify vocally expressed emotional meanings of others" was defined as the total number of emotional meanings correctly identified. The resulting score was called the "other-perception" score. Product-moment correlations were used to examine the interrelationships among the three communication abilities. Significant positive relationships among the communication abilities were found, thus supporting the hypotheses that related these abilities. The author discusses her results in terms of a general "communication factor," in that, although each of the separate
abilities accounted for a considerable amount of individual variance, a significant degree of overlap among these abilities was present. These findings are particularly relevant to the present study, for the ability to perceive the emotional expression of others and the ability to perceive one's own emotional expressions, would seem to require the same kind of differentiation of interpersonal content that the ability to decentre (discussed in the previous section) requires. Thus, although not involving the complex integration that simultaneous decentering ability involves, the possibility of a relationship between these perceptual abilities and decentering is raised. Also, the finding that these perceptual abilities are related to the ability to express emotional meaning suggests a possible relationship between an overt, manipulable behaviour and the ability to decentre. Confirmation of these relationships would increase our understanding of the processes involved in important communication behaviours.

Only a few studies have attempted to discover what, if any, personality variables are related to the ability to vocally express emotional meanings. Miller (1966) administered the California Psychological Inventory to a group of 80 Ss. He also asked them to portray the six moods of "flirting", "sad", "happy", "fearful", "indifferent", and "angry", using three phrases per mood. The resulting 18 items constituted the encoding (ability to express or "encode" the emotional meanings) measure. The Ss were also asked to decode (identify) the emotional meanings on an experimental tape. From these responses accuracy scores were determined. The findings relevant to the area being discussed here were that the abilities to
both accurately encode and decode across moods were found to be related to a few positive CPI measured traits. However, there were not many of these relationships and the few significant correlations which were obtained accounted for only a small portion of the variance.

In a quite recent study, Zaidel and Mehrabian (1969) investigated the ability to communicate and infer positive and negative attitudes, vocally. Although the term attitude was used rather than emotional meaning, it is possible that these two ways of studying communication skills measure the same phenomena. In fact, the authors, themselves, at times, substituted the word "feelings" for attitudes. Even if this study is not directly comparable to the previous ones, a look at its results could give more information about this area of study. Particularly relevant to the present study was the investigation of the effect of individual differences in the need for social approval (as measured by the Crowne and Marlow Social Desirability Scale, 1960) on the effectiveness of communication. It was expected that Ss who were highly concerned about social approval would be less able to express negative attitudes than Ss who were less concerned about social approval. It was found that low social approval-seeking encoders communicated a more discriminable set of attitudes than high social approval-seeking encoders. It should be noted here that low levels of cognitive complexity (and low levels of decentering ability) could be associated with high need for social approval.

If a person has an unusually high need for social approval, it is quite likely that his perception of how he looks to other people is not balanced by a perception of how they look to him. Such a disequilibrium is another example of lack of simultaneous decentering.
Given such a similarity between high need for social approval and low level of decentering ability and given the findings above, it could be hypothesized that Ss assessed as low in decentering ability would be poorer at communicating emotional meanings than would those Ss assessed at high levels of decentering ability. However, Zaidel and Mehrabian (1969) also report no differences between high and low social approval-seeking Ss in their ability to decode attitudes.

Types of Emotional Meanings

In many of the studies investigating the vocal expression of emotional meanings, various types of emotional meanings have been used. In preparation for studying pitch characteristics of the voice during the expression of emotion, Fairbanks and Pronovost (1939) asked six competent actors to record a constant-content passage with "contempt", "anger", "fear", "grief", and "Indifference". These recordings, plus randomly inserted ambiguous readings, were played to 64 observer-Ss, who were asked to select from a list of emotional tones the term which named most accurately the emotion being portrayed. Relevant to the present study were the findings that "Indifference" had a higher percentage of correct identification than did the other emotional meanings, while "anger" was identified correctly at about the average level. It was also found that senders who ranked highest overall, had the highest percentages of correct identifications of "anger", and the lowest of "Indifference" (although still above average), whereas the senders who had the lowest overall average, ranked highest in "Indifference". In a later study (Davitz & Davitz, 1959a) investigating the communication of
feelings by content-free speech, it was found that "anger" obtained more correct identifications than nine other emotional meanings. It should be noted that "indifference" was not among the latter. In a still more recent study (Davitz, 1964), it was reported that of the fourteen emotional meanings used, "anger" was one of the most correctly identified. Although "indifference" was not one of the other adjectives, "bordom" was and it was correctly identified at approximately the same percentage as was anger.

It should be noted that none of the above studies were primarily concerned with type of emotional meaning. They all used various emotional meanings in order to investigate other variables. The results reported were incidental to the main purpose of the studies. A study which was primarily concerned with the relationship between types of emotional meaning was another one performed by Davitz & Davitz (1959b). That study tested the hypothesis that accuracy in communicating emotional meaning was related to the similarity of the emotional meanings. They found a significant correlation between accuracy and similarity scores. In a later publication, (Davitz, 1964), it was reported that although the "research generally supports this position, the data demonstrate that subjective similarity among feelings accounts for only a small part of the variance in accuracy of communication" (p. 24).

No studies were found which related level of decentering ability and vocal expression of any type of emotional meaning. In view of this and of the purposes of this study, it was concluded that although three types of emotional meaning - "anger", "indifference",
"firm but kind" would be investigated, no specific predictions regarding these types would be made.

Purpose of Present Research

As indicated above, there have been very few studies primarily concerned with individual differences in the ability to vocally express or identify emotional meaning. Given the importance of this area in communication and in interpersonal relationships in general, more research is warranted. More specifically, however, all of the studies which have attempted to relate differences in personality or organismic variables to the abilities to vocally express or identify emotional meaning have used inventory-type instruments for assessment purposes. While such instruments can be correlated with scores based on overt behaviours, they are limited in the information they provide, even when significant correlations are obtained. As stated by Levy (1964), "it is quite possible, for example that personality inventories, because they are designed to measure trait dimensions of personality rather than structural variables, and because they are based on self-report, do not successfully tap the variables relevant to the ability to communicate feelings" (p. 53). In view of this, it becomes worthwhile to investigate the relationship between individual differences, based on structurally or process-oriented assessment techniques, and these communication skills. Such an investigation could provide more information regarding these relationships, for the techniques used to assess individual differences involve many of the abilities which appear to be necessary for the adequate performance of the overt behaviours being studied. Thus, significant results would provide not only empirical validity for the variables studied but also
increase their construct validity and thus provide a greater understanding of the processes involved. This is one of the tasks to which the present study directs itself.

