

AN ABSTRACT OF THE THESIS OF

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Title COGNITIVE MEANING OF TEACHER-CHILD VERBAL  
INTERACTION IN A FOURTH GRADE CLASSROOM

Abstract approved Dr. Jack V. Hall

Purposes of the Study

1. To design an instrument for classification of teacher-child verbal interaction formulating classroom cognitive patterns of communication.

2. To use the designed instrument in a classroom outside the pilot program to formulate an apparent teacher-child cognitive pattern of communication.

Securing and Treating the Data

Information basic to the development of the Cognitive Scale Record was secured through a small scale pilot program. Variables to be investigated were defined; a research paradigm was refined; and a final form of the classification instrument was designed.

Classroom use of the Cognitive Scale Record outside the pilot program was based upon a tape recording of a sample of teacher-child acts of conversation. Tapescript, Matrix, and Frequency Distribution forms of this verbal

interaction provided bases for analyses relevant to a classroom cognitive pattern of communication.

### Findings

#### In the Pilot Program.

1. The following characteristics of cognitive patterns of classroom communication were determined.
  - a) Pattern I Communication will have teacher-child acts of conversation most frequently in the lower cogitative range, frequently in the incogitant range, and less frequently in the upper cogitative and cogent ranges. Its objectives emphasize remembering or recall of information.
  - b) Pattern II Communication will have teacher-child acts of conversation most frequently in the lower cogitative range, frequently in the upper cogitative range, and less frequently in the incogitant and cogent ranges. Its objectives emphasize understanding of the literal message contained in a communication.
  - c) Pattern III Communication will have teacher-child acts of conversation most frequently in the entire cogitative range, frequently in the cogent range, and less frequently in the incogitant range. Its objectives emphasize organizing and reorganizing thought that is being communicated to achieve a particular purpose, e.g., problem solving.
2. A consensual behavioral description was developed for each item, e.g., act of conversation, in the instrument.
3. One scale would not adequately discriminate the peculiarities in cognitive power in the range of primary through senior high school classrooms.
4. Efficacy required narrowing the range of

classrooms for study to grades three through six.

5. Effects of the systematization of observation through the Cognitive Scale Record were increased by tape recording and tape scripting teacher-child verbal interaction.

Cognitive Scale Record Use Outside Pilot Program.

1. Matrix analysis revealed the following:

- a) The acts of conversation were most frequently in the lower cogitative range (T-60 and C-45), frequently for the teacher in the upper cogitative range (T-39 and C-17), less frequently in the incogitant range (omitting teacher utterances opening class and turn calling) (T-21 and C-26) and cogent range (T-3 and C-0), thus characterizing Pattern II Communication.
- b) For teacher acts of conversation, one-third were cogitative questions, about one-fourth were interpretive, about one-fourth were cogitative remarks and inferences, and about one-sixth distributed between command, verbalization, and hypothesizing.
- c) For child acts of conversation about one-fourth were verbalizations, half were cogitative replies and remarks, and about one-fifth in the upper cogitative range and interpretive primarily.
- d) About three-fourths of all teacher-child acts of conversation were in the cogitative portion of the matrix, and of these one-half were lower cogitative and one-fourth upper cogitative.

2. The instrument seemed to be a reliable means for the teacher to develop and comprehend a classroom cognitive pattern of communication.

## Recommendations

1. Educators and researchers should increasingly utilize systematic observation, including electronic recording with accurate verbatim transcript, of teacher-child conversation to provide data and concepts:

a. Helping a teacher to discover talk dictates teacher-child educational effectiveness; to free and open the content and nature of classroom communication.

b. Creating conditions for self-in-service education and phenomenological treatment by a teacher.

2. Research of any facet of the crucial and elusive problem of teacher-child educational effectiveness should continue.

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1967

COGNITIVE MEANING OF TEACHER-CHILD VERBAL INTERACTION  
IN A FOURTH GRADE CLASSROOM

by

WARD TINKER MELENDY

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# COGNITIVE MEANING OF TEACHER-CHILD VERBAL INTERACTION IN A FOURTH GRADE CLASSROOM

## Chapter I

### INTRODUCTION

#### Background for the Problem

Verbal interaction is inherent in all classroom procedures. It regulates them and they regulate it. Classroom verbal exchange represents the efforts of teacher and child to develop and uncover meaning in a message by some quality of thoughtfulness. The transference of thought from one person to another through spoken words is one form of communication. Acts of conversation, which shape patterns of communication, determine the educational effectiveness of both teacher and child. Acts of conversation, then, are more than words; they are evaluations. How teacher and child think and evaluate is inextricably bound up with how they talk (13, p. viii).

Contemporary research indicates a need for the development of new systems for the collection of many times the present amount of hard data on issues relating to teacher effectiveness (3, p. 40). Since it is impossible to investigate the effectiveness of teaching without at the same time determining what the learner is doing (1, p. 53), there is a more particular need for

systematizing the observation of classroom interaction. It is not possible to judge a teacher's effectiveness simply by watching him teach (18, p. 257). Systematized observation of teacher-child verbal exchange is one of the ways to replace the personal opinions and performance ratings developed by watching teachers which have plagued the field of research on teacher effectiveness.

When psychologists began their effort to measure intelligence, just before the beginning of the 20th century, they lacked a precise idea of the nature of this quality. This situation is not unusual, nor is it necessarily detrimental. Even a vague idea about a human trait can serve to guide an investigator as he selects items and plans his studies. Then, as evidence and experience accumulate about what the items are related to, he is able to formulate increasingly clearer definitions of what the instrument classifies and to modify and improve the instrument (29, p. 41).

We can work legitimately with ordinal scales which arrange selected factors in a series ranging from lowest to highest according to the characteristic we wish to classify (29, p. 8). There are some direct methods of scaling which have been in use for centuries and are still used today. These are observation, interview, and rating (29, p. 87).