Another purpose of the present research is to study the relationships between the organismic variable and vocal expression of emotional meaning in a more specific context than has been done in previous studies. To this end, teachers have been chosen, both as senders and as receivers in studying communication. From both types of Ss, information regarding individual differences in decentering ability will be obtained. Also, to this end, the content of the material to be used in this study will be school-oriented. Too often in psychological research, variables are investigated without regard for context. Broad, general abilities are postulated and principles derived from them are generalized over wide areas. Such was the case with the concept of "intelligence". Only after much painstaking work, frequent contradictory findings and interminable arguments has it been realized that this concept is more complex than being a general ability which traverses all areas of human functioning (Anastasi, 1958; Tyler, 1965). Relevant to the present study, it has been realized that because someone is assessed as being "high" in conceptual complexity does not imply that this person functions at that level, at all times, in all places, under all conditions and situations (Schroder et al., 1967). Thus, in this study, teachers were used as subjects and assessments of the level of decentering ability of both senders and receivers were obtained with school oriented stimuli. Also, those teachers used as senders were presented with a problem situation which frequently occurs in the
classroom as well as with a constant-content statement to that situation. The types of emotional meanings, which they are instructed to portray, were selected on the basis of their relevancy to the school situation. When faced with a situation, such as was presented to the senders, teachers often respond with an "angry" response. Sometimes such a response is appropriate, sometimes it is not, depending on the factors involved. Thus, "anger" was one of the emotional meanings chosen. Often, in handling such situations, teachers are told or decide for themselves that they should ignore the behaviour. This is often interpreted as being "indifferent". Thus, this emotional meaning was chosen. Finally, there is a growing body of thought (Driekens & Grey, 1968) which claims that a "firm but kind" approach is an effective integration of the two historical extremes (rigid authoritarianism vs permissiveness) which have been used in handling such situations. With this in mind, a "firm but kind" tone was also chosen.

Following from the above, such a study as is being proposed can more easily result in practical applications. Since the content of the concepts with which the various Ss will be dealing is similar to those in the actual school situation, possible adaptation of the findings to the actual school situation would seem less difficult, when compared, for example, to studies of the vocal expression of emotional meanings using more general senders, messages and receivers.

Given the context described above, the primary purpose of this study is to investigate the effects of differences in decentering ability on the vocal communication of emotional meaning. Since the act of communicating can be described in terms of a sender, a
message and a receiver, the questions become: 1) are there any differences in the accuracy with which senders differing in decentering ability express emotional meanings; 2) are there any differences in the accuracy with which receivers differing in decentering ability identify emotional meanings; and 3) how do the levels of decentering ability of senders and receivers interact to affect the accuracy of communication?

On the basis of both the theoretical formulations presented and past research, it would seem that the persons assessed as functioning at levels 3 or 4 in decentering ability would be more able to accurately express emotional tones upon request than would persons assessed as functioning at levels 1 and 2. Functioning at levels 3 or 4 indicates that the individual is capable of considering and integrating several points of view before a response is made. Since more information is being considered, it would seem that there would be a possibility of a greater number of available responses. Thus, such individuals probably would perform more accurately when varying requirements occur. On the other hand, a low level of decentering ability (i.e., levels 1 or 2) would not provide for an alternative response, even if a varying condition suggests the necessity of one. This is what was meant, earlier, by the "rigidity" of low levels of decentering ability. Thus, several interpretations of the "same" situation are less likely, even when it is suggested that such alternative interpretations are possible. Without alternative interpretations, adequate responses following from these interpretations also become difficult to make. What has been said with regard to the effect of level of decentering ability on vocally
expressing emotional meanings would seem also to apply to identifying vocal expressions of emotional meanings. Thus, persons assessed at "high" levels of decentering ability (operationally defined as levels 3 and 4) would seem to be able to more accurately identify expressions of emotional meanings than would persons assessed at "low" levels of decentering ability (operationally defined as levels 1 and 2).

With regard to the interactions of the levels of decentering ability of the sender with that of the receiver, it would seem that "high" levels in both would produce the most accurate communications, while a sender or receiver functioning at a "low" level would communicate less accurately. The rationale for these statements is as follows. A sender, who is functioning at a "high" level of decentering, would produce expressions which are highly discriminable. If the receiver also functions at a "high" level of decentering, he will be able to accurately identify these expressions. However, a sender who functions at a "low" level of decentering would produce expressions which are relatively less discriminable and thus a receiver, regardless of his level of decentering ability, would not accurately identify these expressions. Logically, from this, expressions produced by senders "low" in decentering ability and identified by receivers "low" in decentering ability will not be accurately communicated. On the basis of this, the following hypotheses have been constructed:

1. High decentering receivers are more accurate in identifying the emotional tones of expressions than are low decentering receivers.

2. The emotional tones of expressions made by high decentering senders are more accurately
identified than are those made by low decentering senders.

3. High decentering receivers are more accurate than low decentering receivers in identifying the emotional tones of expressions made by high decentering senders.

4. High decentering receivers do not differ from low decentering receivers in the accuracy with which they identify the emotional tones of expressions made by low decentering senders.

5. The emotional tones of expressions made by high decentering senders are more accurately identified than are those made by low decentering senders, when identified by high decentering receivers.

6. The emotional tones of expressions made by high decentering senders are no more accurately identified than are those made by low decentering senders, when identified by low decentering receivers.
CHAPTER II

METHODOLOGY AND PROCEDURE

Formation of Sender Groups

Twenty-four adult female school teachers enrolled in an undergraduate course at the University of Windsor were given a group version of the Role Taking Task (Feffer, 1959) and an information form requesting relevant data. These Ss were placed into two groups, depending on their measured level of decentering ability. An evaluation of the RTT, its procedure for administration and scoring as well as the procedure for determining the sender groups are described in the remainder of this section.

Evaluation of the RTT

During the last decade several tests have been constructed to measure conceptual complexity (Schroder et al., 1967, Bower and Anderson, 1970; Schroder and Suefeld, 1971). One of the main categorizations which can be used to classify these tests is whether they are chiefly structurally or content-oriented in nature. This is an important issue since it involves the operational definition of "conceptual complexity" itself. Since the theory which germinated this research describes the organismic variable in terms of conceptual structure, the measure to be used should be structurally oriented.

While not choosing a test which utilizes content in the measure of the organismic variable, it has been pointed out that content,
considered as a context within which differences in structure occur, is an important consideration. Bower and Anderson (1970) describe this relationship by stating the feasibility of considering "the structural tests as being domain-specific measures" (p. 280). They report work by Stewin (1969) which indicates that a number of commonly used complexity tests can be described in terms of three orthogonal factors: intellectual, interpersonal, and religious.

Also, Schroder et al. (1967) speak of developing objective operations for measuring the level of information processing (conceptual complexity) that persons use in particular situations (or contexts). These situations include intergroup stimuli and interpersonal stimuli, among others. Since this research is concerned with the content of interpersonal stimuli, the instrument chosen must be able to utilize such content.

A closely related issue which arises from the consideration of the content area within which cognitive structure is to be measured is the breadth of the particular stimulus range of that content area. Although Schroder et al. (1967) deal with "interpersonal stimuli" as one content area, they admit that "we could assess the level of attitude structure regarding, 'American people', 'one close friend' ... etc." (p. 129). In this study, the specific subarea within the interpersonal domain is the school situation. Thus, a test was needed which could be adapted to utilize stimuli from this subarea.

The RTT satisfies the above criteria. Its measure of difference in decentering ability is structurally oriented. Also, through the use of appropriate pictures, the more specific "school situation"
can be presented within this test.