What we do not always recognize about a scale as a tool is that a scale is not built all at once like a house or a machine. It develops over a period of years, and its usefulness grows as experience with it increases. A brand new scale, no matter how ingenious an idea it represents or how great the need for it, would always be at the undeveloped end of a continuum of scale development. But even scales low on such a continuum can serve as sources of hypotheses if such hypotheses are carefully checked against non-scale data. Scales, classification instruments, are tools and their value depends chiefly on the skill of their users (29, p. 94).

### The Problem

The problem for study was to design an instrument for the classification of teacher-child verbal interaction to identify teacher-child patterns of communication in terms of cognitive meaning.

### Limitations for the Study

The study was limited to designing a classification instrument and developing it in a small scale pilot program in selected classrooms of a particular public school district. The development of the instrument was limited in scope to the classification of teacher-child verbal

interaction as acts of conversation according to cognitive meaning in order to identify their patterns of communication. The final application of the developed instrument to secure data pertinent to the thesis problem was limited to a selected classroom outside the pilot program.

### Procedures Used in the Study

The procedures in the study, based in a survey of research literature and field trials related to the problem, included: (1) creating a rudimentary research paradigm; (2) devising a preliminary instrument for the classification of teacher-child verbal interaction; (3) applying the preliminary instrument cooperatively with teachers in regular public school classrooms in a small scale pilot program to improve upon its design; (4) using the improved instrument in a classroom outside the pilot program to determine whether or not it could provide the teacher with helpful data on the classroom cognitive pattern of communication; and (5) recapitulating the study, findings, and making recommendations for further study.



### Summary

This chapter has provided a brief overview of the background for the problem, statement of the problem, and limitations and procedures in the study of it.

The background indicated that classroom verbal interaction is a significant determinant of the educational effectiveness of both teacher and child. Need for more data on this educational effectiveness through new systems of observation of classroom interaction was cited. Legitimacy was claimed for work with ordinal scales and direct methods of scaling a characteristic of human behavior. The value of outcomes is dependent on the skill of the users.

A need and a possible way for design of an instrument to classify teacher-child verbal interaction as it affects their educational effectiveness was established.

The next chapter is a survey of selected literature related to three key questions affecting decisions on instrument design. What seem to be worthy educational objectives? Why is verbal interaction significant as a complex of language and thought? How is systematic observation planned?

## Chapter II

### SELECTED LITERATURE RELATED TO THE STUDY

#### Educational Objectives

Probably the most common educational objective in American education is the acquisition of knowledge or information. That is, it is desired, as the result of completing an educational unit, that the student will be changed with respect to the amount and kind of knowledge he possesses. Frequently, knowledge is the primary, sometimes the sole kind of, educational objective in a curriculum. This type of objective emphasizes most the psychological processes of remembering, distinguishing it from those conceptions of knowledge which involve "understanding", "insight", or which are phrased "really know" or "true knowledge" (4, p. 28).

Many teachers would not be satisfied to accept information or knowledge as the primary or sole outcome of instruction. It is also expected that students will bring to bear what has been labeled as "critical thinking" by some, "reflective thinking" by Dewey and others, "problem solving" by still others, and, most recently, "intellectual abilities and skills" (4, p. 38), in applying information to new situations and problems, proving they can do something with their knowledge.

The task of the teacher becomes one of helping the child acquire increasing autonomy in his intellectual functioning and more productive use of his thought processes. Modern curriculum theory, supported by recent research, assumes that thinking consists of specific describable processes which can be learned (26, p. 6).

### Language and Thought

The science of meaning and its transfer, semantics, naturally includes all of the compartments of language, spoken, written, gestural, or symbolic. Meaning and its transfer are indissolubly linked with psychology, both of the individual and of the mass (22, p. 118). Korzybski (14), the founder of general semantics, introduced into the study of human behavior an entirely new area of inquiry, namely, the role of language in shaping the content of human psyche and the influence of that process on human problems and behavior. Chase (6,7), Hayakawa (12), Lee (16), Ogden and Richards (20), and Pei (22) have continued this study.

The science of mental processes being still in its infancy, we ought not to be astonished to find that there is a great deal about language that is not yet clear and perhaps never will be (22, p. 118).

The intellectually naive objectify language as if

it were something "out there", to be examined independently of speakers or hearers. But the language, to be language, must have meaning, and meanings are not "out there". Meanings are developed or uncovered by acts of thought that take place in people (13, p. viii). The meaning of a word represents such a close amalgam of thought and language that it is hard to tell whether it is a phenomenon of speech or a phenomenon of thought.

But from the point of view of psychology, the meaning of every word is a generalization or concept. And since generalizations and concepts are undeniably acts of thought, we may regard cognitive meaning as a phenomenon of thinking. Word meaning is a phenomenon of verbal thought, cognitively meaningful speech -- a union of word and thought (30, p. 120).

Schematically we may imagine thought and speech as two overlapping circles. In their overlapping parts thought and speech fuse to produce verbal thought. Verbal thought, however, does not include all forms of thought or all forms of speech. We are therefore forced to conclude that fusion of thought and speech, in adults as well as children, is a phenomenon limited to a circumscribed area (30, p. 85).

The relation of thought to a word is not a thing but a process, a continual movement back and forth from

thought to word and from word to thought. Thought -- cognitive meaning -- is not merely expressed in words; it comes into existence through them. Every thought tends to connect something with something else, to establish a relationship between things. Every thought grows, moves, and develops, fulfills a function, solves a problem (30, p. 125). This flow of thought is schematicized in an original schematic analysis of interaction of thought and word (Appendix I, p. 64).

As depicted in this schematic, thought engenders and is engendered by motives, i.e., by our desires and needs, our interests and emotions and aspirations (30, p. 150). Verbal thought, next, develops from an innermost point in our being: from the motive which engenders thought to the shaping of the thought, first in inner speech, then in the meanings of words, and finally in external speech. The transition from inner to external speech is not a simple translation from one language into another. It is a complex dynamic process involving the transformation of the predicative, idiomatic structure of inner speech into syntactically articulated external speech intelligible to others (30, p. 148).