Confirmation of the use of the RTT was made after the determination of the following information. Adequate interscorer reliabilities have been found using the RTT. Feffer (1959) reports an interscorer reliability of 0.89, while Gourevitch and Feffer (1962) report interscorer reliabilities of 0.71 to 0.96. There is also evidence that the RTT provides a valid measure of the level of cognitive development in adults (Feffer, 1959, reports a significant relationship between RTT scores and Composite Index scores of developmental level on the Rorschach), and of the ability to decenter in an actual interpersonal situation (Feffer and Suchotliff, 1966). Also, support for the discriminative validity of this measure was provided by the finding that its scores did not correlate significantly with the stated parameters of the following variables: Chronological age (yrs.) - mean = 36.11, S.D. = 6.68, range = 26 - 50; WAIS Vocabulary (raw score) - mean = 59.20, S.D. = 11.76, range = 29 - 78; Educational level (yrs. completed) - mean = 13.51, S.D. = 3.18, range = 5 - 20 (Feffer, 1959). Finally, the RTT has been found to provide a consistent measure across stimulus cards and over time. Feffer and Gourevitch (1960) reported a significant relationship between Ss' decentering activity based on performance on two separate stories. Feffer and Jähleka (1968) categorized Ss into high and low decentering groups on the basis of performances in their initial story. Several weeks later, the Ss were given the remainder of the RTT. The results offered evidence of consistency of measurement over time.

Administration of the RTT

The Ss were seated in a classroom and each was given a RTT
booklet and information form. The instructions (modified from Feffer
and Suchotliff, 1966) for the RTT were as follows:

This is a test of imagination. I am going to show you some pictures, one at a time. Using these pictures as guides, your task will be to make up a dramatic story as you can, involving, in the first case, a teacher and a student, and in the second case, a principal and a student. Tell what led up to the event shown in the picture, describe what is happening at the moment, what the characters are thinking and feeling and then give the outcome. Write your thoughts as they come to your mind. You have been given a booklet with seven numbered pages. Please put your first story on page 1 and your second story on page 4. Make sure your handwriting is legible. You will have about 4 minutes for each story. If you have any questions raise your hand. Turn to page 1...here is the first slide. (E presents the first slide. After about 4 minutes E says:) Please turn to page 4. Here is the second slide.

After presentation of the two slides, the following instructions were given:

Please turn to page 2. Now you are going to see the same pictures again, but this time make believe that you are each one of the people in the story you made up. Here is the first picture. I want you to make believe that you are this teacher and you are right in the situation. Rewrite the story from the point of view of this person. That is, write the story again, but this time as though you were really this person. You have up to 3 minutes. Use the sheet of paper numbered page 2 for this story. Begin. (After 3 minutes, E will say:) Now make believe you are this boy. Tell the story as though you were really this person. Use page 3 for this story. (After 3 minutes, E changes the slide and says:) This time tell the story you made to this picture, the one on page 4, as though you were this boy. You will have up to 3 minutes. Please use page 5 for this story. Turn to page 5 and begin. (After 4 min. E says:) This time rewrite the story as though you were really this principal. You will have 4 min. Please use page 6. Begin. (After 4 min. E will ask page 7 to be completed.)

Scoring of the RTT

The RTT manual (Schnall & Feffer, 1960) provides theoretical
descriptions and practical guidelines for the various categories, followed by specific examples which would obtain each score. A general description of and the criteria for each of the major categories is given below.

Simple Refocusing. The requirement for this category is a change in S's description of an actor (a given story character) from that actor's viewpoint as compared to the S's description of that actor in the initial story. This is reflected on the score sheet by the following:

1. Material is given in the initial story pertaining to an actor.
2. While taking the role of that actor, material is given in self-entry.

Note: Three subcategories are scored according to the degree of consistency.

Character Elaboration. In order to be classified under this category, there must be some evidence of a refocusing upon a given actor from more than one point of view. Such a score would show:

1. While taking the role of a given actor, material is given in a self-entry (as in Simple Refocusing).
2. In addition to self entry, material is given on that actor in an elaboration entry.

Note: Three subcategories are scored depending on various degrees of thematic consistency between entries.

Perspective Elaboration. The requirement for consistent character elaboration (highest subcategory of Character Elaboration) has to be met, that is, change yet consistency between descriptions of a given actor from the various perspectives. In addition, these descriptions should differ appropriately from role to role in the sense that the description of an actor in his own role should have an "inner" orientation as contrasted to an "external" description of that actor from a viewpoint other than his own. This score would find:

1. While taking the role of a given actor, material is given in a self entry.
2. In addition to the self entry, material is given on that actor in an elaboration entry.
3. The elaboration entry is thematically consistent with the self entry.
4. This consistency takes place on a space-action level.
5. The self and elaboration entries must indicate appropriate "inner-outer" orientations, respectively differentiating a "self" and an "other".

Note: Five different levels within the Perspective Elaboration category are based upon the subtlety and fineness of coordination between "inner and outer" descriptions.

Change of Perspective. This category requires an overall synthesis between two Perspective Elaborations. That is, the two roles must have a particular relationship to each other such that the internal orientation of one is appropriately reflected in the external orientation of the other and vice versa. The actual scoring is a mechanical combination of Perspective Elaboration scores.

Note: Nine different levels of Change of Perspective are based upon the subtlety of coordination between inner and outer descriptions.

Procedure for Determining Sender Groups

The RTT stories of the twenty-four Senders were each scored anonymously and independently by the author. To be placed in the High Sender group, a S must have obtained a "Perspective Elaboration" or "Change of Perspective" score on at least one of the two sets of stories she produced. Of the twenty-four Ss, eight met this criterion and were thus placed in the High Sender group. Of the sixteen remaining subjects, eight were chosen at random to compose the Low Sender group. Using t or x^2 tests, these two groups were then compared in terms of age, educational level (first, second or third year of university), number of years of teaching experience, marital status and number and sex of her own children. None of these tests were significant, thus the High and Low Sender Groups were assumed to be matched on these variables.

Five of the eight High Senders and five of the eight Low Senders
were randomly selected for a test of inter-judge reliability. Based on these protocols, a Spearman Rank Correlation Coefficient of $r_s = 0.84$ was obtained and was found to be significant ($p < 0.01$).

Production of Stimulus Tapes

Each of the Sender-Ss was seen individually and given a typed description of a problem situation which often occurs in the classroom. She was also given a constant-content response to that situation which she was to use in recording the three types of emotional meanings. Before describing the actual procedure, the rationale behind the choice of the problem situation will be given.

Choice of Problem Situation

The problem situation was chosen for several reasons. First, it involves a problem frequently encountered in school, and as such, most likely comes within the experience of the school teachers chosen as Ss. Second, it involves a situation which tends to engage the teacher in some form of "resolution". It has been found in past research (Schroder et al., 1967) that situations which provide such conditions are very effective ways of obtaining "construct relevant responses" (p. 190). That is, it is in such situations that behavioural differences between subjects differing in levels of conceptual complexity have been obtained. As has been pointed out, that a person is capable of utilizing conceptually complex processes does not mean he will always utilize such processes. Thus, a stimulus situation was chosen which tends to engage Ss in utilizing these processes. Third, this situation provides sufficient latitude of interpretation to allow for the possibility of Ss responding with any of the 3 emotional meanings which will be requested. That
the situation and consequent response can allow for an interpretation of a "firm but kind" approach is supported by the fact that it has been effectively used with that approach. Dreikurs and Grey (1968) presented this case as an example of the effective use of "logical consequences", whose definition requires a "firm but kind" tone of emotional communication. On the other hand, the verbal content involved in this situation is sufficiently ambiguous to allow it to be expressed in an "angry" tone. As Dreikurs and Grey state: "A critical and punitive voice can turn the best consequence into futile punishment. The greatest obstacle to the use of consequences occurs when they are actually designed as retaliation, as in the assumption 'this will teach you a lesson'" (p. 77). The other expression of emotional meaning - "indifference" - can also be expressed by the content provided in this situation.

Procedure for Taping Sessions and Construction of Stimulus Tapes

Upon entering the testing room each S was seated at a table on which was a microphone connected to a tape recorder in an observation room. She was then given a briefing regarding being recorded and observed through a one-way mirror. She was then presented with the typed description of the problem situation and the constant-content statement and given time to read and become familiar with the material. Instructions were then given that the same situation could be interpreted in various ways, depending on a number of factors, and that there were different ways to say the same statement. She was then asked to express the constant-content statement in "angry", "indifferent", and "firm but kind" tones. She was given two practice trials for each of these.
After completion of the session, S was debriefed. Since each S was coded according to a six digit number, E had no knowledge of the S's level of decentering ability during the session.

By appropriately editing each three of the sixteen senders' (eight High and eight Low) responses, two experimental tapes were constructed in which the sequence of items (expressions) obtained were randomized as to the associated decentering group and the type of emotional meaning.

Formation of Receiving Groups and Identification of Emotional Meaning

Sixty-seven female school teachers enrolled in university courses were given the RTT. They were also given one of the two experimental tapes and were asked to indicate which of the three adjectives - "angry", "indifference", or "firm but kind" - best described the emotional tone of each statement. The sequence of adjectives associated with the items was randomized to control for response bias. Several weeks later, most Ss were again given the RTT and all were given the second experimental tape.

Formation of the Receiver Groups followed the same procedure as that delineated in the formation of the Sender Groups. Of the 67 Ss, twenty fulfilled the criterion for the High Receiver Group and thus twenty Low Receivers were randomly selected from the "Low" Ss.

These two groups were then compared on the same variables as were the Sender Groups. As with the Sender Groups, there were no significant differences between the High and Low Receivers on the variables tested.
Ten of the twenty High Receivers and ten of the twenty Low Receivers were randomly selected for a test of inter-judge reliability. Based on these protocols, a Spearman Rank Correlation Coefficient of \( r_s = 0.82 \) was obtained and was found to be significant \((p \leq 0.01)\).

Dependent Measure, Experimental Design and Predictions

Since there were twenty-four expressions (8 Senders x 3 types of emotional meaning) made by each Sender group, each Receiver was presented with a total of forty-eight expressions over the two sessions. The requested emotional meaning of each of these stimuli was the criterion for a correct response. Six accuracy scores were obtained for each Receiver, based on the number of correct responses to each type of Emotional Meaning within each Sender Group.

Having obtained these accuracy scores for each Receiver in each Decentering group, a 2 x 3 x 2 analysis of variance with repeated measures on the last two factors was performed. Factor A was Decentering Ability of Receivers with the two levels being "High" and "Low". Factor B was type of Emotional Meaning with the three levels being "anger", "indifference", "firm but kind". Factor C was Decentering Ability of Senders producing the expressions, with the two levels being "High" and "Low". The level of significance was set as \( p = 0.05 \).

Within this design, the following predictions were used to test the hypotheses described in Chapter I. As was stated earlier no hypotheses regarding Type of Emotional Meaning were constructed.

1. High Decentering Receivers will correctly identify a significantly larger number of expressions than will Low Decentering Receivers.

2. Receivers will correctly identify a significantly
larger number of those expressions produced by High Decentering Senders than they will those produced by Low Decentering Senders.

3. High Decentering Receivers will correctly identify a significantly larger number of expressions than will Low Decentering Receivers, when those expressions were produced by High Decentering Senders.

4. There will be no difference in the number of accurately identified expressions made by High Decentering and Low Decentering Receivers, when those expressions were produced by the Low Decentering Senders.

5. High Decentering Receivers will correctly identify a significantly larger number of those expressions produced by High Decentering Senders than they will those produced by Low Decentering Senders.

6. There will be no difference in the number of accurately identified expressions by Low Decentering Receivers regardless of whether those expressions were produced by High or Low Decentering Senders.

Since these predictions are a bit complex when presented verbally, Table 1 has been constructed to give a clearer picture.
### Table 1
Schematic and Symbolic Representations of Predictions

<table>
<thead>
<tr>
<th>Sender Items</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High (HS)</td>
<td>High (HR)</td>
<td>A</td>
</tr>
<tr>
<td>Low (LS)</td>
<td>Low (LR)</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(A + B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(C + D)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(A + C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(B + D)</td>
</tr>
</tbody>
</table>

#### Predictions
1. $HR > LR \quad (A + B > C + D)$
2. $HS > LS \quad (A + C > B + D)$
3. $HR > LR$ under $HS \quad (A > C)$
4. $HR = LR$ under $LS \quad (B = D)$
5. $HS > LS$ under $HR \quad (A > B)$
6. $HS = LS$ under $LR \quad (C = D)$
CHAPTER III
PRESENTATION AND ANALYSIS OF RESULTS

Frequencies of Obtained Accuracy Scores versus Those Expected by Chance

Prior to analysing differences in accuracy scores, tests to
determine whether or not emotional meanings were accurately perceived
more frequently than would be expected by chance were performed on each
Receiver group under each Sender condition. Chi Squares of 152.75
(HRHS), 72.38 (LRHS), 119.25 (HRLS) and 53.50 (LRLS) were obtained.
With 19 df, each of these is significant at p < 0.001.

Analysis of Accuracy Scores

The results of the three-way analysis of variance on accuracy
scores are presented in Table 2. It can be seen from this table
that the difference between High and Low Receivers (Factor A) is
significant (p < 0.05) and the difference between High and Low
Senders (Factor C) is also significant (p < 0.01). It can also be
seen that the interaction of these two factors (AC) is not significant.