Inner speech develops in the child through slow change and becomes stabilized approximately at the beginning of school age, seven. It branches off from the

child's external speech simultaneously with the differentiation of the social and egocentric functions of speech. Finally the speech structures mastered by the child become the basic structures of his thinking (30, p. 50). In this conception, the true direction of thinking is not from the individual to the socialized according to Piaget, but from the social to the individual according to Vygotsky (30, p. 20).

In conversation, every utterance is prompted by a motive. Desire or need leads to request, question to answer, bewilderment to explanation. Each act of conversation is a function of an act of thought. From this we infer that one changes into the other. If this transformation does take place, then acts of conversation provide keys to the study of acts of thought. To study an internal process it is necessary to externalize it experimentally, by connecting it with some outer activity; only then is objective functional analysis possible (30, p. 132).

The foregoing information has been an effort to relate the present study to a model of verbal thought which could justify the construction of a research paradigm from which an instrument for classifying teacher-child acts of conversation as functions of thought could be developed.

Vygotsky's work (30) forms the core of the preceding information. Though its principal theme is the relation of thought and language, it is as much a presentation of a highly original and thoughtful theory of intellectual development, which at the same time is a theory of education. In Jerome Bruner's words (30, p. vi), "Vygotsky is an original". Flavell (10), in an integration of Piaget's thought and work, Peel (21), in the main using Piaget's model of children's thinking, Cherry's work (8), a review, survey, and criticism of human communication, and Ausubel (2), an introduction to school learning, all have served a role in comparative research to verify Vygotsky's work as more insightful, powerful, and productive for the present study.

#### Systematic Observation

The next presentation of information is intended to provide an amalgam of contemporary ideas relative to the basic objectives and design of an instrument for the systematic observation of teacher-child acts of conversation leading to a consideration of the qualities of cognitive meaning in these acts.

In the rather rapid evolution of the concept of teaching reflected in recent research is the idea that, since the learner equally with the teacher is an agent

of his learning, and hence also of his success and failure to learn, it is impossible to investigate the effectiveness of teaching without at the same time determining what the learner is doing (1, p. 53). Then the basic problem in the construction of a classification instrument is to look away from criteria defined as teachers' effects upon learners' achievement of educational objectives and toward process criteria, defined as aspects of teacher-learner joint behavior (11, p. 121).

In teacher-child interaction the behavior of one person with another is necessarily the function of the behavior of the other person and vice versa. Schalock (24, p. 58), sharing this view, points out that the studies of Hughes (14), Flanders (9), and other known observational systems, including those in the contemporary research of Medley and Mitzell (18), seem to be similarly lacking in one aspect or another relative to process criteria.

Taba (27, p. 127) states that it is possible that the studies of classroom experience may contribute to the focusing of questions for experimental research possibly even to research methodology. A beginning must be made for a more adequate two-way communication between psychologists and educational practitioners. In support of this outlook the work of Medley and Mitzell (18, p. 297),



measuring classroom behavior by systematic observation, provides the guidelines against which the design of an instrument can be tried.

The validity of measurements of behavior depends upon the fulfillment of three conditions: (1) a representative sample of the behaviors to be measured must be observed; (2) an accurate record of the observed behaviors must be obtained; and (3) the records must be scored so as to faithfully reflect differences in behavior (18, p. 250).

In the construction of a category system the observation is limited to one segment or aspect of behavior which determines a convenient unit of behavior. This system contains a finite set of categories, into one, and only one, of which categories every unit observed can be classified. The record obtained for each period of observation will show the frequency of each item of behavior which occurred (18, p. 298).

Although the items by themselves may appear somewhat trivial, when a few of them are put together in a scale, it is possible to see a common factor in them that may not be so trivial. If the items are regarded as mere symptoms of some stable characteristic, it becomes clear how such acts of little intrinsic importance can be used to analyze something important -- much as a doctor may

detect a fatal disease by observing a few individually insignificant symptoms (18, p. 263).

In any given investigation, between the record and the behavior it is supposed to represent should be interposed only the most primitive act of judgment or discrimination possible -- the one needed to perceive whether the behavior has occurred or not (18, p. 253). The task of the observer is to record events as they take place in the verbal interaction of the classroom. This does not imply that his function is purely mechanical. So crucial is the observer's judgment in coding that the major effort in instrument construction is devoted to the task of defining categories as unambiguously as possible to make the judgments as easy as possible (18, p. 251). Judgment or discrimination is further enhanced by a classification system with a small number of categories, each having rather detailed description and all occurring frequently enough to keep them fresh in the recorder's mind (18, p. 302).

The total length of an observer's visit to an elementary classroom should generally be between twenty and thirty minutes, considering the characteristics of the child and his curriculum. An analysis may be based upon Model I assumptions (Appendix V, p. 74).

As a concluding idea, the fact that traditional

ratings of a teacher's effectiveness have no discernible relationship to that teacher's educational effectiveness does not mean that effectiveness cannot be measured in process. Since it may be assumed that whatever effects a teacher has upon a pupil must reflect from his behaviors, it is only necessary to identify the crucial behaviors, to determine effectiveness in process (18, p. 258).

### Summary

This chapter indicated that at the present time the education field lacks both a theoretical framework to identify process variables within the complex of teacher-child verbal interaction relevant to the effects of cognitive meaning upon educational effectiveness and instruments by which to measure them. It emphasized selected research pertinent to educational objectives and dynamics in the interaction of language and thought. This information is basic to the creation of a paradigm for selecting and patterning teacher-child acts of conversation as acts of thought with certain qualities of cognitive meaning.

Further, research on systematic observation of teacher-child interaction provided the ideas relative to the basic objectives and design of the desired classification instrument. Granted that teacher-child acts of

conversation truly represent behavior crucial to mutual educational effectiveness, then utilization of systematized observation, classification, and analysis of the acts as a process should be helpful in developing opinions of this effectiveness.

With this consideration, then, in the next chapter the elements in a scheme for coding acts of conversation helped create a rudimentary paradigm. From this a preliminary classification instrument was devised for instituting field trials which developed highly interrelated instrument and paradigm alterations. From the refined paradigm evolved the desired classification instrument.