As the primary purpose of this study was to investigate the relationships
between levels of decentering ability in Senders and Receivers,
Table 3 presents the means associated with these variables.
As can be seen from this Table, higher means are associated with
both High Receivers across Senders (4.792) and High Senders across
Receivers (5.050). Thus, the data allow confirmation of Prediction
1 (HR > LR) and Prediction 2 (HS > LS).
Table 2

Summary of Analysis of Variance of the Accuracy Scores of High and Low Receivers on High and Low Sender Items at Each Type of Emotional Meaning

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Subjects</td>
<td>47.6292</td>
<td>39</td>
<td>5.7042</td>
<td>5.17*</td>
</tr>
<tr>
<td>A(Receivers)</td>
<td>5.7042</td>
<td>1</td>
<td>5.7042</td>
<td></td>
</tr>
<tr>
<td>Subjects within</td>
<td>41.9250</td>
<td>38</td>
<td>1.1033</td>
<td></td>
</tr>
<tr>
<td>groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Subjects</td>
<td>583.8333</td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B(Emotional</td>
<td>88.6750</td>
<td>2</td>
<td>44.3375</td>
<td>13.64**</td>
</tr>
<tr>
<td>meaning)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td>11.5583</td>
<td>2</td>
<td>5.7792</td>
<td>1.78</td>
</tr>
<tr>
<td>B X Subjects within</td>
<td>247.1000</td>
<td>76</td>
<td>3.2513</td>
<td></td>
</tr>
<tr>
<td>groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C(Senders)</td>
<td>40.8375</td>
<td>1</td>
<td>40.8375</td>
<td>38.48**</td>
</tr>
<tr>
<td>AC</td>
<td>0.0042</td>
<td>1</td>
<td>0.0042</td>
<td>0.00</td>
</tr>
<tr>
<td>C X Subjects within</td>
<td>40.3250</td>
<td>38</td>
<td>1.0612</td>
<td></td>
</tr>
<tr>
<td>groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BC</td>
<td>37.9750</td>
<td>2</td>
<td>18.9875</td>
<td>13.23**</td>
</tr>
<tr>
<td>ABC</td>
<td>8.2583</td>
<td>2</td>
<td>4.1292</td>
<td>2.88</td>
</tr>
<tr>
<td>BC X Subjects within</td>
<td>109.1000</td>
<td>76</td>
<td>1.4355</td>
<td></td>
</tr>
<tr>
<td>groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p<0.05
** p<0.01
### Table 3
Mean Number Correct Responses of High and Low Receivers Under High and Low Senders

<table>
<thead>
<tr>
<th>Senders</th>
<th>High (HS)</th>
<th>Low (LS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (HR)</td>
<td>15.60</td>
<td>13.15</td>
</tr>
<tr>
<td>Low (LR)</td>
<td>14.70</td>
<td>12.20</td>
</tr>
<tr>
<td></td>
<td>15.15</td>
<td>12.68</td>
</tr>
</tbody>
</table>
The last four predictions stated under what conditions these main effects would occur. In each case it was predicted that the differences would occur under the High condition of the other variable but not under its Low condition. Since the interaction of these variables was not significant, data relating these variables alone to the predictions do not provide any further information than is provided by the results of their main effects. In Figure 2, the means of High and Low Receivers are plotted for both High and Low Sender conditions. As can be seen from this graph, there is no difference in the slopes of these lines.

However, it is interesting to note that differences between High vs Low Sender items under High and under Low Receiver conditions (a and c) both appear greater than differences between High vs Low Receivers under either High or under Low Sender conditions (b and d). This raises the question as to whether the size of the differences between Senders is significantly greater than the size of the differences between Receivers. If this can be demonstrated, then evidence regarding the differential effects of level of decentering ability on Sending versus Receiving messages will have been provided. One method for testing these differential effects is to compare the variance component attributed to Senders versus that attributed to Receivers. To do this, total scores for Senders summed across the two Receiver conditions and total scores for Receivers summed across the two Sender conditions were obtained and variances for these two sets of scores were determined. These were compared using a F ratio (e.g. Guilford, 1965, p. 193) and were found to differ significantly (p < 0.05), the greater component being that attributed to Senders.
Figure 2. High versus Low Receivers at Each level of Senders

- a. HS vs LS at HR
- b. HR vs LR at HS
- c. HS vs LS at LR
- d. HR vs LR at LS
Although no predictions were made about differences between accuracy scores among the three types of Emotional Meaning, it can be seen from Table 2, that both the main effects for this factor (B) and the interaction of this factor with Sender Items (BC) were found to be statistically significant. Table 4 presents the mean number of correct responses for each condition. Inspection of the means for the types of Emotional Meaning indicates that "Indifference" items have the greatest accuracy, followed by "Firm but Kind" items and finally "Angry" items. Since the BC interaction was significant, tests on simple main effects are called for rather than direct tests on main effects. Results of the simple effects of Sender Items at

Table 4

<table>
<thead>
<tr>
<th></th>
<th>Angry</th>
<th>Indifference</th>
<th>F-K</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS</td>
<td>4.85</td>
<td>5.50</td>
<td>4.80</td>
</tr>
<tr>
<td>LS</td>
<td>2.90</td>
<td>5.22</td>
<td>4.55</td>
</tr>
</tbody>
</table>

each Type of Emotional Meaning indicated that High Sender Angry Items were identified more accurately than were Low Sender Angry Items (p<0.005), whereas no significant differences between High and Low
Sender conditions were found with "Indifferent" or "Firm but Kind" items. To help portray the direction of these results, Figure 3 has been constructed. It can be seen from this figure that the large difference with "Angry" items is primarily due to a decrease in the number of correct identifications of "Angry" items produced by Low Senders.

Another way to look at the simple main effects is to consider differences of the accuracy scores between each possible pair of Emotional Meanings under each level of Sender items. The results of these six tests are given in Table 5. As can be seen from this Table, each comparison except "Anger" versus "Firm but Kind" under High Sender items, is significant. The direction of these differences can be seen in Figure 3 by comparing the points for each type of Emotional Meaning under High Sender and under Low Sender conditions. It can be seen, under High Sender items, that the mean for "Indifference" is greater than are those for "Firm but Kind" and "Anger" but that the latter two do not differ from each other. On the other hand, considering these points under Low Sender items, it can be seen that the means for "Indifference", "Firm but Kind" and "Anger" all differ from each other, from highest to lowest respectively.

Results presented up to this point indicate that there are significant differences between High and Low Sender items and between High and Low Receivers. In each case the "High" condition obtained the higher score. It was also noted that Senders had a significantly greater variance than did Receivers. Significant differences were also obtained with Type of Emotional Meaning and with the interaction of this variable with Sender items. Tests on simple effects of Sender items at each Type of Emotional Meaning indicated that the
Figure 3. High versus Low Senders at Each Type of Emotional Meaning
Table 5

Results of Individual Comparisons between Accuracy Scores of Types of Emotional Meanings Under Each Level of Sender Item

<table>
<thead>
<tr>
<th>Comparison</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Sender Items</strong></td>
<td></td>
</tr>
<tr>
<td>Angry versus Indifferent</td>
<td>2.22*</td>
</tr>
<tr>
<td>Angry versus Firm but Kind</td>
<td>0.18</td>
</tr>
<tr>
<td>Indifferent versus Firm but Kind</td>
<td>2.51**</td>
</tr>
<tr>
<td><strong>Low Sender Items</strong></td>
<td></td>
</tr>
<tr>
<td>Angry versus Indifferent</td>
<td>8.52**</td>
</tr>
<tr>
<td>Angry versus Firm but Kind</td>
<td>5.91**</td>
</tr>
<tr>
<td>Indifferent versus Firm but Kind</td>
<td>2.42**</td>
</tr>
</tbody>
</table>

* p < 0.05  
** p < 0.01
High Sender condition received significantly higher accuracy scores than did the Low Sender conditions, with "Angry" but not with "Indifferent" and "Firm but Kind" items. It was noted that the difference with "Anger" was due to a decrease in the accuracy of Low Sender items. Finally, it was found that under the High Sender condition, "Indifferent" items received the highest score, followed by "Firm but Kind" and "Angry" items, which did not differ from each other. On the other hand, under the Low Sender condition, "Indifferent" items were perceived with greater accuracy than were "Firm but Kind" items and the latter were perceived with greater accuracy than "Angry" items.