## Chapter III

## DEVELOPMENT OF THE CLASSIFICATION INSTRUMENT

Evolution

History. Origins for the present study developed in a 1965 summer workshop on Cogan's Clinical Supervision Procedures. Impetus came from an effort to improve on the procedure of taking verbatim notes on classroom verbal interaction, a key process in clinical supervision with teachers. This process provided the central context from which teacher acts were isolated for analysis and transformation into patterns and categories.

The attempt to write massive verbatim notation of classroom verbal exchange involved a loss of approximately forty percent of the acts of conversation. The content of the same act of conversation was often transcribed or stated so differently by several recorders that the intent or meaning of the act was a matter of opinion or consensus. A teacher on hearing his conversation quoted often responded with "Did I say that?" or "I really didn't mean that".

It became clearer that the statement that no fallacy is more widely believed than the one which says that it is possible to judge a teacher's skill by watching him teach needed to be revised by adding "and by listening

to him teach". It seemed apparent that it was not as necessary to know "what was said" by the teacher (which could be more effectively recorded electronically for analysis as desired) as it was primarily to know "what happened" (the quality of thought in the types of acts of conversation which determined the pattern of communication).

Coding Scheme. A coding scheme (Appendix II, p. 65) was devised to record the type and frequency of the acts of conversation in a classroom. It soon became apparent that qualities of clarity and preciseness, thought, in verbal expression established a value in each act of conversation. This idea of value led to the consideration that the interaction of any acts of conversation manifested specific acts of thought. The advantage of approaching acts of thought through acts of conversation was their accessibility to observation, analysis, and experimentation. In teacher-child acts of conversation the motivations are, ideally at least, complementary and cooperative with consequent high potential as process criteria. Additionally, these acts are universal.

The quality of verbal thought in teacher-child acts of conversation seemed to enable, neutralize, or disable teacher-child educational effectiveness in keeping with the changing contexts of conversation for which there was

ordinarily a high degree of mutuality. In the poorest or the best quality of teacher-child educational effectiveness elements of cognitive meaning persist -- an interaction of some quality of verbal thought.

Patterning Acts of Conversation and Thought. The coding scheme required organization of teacher-child acts of conversation somehow into a coherent, unified pattern of meaningful relationships with acts of thought. To provide a meaningful framework for identification of effectiveness in process -- classroom communication -- became the object of study.

Schalock's (24) statement relative to the lack of process criteria in known observational systems, combined with the elegance limiting their adaptation, required this investigator to construct a system specific to the purposes of the present study. This study and its system, completely based on process criteria, tackles simultaneously in the regular public elementary school classroom a kind of problem being tackled in the psychologist's laboratory.

First, a rudimentary research paradigm for teacher-child acts of conversation (Appendix III, p. 71) was created as an outcome of experience with the acts of conversation coding scheme (Appendix II, p. 65) and research information. From this paradigm a preliminary

classification instrument (Appendix IV, p. 73) was devised for use in a small scale pilot program for trials geared to improve its design and develop an instrument for final formal use. Definition of terms used in the remaining text of the study are listed in Appendix V, p. 74.

#### Small Scale Pilot Program

Trials. Trials with the preliminary classification instrument in regular public school classrooms were begun after complete explanation and discussion with possible participants as to the experimental nature and the purposes of the systematic observation of teacher-child verbal interaction set for the study. The groups included the cooperating teachers, intern teachers, and principals in each of the three elementary schools, one junior high school, and one senior high school.

Initial trials of the instrument were in unstructured classroom settings with the unobtrusive observer classifying acts of conversation. Although the observer-to-be was a known person to the children and youth provision was made for his re-introduction in his different role by the intern teacher. A brief explanation, with opportunity for questions, of what he would be doing and why it would be done was given to each classroom by the



intern teacher, cooperating teacher, and observer with open discussion of any needed adaptations. Presence of the observer then had slight, if any, effect upon the conduct of anyone in the classroom.

The interactive nature of teacher-child acts of conversation with their differences in kind and value satisfied the required act of primitive judgment by the observer. Additionally, the dynamic qualities of verbal communication permitted the benefit of developing inferences about the significance, value, and relationships between these utterances.

Each initial trial was followed at some time during the same day by a one hour meeting. The intern teacher, cooperating teacher, and frequently, the principal, and the observer together formulated the pattern of communication, and consequent matrix yielded by the instrument. At this stage the instrument items, i.e., acts of conversation, were critically scrutinized in terms of reliably matching with the verbal behavioral description set for each. Revisions, exclusions, and retentions were a matter of joint decision.

The chief benefit to the intern teacher involved in the formulation procedure at this time seemed to be his full partnership in the interaction and leadership by virtue of the emphasis placed upon the phenomenological

treatment of the data available. The primary benefit to the cooperating teacher seemed to be the opportunity to be a resource or consultant person to the intern teacher. Thus, the past major role of critic who recalled having seen and heard teacher-child behavior for comment was considerably diminished. The basic benefit to the principal seemed to be the opportunity to respond to the classification of the acts of conversation in terms of the hard data available, even though probably he had not been present during the systematic observation.

In this situation, as in the classroom, the observer's role was one of continuing unobtrusiveness and in verbal interaction primarily supportive or respondent.

Participants. The trials of the preliminary, and now evolving classification instrument were carried out in elementary and secondary school classrooms. Three principals, three cooperating teachers, and twelve intern teachers were included with nine elementary school classrooms, ranging from grade three through six with approximately 25 children each or a total of 225.

One principal, two department heads/cooperating teachers, and two intern teachers in regularly departmentalized junior high school classrooms were included. One classroom at the seventh grade and two at the eighth grade level in general science and two at the seventh

grade and one at the eighth grade level in mathematics, with approximately 30 children in each or a total of 180 participated.

In the senior high school the chairmen of the mathematics and social science department and one intern teacher in each department participated in the trials in regularly departmentalized classrooms. Trials in mathematics classrooms included ninth grade general mathematics, eleventh grade algebra, and senior mathematics and in social science included four different eleventh grade classrooms in U.S. History taught on a team teaching basis, with approximately 210 youths.