Additional Analyses

Inspection of the ABC interaction in Table 2 shows that it is not significant at the $p = 0.05$ level. However, it would be significant at $p < 0.10$. Given this possible trend of significance and given the a priori predictions regarding Senders and Receivers, simple effects of Senders at each level of Receivers and Receivers at each level of Senders were tested for each Type of Emotional Meaning, using the $t$ statistic. It is understood, however, that statements based on these tests can not made with the same degree of confidence as can those based on results presented earlier.

Using only "Angry" items, High versus Low Receivers under Low Sender items, and High versus Low Sender items under both High and Low Receivers, were found to differ. In each case, the higher score was associated with the High group. These results reflect the overall significant main effects of Receivers and Senders. With "Indifferent" items, only High versus Low Senders under Low Receivers
differed with High Sender items being more accurately identified. Finally, using "Firm but Kind" items, High Receivers scored greater than Low Receivers under High Sender items but not under Low Sender items. Similarly, High Sender items differed from Low Sender items, under High Receivers but not under Low Receivers. It should be noted here that the results with "Firm but Kind" items follow the pattern delineated in the last four predictions made in Chapter II.
CHAPTER IV
DISCUSSION OF RESULTS

That emotional meanings were accurately communicated more frequently than would be expected by chance was demonstrated by this study. This finding is consistent with many other studies in the vocal communication of emotional meaning (Davitz, 1964) and it allows for the discussion of variables which affect this communication process. Before beginning this discussion, it should be emphasized that this study is primarily exploratory in nature, since no similar work has been conducted. As such, the discussion will attempt to generate ideas for further research rather than present definitive conclusions and explanations.

Effect of Decentering Level on the Accuracy of Sending and Receiving Emotional Meanings

It was found that Receivers, divided into "High" and "Low" groups on the basis of their scores on the Role Taking Task (Feffer, 1959), differed significantly in the accuracy with which they perceived emotional meanings, the "High" group being the more accurate. Thus, there is evidence to support the hypothesis that the level of decentering ability (which can also be described as the ability to coordinate different perspectives) affects the accuracy with which emotional meanings are perceived.

An explanation for this effect can be constructed by considering the type of task required in this study, to identify emotional meanings.
In this task, the Receiver listened to recorded statements containing the same content but differing in the emotional tone with which they were expressed. To accurately identify these recordings, the Receiver had to be able to shift from one emotional meaning to another while hearing the same content. Such a task could be described as taking different perspectives of the same event; a factor involved in coordinating different perspectives. Based on this task analysis, it would be expected that Ss assessed on another measure (e.g. the RTT) as being "High" in this ability would perform better than "Low" Ss.

In contrast to the numerous studies on the ability to identify emotional meanings, very few studies have been conducted on the ability to express or send emotional meanings (Davitz, 1964). The present work found that, as with Receivers, Senders, categorized as "High" in level of decentering ability, produced messages which were more accurately identified than were those produced by Senders "Low" in this ability. Consideration of the process of producing different emotional meanings using the same content, suggests that the ability to shift from one emotional meaning to another would be beneficial in this task as well. Thus, this ability can be used to explain the results obtained with Senders as well as with Receivers.

The proposed explanation of these results is related to a more general formulation of communication through nonverbal behaviours. In a recent book on this topic, Mehrabian (1972) states that the term "nonverbal" is a misnomer when it refers to paralinguistic or vocal communication. He suggests that vocal qualities would better be described as "implicit" aspects of speech. He reserves the term "nonverbal" for actions distinct from speech, such as facial expressions.
and various movements of the body. This differentiation is designed to lead to the proposal that "it is more the subtlety, then, of a communication form than its verbal versus nonverbal quality which determines its consideration within the nonverbal literature" (p 2).

He goes on to say:

Their subtlety can be attributed to the lack of explicit coding rules for these behaviors in most cultures. Whereas verbal cues are definable by an explicit dictionary and by rules of syntax, there are only vague and informal explanations of the significance of various nonverbal behaviors. Similarly, there are no explicit rules for encoding or decoding paralinguistic phenomena or the more complex combination of verbal and nonverbal behavior in which the nonverbal elements contribute heavily to the significance of a message (p 2).

Given the subtlety of, and the lack of explicit coding rules for, the implicit aspects of speech, it is a small step to consider the production and identification of emotional meanings as activities which involve relatively ambiguous tasks. In communication terms, they can be said to contain relatively large amounts of uncertainty. This can be exemplified by considering the typed statement "I am angry" versus a vocal expression of "anger" using a statement of ambiguous content. With the former, there is no possibility of alternate interpretations. Its meaning is explicit. On the other hand, the latter does allow for alternative interpretations, and thus contains more uncertainty. Given the relative uncertainty (more possible alternatives) of the tasks in the present study, Ss with greater ability to generate alternative responses would be likely to perform more accurately than Ss with less of this ability.

Thus, both the ability to generate alternative responses and the ability to take different perspectives of the same situation can be
used to explain the results, since these appear to be involved, both in the assessment of the level of decentering ability and in the type of tasks required of Senders and Receivers.

As well as the finding that the level of decentering ability differentially affected both the sending and receiving of messages, it was also found that the effect was significantly greater on Senders than on Receivers. It has been found in past research that sending and receiving messages are positively related (Davitz, 1964). In spite of the fact that these results have been consistent and statistically significant, the correlations have been low. The differential effects found in this study provide evidence for an explanation of past results. While sending and receiving messages may have a common factor, they also may each involve factors which are not common. Another possibility is that, although both activities contain a common factor, one of them may contain more of that factor than the other and thus a variable which has its effect through that factor would have a greater effect on the activity containing more of the factor.

In this study, sending and receiving messages accurately both have been described as involving the taking of different perspectives with the same content. However, a consideration of other types of possible processes involved in each of these tasks, suggests that producing messages involves more complex motor activities and requires greater integration of cognitive and motor activities than does identifying messages. Thus, sending messages appears to be a more complex task than identifying messages. If this is correct, it offers an explanation for the greater differential effect of level of decentering ability on Senders than on Receivers. This statement is based on past research
in which it was found that task complexity is related to the level of complexity in processing information (Schroder, et al., 1967). (Level of complexity in processing information is an alternate label for "conceptual complexity" which has theoretically and empirically been related to level of decentering ability). Schroder et al., (1967), describe the relationship between task complexity and conceptual complexity as an inverted U curve. Thus, as task complexity increases, so does the level of information processing until an optimum task complexity is reached. Greater increases in task complexity, result in decreases in the level of information processing. Applying individual differences to this model, Schroder et al. (1967) propose that, although this relationship takes the same general form for both "high" and "low" conceptually complex personalities, the former's curve: 1) is higher over all levels of task complexity; 2) has a higher optimal point of task complexity; and 3) is relatively higher from the "low curve" beyond the "low" curve's optimum point than is proceeding that point. Applying the results of the present study to this model, it may be that it was a greater task complexity in producing messages which resulted in greater differentiation between High and Low decentering Ss, than did the less task complexity of identifying messages. However, it should be noted that this is a proposed explanation not a conclusion, since no independent measure of task complexity was obtained.

Type of Emotional Meaning and Level of Decentering Ability of Senders

The discussion up to this point has not taken into consideration the types of emotional meanings of the items. However, this variable and its interaction with type of Sender items were found to be significant. Although it was found that "Indifferent" items were
identified most accurately, followed by "Firm but Kind" and finally "Angry" items, it is the interactions of these differences with type of Sender items which is of primary concern in this study.

It was found that the accuracy with which High Sender Angry items were identified was significantly greater than was the accuracy with Low Sender Angry items. On the other hand, there were no significant differences between High versus Low Indifferent or High versus Low Firm but Kind items.

A structure within which to explain these results can be found in the categorization of emotional meanings (Davitz, 1964; Williams and Sundene, 1965; Mehrabian, 1972). Although using different terms, each of these workers proposed three orthogonal factors which are suggestive of Osgood's (1966) dimensions of "pleasantness", "control" and "activation". Since it is within the third dimension - activation - that the categorization of "anger" versus "indifference" has been made (Mehrabian, 1972), this dimension will be used to discuss the results just described. However, it should be noted that each type of emotional meaning could be assigned a place on each of the three dimensions. More will be said about this when discussing the additional analyses and suggestions for future research. Also, "firm-but-kind" items will be discussed later, since they have not been used in past research.

"Anger" has been categorized as an "active" emotion, whereas "boredom" or "indifference" has been said to be relatively "passive" (Davitz, 1964; Mehrabian, 1972). The results of the present study indicate that it is with the "active" emotional meaning (anger) that the differential effect of level of decentering ability occurs. This is particularly interesting when it is noted that the large
difference obtained with "Angry" items is primarily a result of a decrease in the accuracy with which Low Sender Angry items were identified. This suggests that the high activity level of "anger" somehow disrupted the ability of the Low Senders to produce discriminable messages. The work of Lowenhertz and Feffer (1969) may be related to this explanation. It was found in that study that Ss showed more difficulty in coordinating perspectives under a "defensive isolation" condition than under a "nonisolated" condition. The defensive isolation condition was one in which Ss were presented with stimuli for use in the RTT which had previously been determined to be "defensively isolated" aspects of the self-structure. It has long been accepted in clinical practice that anger is one of the most difficult emotions to cope with adequately and thus is often defensively isolated. It may be that persons "high" in level of decentering ability can better integrate this emotion into their cognitive structures and thus it does not interfere with adequate cognitive functioning, whereas it does interfere with the cognitive functioning of persons "low" in decentering ability. Another way to view this is that it may be the inability to integrate "anger" into the cognitive structures, that raises its relative activity level for low decentering persons to the point where it results in disruptive effects.

In an earlier section a proposed effect of task complexity on the performance of "high" versus "low" conceptually complex personalities was described. In developing the proposals regarding these results, Schroder et al. (1967) began with the well established inverted U relationship between activation level and performance. Results from this study are compatible with that relationship, if
the activation levels of the types of emotional meaning are, from low to high, "Indifferent", "Firm but Kind" and "Angry". As was stated earlier, the curves of high versus low complexity levels differed more at the high end of the continuum than at the low end. Thus, the lack of significant differences between High and Low Senders using "Indifferent" and "Firm but Kind" items and the significant difference between Senders using Angry items might be explained by this relationship. To empirically test this would require an independent measure of the activation levels of the three types of emotional meaning. Such an investigation is proposed for further research.

Discussion of Additional Results

Another way to view the interaction of type of Emotional Meaning and level of decentering ability of Senders, is to consider differences between the types of emotional meaning at each level of Sender items. Under both High and Low Sender conditions it was found that "Indifferent" items were more accurately identified than were either "Firm but Kind" or "Angry" items. This may be partially explained on the basis of its lack of similarity with the other two emotional meanings. Davitz's (1964) work on differences in the ease or accuracy of communicating various feelings supports this interpretation. However, few studies have focused primarily on providing evidence for this interpretation and the ones that have, report that subjective similarity accounts for only a small part of the variance (Davitz and Davitz, 1959b).

It was also found that under the High Sender condition, there was no difference between "Firm but Kind" and "Angry" items, whereas under the Low Sender condition, "Angry" items were identified less accurately than "Firm but Kind" items. In view of the results reported
earlier that there was no difference between these conditions under "Angry" items, it appears that the difference between "Firm but Kind" and "Angry" items under the Low Sender condition is another way of looking at the disruptive effect "Angry" items had on Low Senders. Thus, the explanation of this disruptive effect is the same as was presented earlier.

A final note might be made about the possible differences, using only "Firm but Kind" items, between High versus Low Senders under High Receivers and High versus Low Receivers under High Senders. With some reservation as to the confidence with which these differences in favor of the "High" groups were found under these two conditions. If there is something to these results, they could be explained using the apparent complexity of a "Firm but Kind" tone. Such an emotional meaning would appear to incorporate a simultaneous coordination of two different perspectives - namely the firmness required of an authority who must cope with disruptive behaviour and the kindness of that same person who is able to perceive the point of view of the person misbehaving. The coordination would appear to involve accepting the feelings of the person misbehaving while at the same time meeting the demands of the situation with appropriate control of that person's behaviour. In terms of the three-dimensional structure for categorizing emotional meanings, this tone seems to contain an effective level of a Potency or Control factor (Mehrabian, 1972) as well as the Activation factor discussed earlier. As before, this requires further investigation.
CHAPTER V

SUMMARY AND CONCLUSIONS

The present study was undertaken to investigate the effect of level of decentering ability on the vocal communication of emotional meaning. Specifically, it was hypothesized that:

1. High decentering receivers are more accurate in identifying emotional meanings than are low decentering receivers;

2. The emotional meanings produced by high decentering senders are more accurately identified than are those produced by low decentering senders;

3. High decentering receivers are more accurate than low decentering receivers in identifying the emotional meanings produced by high decentering senders.

4. High decentering receivers do not differ from low decentering receivers in the accuracy with which they identify the emotional meanings produced by low decentering senders.

5. The emotional meanings produced by high decentering senders are more accurately identified than are those produced by low decentering senders, when identified by high decentering senders.

6. The emotional meanings produced by high decentering senders are no more accurately identified than are those produced by low decentering senders when identified by low decentering receivers.

Although no specific hypotheses were formulated with regard to type of emotional meaning, the study was also designed to investigate the effect of this variable on the accuracy with which emotional meanings were communicated.