In summary the personnel participating throughout the trials included 615 children and youths, 16 intern teachers, seven cooperating teachers (including four as secondary school department heads), and five principals (including one secondary school principal with indirect involvement).

Outcomes of Trials. There were three basic outcomes of all forms of the 92 trials of the instrument. First, the behavioral description was agreed upon for each item, i.e., act of conversation, in the instrument. Exclusion or retention of an item in the instrument was based on familiar external criteria, e.g., question, reply, or interpretation. Those items retained were ranked

according to the levels of cognitive meaning set in the paradigm, with consideration of them operationally in the cognitive area of recall, understanding, and problem solving.

The second outcome was the recognition that one scale would not adequately discriminate the cognitive peculiarities and power ranging from the primary grades through senior high school. This condition was anticipated. Vygotsky described verbal thought as a developmental phenomenon correlated with the developing power of inner speech in a person. Taba contends that thinking consists of specific describable processes which can be learned. In conformance with the second outcome, highly correlative to the first outcome, an elementary form and a secondary form (Appendix VI, p. 76) of classification instrument evolved. This development became a determinant in narrowing the range of the study to the elementary school grades due to the flexibility of their time scheduling and educational activities.

The third outcome was an expressed interest by all of the teacher participants, supported by their administrators, to structure the setting of their classrooms for increased systematization of observation by tape recording the teacher-child verbal interaction. Tapescripts from the recordings would secure the content necessary

for more explicit examination and analysis of the acts of conversation occurring.

Effects of Outcome of Trials. The first outcome, selection and definition of the classification items, removed their major importance in relation to the problem. The second outcome narrowed the range of grades to third through sixth in the elementary schools for the study and permitted clearer concentration of study efforts. The third outcome, however, including tape recording of teacher-child interaction and development of correlated stenographic transcripts, involved the recognition and need to overcome a new complex of problems.

As with Schalock (24, p. 19), the single most difficult technical task was that of tape recording clearly and completely all of the teacher-child acts of conversation. What seemed to be the best possible utilization of limited recording equipment through conventional techniques usually produced a recording with spotty fidelity. Interestingly, the level of fidelity changed according to the person listening. Without fail the classroom teacher, familiar with all of the children's voices, with an intense involvement in the meaning and sense of the acts of conversation, and curious about the content of the tape recording could fairly easily translate passages which were unintelligible to those listeners not in the

particular classroom on a day to day basis. There exists a need, nevertheless, considering the fuller research possibilities in this procedure, to record with a level of fidelity comparable at least to radio or television coverage.

Recording Equipment and Techniques. Tape recording for this study included the use of a Sony TC-102 tape recorder supplemented with a mixer with input of sound from a neck microphone with 40 feet of lead for the teacher to provide movement through the classroom and two strategically placed stand-type omnidirectional microphones.

After some technical experience more effective control over the level of recording power consistent with the demand of changing voices was gained by changing from visual operation to use of an earphone. This gave the recording operator the additional advantage of visually locking-in to the ongoing verbal interaction. The most effective recordings occurred from this point on. Nevertheless during the entire period of recording the development of stenographic transcripts was particularly troublesome, another evidence that both the recording equipment and techniques used should be improved.

In spite of the unsolvable technical difficulties encountered at times in the recording procedures there

was always a useful sample or selection of samples of the verbal interaction. In even the poorest of the tapes the participants could identify enough acts of conversation to formulate at least a communication pattern tendency. More frequently the tape recorded content was a rich source of information from which to formulate a pattern of communication.

Even at the study level of involvement, work with tapes inclined teachers to self-evaluation. With experience, they were improving in the attitudes and skills basic to satisfactory self-monitoring. Self-improvement through self-direction because of an increased understanding of their basic teaching/learning tool -- communication -- became characteristic.

#### A Research Paradigm

The rudimentary paradigm created for the pilot program through its basic function continuously limited the study of the problem to the patterns of communication formulated by the apparent thought involved in teacher-child verbal interaction. Refinements of it, highly interrelated with alterations in instrument design, basically represented crucial decisions concerning the kinds of variables to be investigated (11, p. 95).

Characteristics of Communication Patterns. A research paradigm, Figure 1, p. 29, with definition of terms in Appendix VII, p. 77, was adopted with group decisions circumscribing its functions. The characteristics for teacher-child patterns of communication established by study for the paradigm were:

1. Pattern I Communication will have teacher-child acts of conversation most frequently in the lower cogitative range, frequently in the incogitant range, and less frequently in the upper cogitative and cogent ranges. Its objectives (4, p. 28) emphasize little more than the psychological processes of remembering or recall of information.

2. Pattern II Communication will have teacher-child acts of conversation most frequently in the lower cogitative range, frequently in the upper cogitative range, and less frequently in the incogitant and cogent ranges. Its objectives (4, p. 89) emphasize the mental processes of understanding or apprehension of the literal message contained in a communication.

3. Pattern III Communication will have teacher-child acts of conversation most frequently in the entire cogitative range, frequently in the cogent range and less frequently in the incogitant range. Its objectives (4, p. 38) emphasize the mental processes of organizing and



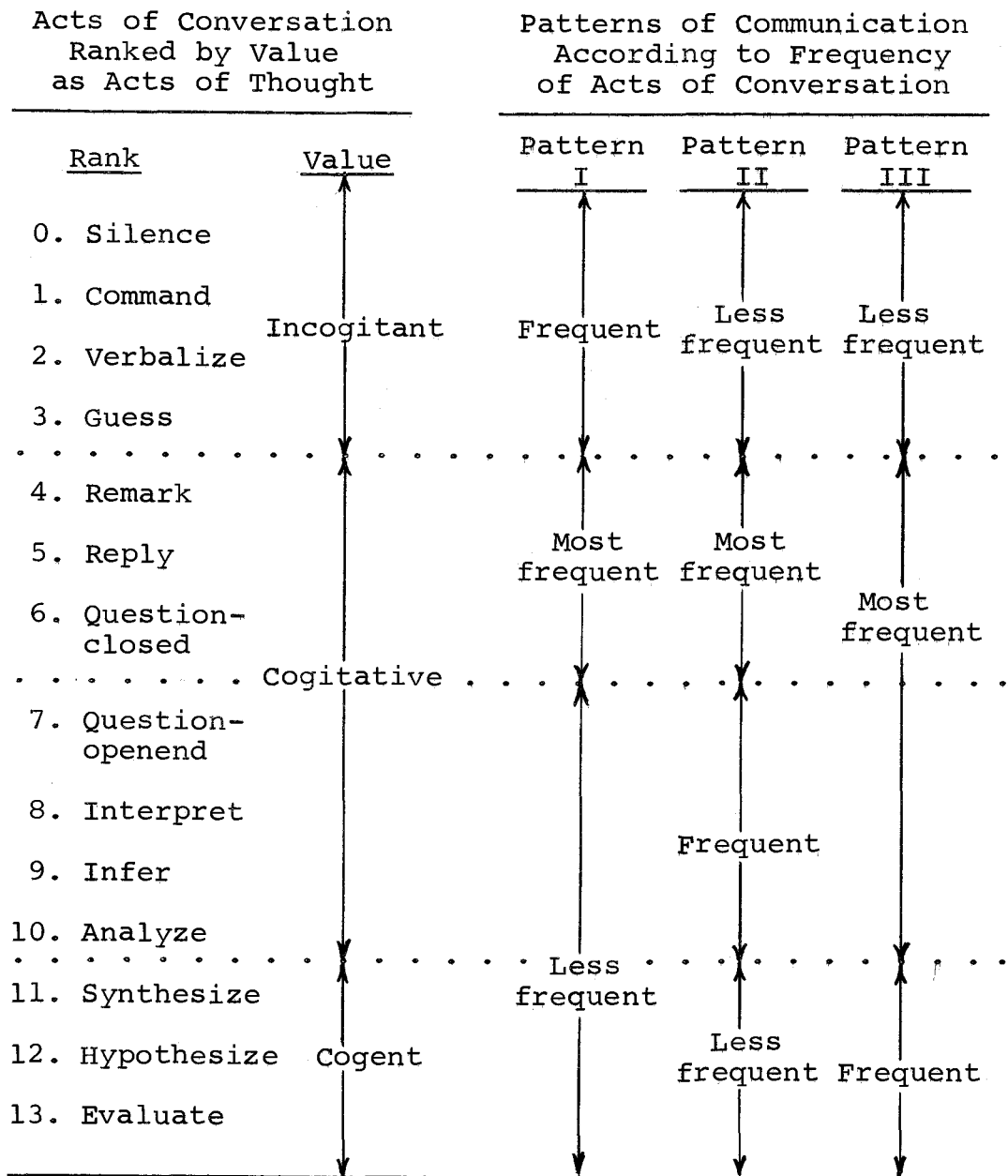


Figure 1. A research paradigm representing the kinds of variables and their relationships to be systematically investigated.

reorganizing thought that is being communicated to achieve a particular purpose, e.g., problem solving.

A Design for the Instrument. Fulfilling the first purpose of the present study the paradigm provided a graphic representation of teacher-child verbal interaction as acts of conversation related with cognitively valued acts of thought. By relating these acts the problem of which behaviors and aspects of behavior were to be recorded practically solved itself.

Clearly, the focus for study set by the paradigm was communication. It revealed the patterns of communication typical of certain intellectual function, i.e., recall, understanding, and critical thinking. It provided a design from which evolved a final version of the classification instrument.

#### Evolution of Instrument from Paradigm

At this point a sophistication of understanding of available research and of professional experience gained from the pilot program was well integrated. From the trial versions of the instrument, with participants trying the results of each trial against the paradigm, a consensual form of the classification instrument evolved. In terms of time available for study this form was considered by all as acceptable for formal use outside the

pilot program.

The developed instrument is presented on page 32 as Table I, Cognitive Scale Record of teacher-child acts of conversation formulating communication patterns by distribution of acts. Definitions of the terms used in it are found in Appendix VII, p. 77.

Verbal processes in classroom teaching and learning and in guidance and counseling could be affected purposefully by the joint use of this classification system and other records and information.

Characteristics of Communication Patterns. The teacher-child patterns of communication based upon the level of thought in their acts of conversation established from study of the classification instrument were characterized as follows.

Pattern I will be most frequently in the lower cogitative range, frequently in the incogitant range, and less frequently in the upper cogitative and cogent ranges. Teacher-child communication is convergent. The teacher submits closed questions and the child replies with "right" answers as authorized by the book or teacher's view. Child guesses and verbalizations are dominant and teacher incogitant remarks frustrate or close off meaningful communication. Seldom is communication open-ended and feedback is seldom accepted or utilized by

TABLE I. COGNITIVE SCALE RECORD OF TEACHER-CHILD ACTS OF CONVERSATION  
FORMULATING COMMUNICATION PATTERNS BY DISTRIBUTION OF ACTS

TYPE OF ACT OF CONVERSATION	DISTRIBUTION OF ACTS BY COGNITIVE MEANING		DISTRIBUTIONS BY COMMUNICATION PATTERNS			
	I INCOGITANT		I		II	III
	TEACHER	CHILD	T	C		
SILENCE						
COMMAND						
VERBALIZE		II COGITATIVE				
GUESS		TEACHER CHILD			T C	
REMARK						
REPLY						
QUESTION-CLOSED		III COGENT				
		TEACHER CHILD				T C
	QUESTION-OPENEND					
	INTERPRET					
	INFER					
	ANALYZE					
		SYNTHESIZE				
		HYPOTHESIZE				
		EVALUATE				
TOTALS OF TEACHER AND CHILD ACTS BY PATTERNS						
TOTAL OF ALL ACTS BY TEACHER						
TOTAL OF ALL ACTS BY CHILD						

anyone. Teacher commands effuse.