Level of decentering ability was described as the ability to
simultaneously coordinate different perspectives and was measured by the Role Taking Task (Feffer, 1959). Twenty-four female teachers were given this task and based on their performances, eight Ss were selected to serve as High Senders and eight as Low Senders. Each of these Ss were given a typed problem situation which frequently occurs in classrooms and were also given a constant-content response to this situation. Each S then produced an audio-recording of this response in an "Angry", "Indifferent" and "Firm but Kind" tone. These recordings were edited to produce stimulus tapes, in which the items were randomized according to level of decentering of the Sender and type of emotional meaning.

Sixty-seven additional female teachers were also given the Role Taking Task and from this pool, twenty High and twenty Low Receivers were selected. The stimulus tapes were played to these Ss and they were required to identify which of three adjectives - "Anger", "Indifference", "Firm but Kind" - best described the emotional meaning of each item.

Using the requested emotional meaning as the criterion, six accuracy scores - one for each level of Sender and type of emotional meaning - were determined for each Receiver. This data was subjected to a $2 \times 3 \times 2$ ANOVA with repeated measures on the last two factors. Factor A was level of decentering ability of Receivers; Factor B was type of emotional meaning; Factor C was level of decentering ability of Senders.

It was found that High Receivers identified the emotional meanings with greater accuracy than did Low Receivers. It was also found that High Sender items were identified with greater accuracy than were Low
Sender items: Thus, evidence was provided in support of the first two hypotheses. These differences were explained in terms of a common factor involved in both decentering ability and in producing and identifying emotional meanings. Since the Receiver x Sender interaction was not significant, no evidence could be provided relevant to the simple differential effects described in the last four hypotheses.

However, it was found the variance associated with Sender items was significantly greater than that associated with Receivers. This was taken as evidence that the level of decentering ability has a greater effect on producing emotional meanings than identifying them. An explanation of this, in terms to differences in the two tasks, was provided.

A significant interaction between level of decentering ability of Senders and type of emotional meaning was obtained. Tests on simple effects indicated that it was with "Angry" items that differences between High and Low Sender conditions occurred. Explanations of this, in terms of the relative positions of "Anger" and "Indifference" on an Activity dimension (Mehrabian, 1972) and of the effect of these variations on decentering ability were offered. The latter was related to work relating decentering ability to "conceptual complexity" (Schroder et al., 1967).

Differences between types of emotional meaning under each level of Sender item were also found. Under the High Sender condition, "Indifference" was identified more accurately than either "Firm but Kind" of "Anger", but the latter two did not differ from each other. On the other hand, under the Low Sender condition, while "Indifference" was identified more accurately than either "Firm but Kind" or "Anger".
"Firm but Kind" was identified more accurately than "Anger." The results with "Indifference" were discussed as being partially due to its lack of similarity with the other two emotional meanings (Davitz, 1964). The differential effects with "Firm but Kind" versus "Angry" items was described as being another way of viewing the disruptive effect of "Anger" on Low Senders.

A final note was presented regarding possible differences between High versus Low Senders under High Receivers and High versus Low Receivers under High Senders, when only "Firm but Kind" items were used. Since each of these differences were in favor of the "High" groups, they were in accord with the last four hypotheses stated in the Introduction. However, lack of significant overall interaction makes the results of the simple effects tests suspect, even though they were significant. Thus, these results were presented with caution and the explanation, in terms of "Firm but Kind" items as possibly containing an effective level of a Potency or Control factor (Mehrabian, 1972), should be viewed as requiring further research.

Conclusions and Suggestions for Future Research

Results from this study offer evidence that level of decentering ability affects the accuracy with which "angry" emotional meanings are vocally communicated. However, it should be noted that this conclusion is directly related only to female teachers as Senders and Receivers; since it was from this population that Ss were selected. Whether or not this relationship holds for other populations can only be assessed by future research.

In the introduction of this study a system investigating the act
of communication was proposed. This system included, not only senders, messages and receivers but also the role of E in such investigations. Within this system, E's analysis of responses of one study leads to changes in the experimental situations of future investigations. Some of the changes, which could be made with senders, messages and receivers will now be presented.

One extension of this study which would be interesting would be the use of school-aged children as receivers. Such a study would come closer to the actual situation in which this communication occurs. Another context which may be of interest is the use of parents and children as both Senders and Receivers.

Varying the type and intensity of emotional meanings might also be a valuable direction in studying the effects of level of decentering ability on vocal communication, especially in view of the proposed explanation. Using the three-dimensional system alluded to earlier could be of great assistance in this line of study.

Also, each of the ideas mentioned so far could be investigated using other channels of communication as well as a multi-channel approach. In regard to the latter, it would be interesting to investigate the effect of decentering ability on the consistency among channels (Mehrabian, 1972).

Another aspect of the system presented in the introduction was the effect of responses produced by Ss (both senders and receivers) on their future responses. Studies investigating this aspect might be constructed using immediate feedback techniques in an attempt to train Ss in producing and receiving more accurate messages and relating this to level of decentering ability. The reverse approach
would be to train in decentering and investigate whether this results in increased accuracy in communicating. Granted that this may be a difficult task, significant results in this area might allow for application in areas such as school, home and psychotherapeutic situations.

Finally, experiments involving direct communication between Ss (functioning as both senders and receivers), both matched and differing in levels of decentering ability should be constructed.
APPENDIX A

Subjects were assembled in a group and given the following instructions:

Several weeks ago I asked some teachers to read a paragraph describing a situation which frequently occurs in the classroom. Following this, I provided them with a statement which was a response to this situation and asked them to express this statement in various emotional tones. These expressions were recorded and are on the tape I will play for you.

Thus, you will hear a statement spoken by a number of different people, spoken in a number of different ways. Your task will be to indicate how well the following three adjectives describe the emotional tone of each statement. The three adjectives are:

"angry"
"indifferent"
"firm but kind"

You can indicate how well each of these adjectives describes the emotional tone of the statement spoken by assigning one of three numbers to it:

A "1" if the adjective describes the emotional tone more accurately than any of the other two;

A "3" if the adjective describes the emotional tone less accurately than any of the other two;

A "2" if the adjective is neither the most nor the least accurate of the three.

As you see on your answer booklet, each item is numbered, that number corresponding to the number on the tape introducing each statement. Let us take item A as an example of how you are to respond. For item A, the order of the three adjectives listed is:

A "Indifferent".
"angry"
"firm but kind"

If, after hearing statement A, you judge the adjective "angry" to describe its emotional tone more accurately than the other two, you would place a "1" in the space beside the word "angry". If you judged the adjective "firm but kind" to describe its emotional tone less...
accurately than the other two, you would place a 15 in the space beside "firm but kind". Finally, you would place a 2 beside the word "indifferent". You should note that the order of adjectives for each item is random and plays no part in your response. You will 15 sec. to make your decisions. Are there any questions?
APPENDIX B

Problem Situation and Constant-Content Statement

While I was reciting a lesson with my grade-school class, two students, who were sitting close together, were having a private conversation, which was noticeably bothering the other students. They stopped for a moment after I looked in their direction, but began a few minutes later. Finally, I went to their desks and said:

"You two seem to have something important to say to each other, something that can't wait until class is dismissed. You may go out in the hall and tell each other what you want to say, and when you are through you may come back."
## APPENDIX C

**Raw Data**

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