Pattern II will be most frequently in the lower cogitative range, frequently in the upper cogitative ranges and less frequently in the incogitant and cogent ranges. Teacher-child communication is frequently convergent with high mutual interest in a "kind of right" answer. However, teacher attention to child feedback often develops potential open-ended communication with a freedom of thought and pseudo-heuristic processing. Less frequent are teacher commands and child guesses and verbalizations. Autonomous thought and rational judgment are incipient with interactants.

Pattern III will be most frequently in the entire cogitative range, frequently in the cogent range, and less frequently in the incogitant range. Teacher-child communication is frequently open-ended with considerable mutuality in the acceptance and utilization of feedback by interactants. Skillful selection and arrangement of acts of conversation by the teacher reduces to a minimum the "telling" required and impels the heuristic process. Child acts of conversation are generally not ignored or misinterpreted by the interactants. Autonomous thought and rational judgment are a constant potential, if not fact, in communication. Seldom do teacher commands or child guesses and verbalizations contribute to the

malfunction of communication.

Study of Information. Study of information in the classification instruments during the later part of the pilot program left the impression that a teacher must seek cogitative and cogent ranges of communication. Generally these ranges were achieved not only by the nature of a single act of conversation but, also, by thoughtfully patterning the acts of conversation in terms of electing an alternative which led to an intended consequence.

Study also left the impression that maturing thought can be detected in all kinds of children. This quality in thought enabled the children to interact in kind with the complexities of thought of the teacher consciously seeking the cognitive range.

The purpose of the remaining part of this chapter is to verify the structure of and procedures in the classification instrument through interrelating them with supportive information from current research.

#### Research Support of Instrument

Natural History Level of Inquiry. Teacher-child behavior may be studied at different levels, depending upon the purpose to be served by the inquiry (19, p. 128). The study in this paper is at the natural history level of inquiry. At this level a phenomenon is observed,

described, and classified. No effort is made to induce changes in the phenomenon, to study its underlying conditions, or to find its correlates. The modes of inquiry appropriate to this kind of research are (1) those concerned with distinguishing among characteristics as well as (2) those involved in the formulation of criteria defining the categories into which the phenomenon are to be classified. One outcome expected with this method is a classification system which is the central purpose of this paper.

The conceptual framework used in a study depends upon the level of analysis (19, p. 129). When the aim of research is merely to describe teacher-child verbal exchange in terms of thought value, as in the present project, then the selection of concepts to be used depends upon the standpoint from which teacher-child behavior is to be observed and classified. Accordingly, the conceptual context for this study is in the research paradigm consisting of teacher-child acts of conversation valued as acts of thought to characterize varying patterns of communication (process) in the classroom.

Units of Behavior Classified. The units of behavior serving as a means for recording the variety of communication in this classification instrument are designated as acts of conversation. They are assigned on a scale

in accordance with the value of thought designated for them.

These units of inquiry have to satisfy a number of requirements: a low inference level; logical analysis; neutrality with respect to subject matter content; and a fair amount of reliability (19, p. 132). For low inference level an act of conversation is a simple behavioral unit, readily observable, which can be described in simple concrete terms; its focus is clearly upon what teacher and child say. Acts of conversation are analyzable in terms of the thinking reflected in the classroom performance of teacher-child. Regardless of its content each act of conversation is neutral in that it takes on the same general shape or form, providing the common basis, continual from class to class, subject field to subject field, upon which comparisons can be made. Ideally, acts of conversation will permit any two analysts, trained to use this classification instrument, to identify the same acts independently from a given set of data.

As behavioral units, acts of conversation strengthen the validity of the instrument by the fulfillment of three conditions (18, p. 250). First, they are universal to classrooms and simple random samples to be measured can be secured with ease. The second condition -- accurate recording of behavior -- and the third -- meaningful



scoring -- are interdependent in the sense that how the record of acts of conversation may be scored depends upon how it is made. However, technique will keep them separate.

Application. Application of the instrument is intended to formulate the pattern of teacher-child communication for a given time according to the thought value of each kind of act of conversation used. It is possible that from the analysis of this particular pattern of communication an understanding of the effectiveness of the thought processes characterizing it could be the means to improve subsequent patterns of communication.

During application of the instrument the classroom setting should be kept as natural as possible. Schalock (24, p. 19) states more conservatively than some researchers that observer influence always enters a study using measures of this kind, but it generally decreases with the initial observations and becomes relatively inconsequential.

A natural classroom setting would include an unobtrusive observer classifying live acts of conversation directly onto a classification instrument. An initial record, exploratory or orientating, would be made in this setting.

A structured setting would involve electronic

recording of the classroom acts of conversation. It would always be an outgrowth of an unstructured setting wherein a need would have been indicated to know more about "what was said" (acts of conversation) in order that more could be determined about "what happened" (acts of thought) through reference to sources of complete, exact information -- a tapescript or electronic recording playback.

Development of a communication pattern would provide a matrix for comparison with the predictions of the research paradigm and numerical counts identifying with some exactness the characteristics constituting the pattern. The task of the observer upon analysis of the data would be limited to comprehending the layout of the matrix as a resource person and not as an expert in relation to the subject teacher (18, p. 251). The information yielded by the instrument should be analyzed by the teacher with a great deal of opportunity for subjective explanation with the observer as a timely discussant.

The classification instrument and/or tapescript and/or electronic recording should be used as a method of reviving memories after the class in order to recall the thoughts which occurred during it. That is, the subject teacher should be enabled to relive a situation with a large number of cues or stimuli which occurred

during the original situation. Studies in which a recording was played back involving subjects telling what overt events, i.e., activities, specific talk or particular mannerisms or feelings follow after a particular point in the recording, result in as high as ninety-five percent recall of such checkable events within two days (5, p. 33).

### Summary

This chapter has noted the impetus for the development of and circumstances for the trials of the classification instrument. Both were based in the mutually professional investigative spirit of regular public school personnel in classrooms with children from low socio-economic to small business family backgrounds. Co-operatively with this investigator they set a focus on study of the ongoing classroom patterns of communication for a better understanding of the cognitive value in them. On the strength of the contribution of these common experiences it was possible to finalize the structure of the classification instrument central to the present study. The chapter concluded with the identification of several requirements which should be satisfied structurally by the instrument according to research with limits for its applications.

In the next chapter the Cognitive Scale Record is used with a language lesson in a regular public school fourth grade classroom with a first year teacher. This school setting was outside that in which trials and development of the instrument took place.

## Chapter IV

### USE OF COGNITIVE SCALE RECORD AND FINDINGS

This chapter deals with the use of the improved classification instrument outside the pilot program. The intent was to find whether or not the Cognitive Scale Record could provide the teacher with helpful data on a cognitive pattern of communication for this selected classroom.

#### Setting and Personnel Involved in Use of Instrument

School Setting. The classroom selected was in a school which included grades one through six and had three fourth grade classrooms, two fifth grade classrooms, and one classroom for each of the other grades. Most of the children in grades one through six were transported by school bus from a new housing development some three to four miles across town. Other children in grades four and five were basically overflow enrollment from an elementary school three blocks away.

The school building, in emergency use, had been used as a senior high school, junior high school, and then vacated. The site was adjacent to a business district and a traffic arterial.

This was not a traditional neighborhood elementary school.

School Personnel. In a conference with the building principal his understanding, approval, and cooperation were secured and procedures established. One of the fourth grade classrooms with a pupil population resembling the fourth grade pupil population in one of the pilot program elementary schools, low socio-economic to self-employed family status, was selected. A first year teacher comparable in experience to an intern teacher cooperated in the use of the classification instrument.

#### Orientation of Participants to Procedures in Use of the Instrument

The Cooperating Teacher. The investigator and the cooperating teacher created clear mutual understandings of the purposes and procedures in this study. Informal chatting with the teacher after school in and about the classroom developed some feeling about the teacher as a person and professional in the school setting.

A before-school visit developed some sense of the feeling of the live classroom. Teacher-child and other interpersonal interactions were witnessed. Several of the children were introduced by the teacher, followed by the investigator's interaction with them.

Introducing the Instrument. Next, a visit in a natural classroom setting involved the investigator as

an unobtrusive observer directly classifying and tallying teacher-child acts of conversation with the Cognitive Scale Record (Appendix VIII, p. 80). This activity provided the first direct involvement for the cooperating teacher in the study. It was the teacher's prerogative at this point, as a result of teacher tabulation and discussion of the apparent classroom cognitive pattern of communication, to stop, delay, or continue the use of the instrument.

Increased understanding by the teacher of the study led to an interest in securing more information through using the Cognitive Scale Record in a structured classroom situation. Continuation in this case, and it should usually be expected, significantly increased the involvement of the teacher in terms of control and responsibility for subsequent procedures.

Identification of Observer with Classroom. A visit to begin prior to the lunch period was scheduled to develop a structured classroom setting for use of the Cognitive Scale Record. The investigator was worked in by preplan to a discussion on health. Further identification in the classroom and school setting was developed by joining the teacher and children in the school lunch program.

Children Exploring Tape Recording. Without the teacher in the classroom during noon recess, several children interested in the tape recording procedure helped to set up and operationally test the equipment. Seven trial recordings were made with them. Listening to playback of the recordings incidentally satisfied their curiosity about being taped. Additionally, they developed an understanding of the conditions and limits peculiar to the setting which would affect the final recording procedures. As found in the pilot program, this group of children became translators, interpreters, and concerned agents of one of the key operational aspects of the classification instrument and total study.

Structuring the Classroom for Tape Recording. With equipment operational and considerable teacher and child involvement the class reconvened. The teacher and observer explained the purposes and procedures in the tape recording activity to all of the class members, with an opportunity for their questions. A brief trial tape was played back to satisfy children's curiosity and feeling of involvement prior to tape recording the teacher-child verbal interaction in an educational activity.



Steps in Using the Instrument in a Structured Classroom  
Setting to Systematize Information on Verbal Interaction

Gathering Information. A structured classroom setting was developed in the fourth grade classroom so the observer could tape record the teacher-child verbal interaction in a lesson on writing "Thank You" letters.

Organizing the Information. A tapescript (Appendix IX, p. 81) made from the tape recording was set up for identifying each act of conversation recorded according to the value designated for it by its rank as an act of thought. A negative signed (-) number denotes an incognitant remark, question, or reply. A positive signed (+) number denotes a cogent question, interpretation, inference, or analysis. The use of signed numbers is necessary only in a tapescript.

The tapescript was processed by the teacher and observer during the following afternoon. The conditions, as in the pilot program, provided that the primary responsibility for initiative in the processing was with the teacher. The observer was primarily a timely respondent for the teacher's purposes. This phenomenological approach restricted all considerations to Model I assumptions.

Classifying the Information. Next, the Cognitive Scale Record was used to classify-tally each act of

conversation by the teacher and by each child as identified in the tapescript. Then a summarization was made for each type of act of conversation by the teacher and the children. These summaries for each type of act of conversation were then totalled under each of the patterns of communication. The totals gave the frequency with which the various qualities of cognitive meaning occurred. This method of summarizing the teacher-child verbal interaction data provided a matrix. An analysis (p. 47) was then formulated from the matrix of the classification system, shown in Table II, p. 49.

Tabulating the Information. The following day the observer developed a Frequency Pattern form assigning individually each teacher-child interact with its constituting act(s) of conversation (Table III, p. 50) from the Tapescript form. The following analysis of this information was developed for the teacher (p. 47).

#### Findings Derived from the Systematized Information

Analysis of the matrix formulated in the Cognitive Scale Record characterized the classroom cognitive pattern according to the range of thought. Analysis of the Frequency Pattern revealed by whom each act of conversation was uttered and its thought value. These analyses and the forms from which they were derived follow.

### Analysis of Matrix.

1. The acts of conversation were most frequently in the lower cogitative range (T-60 and C-45), frequently for the teacher in the upper cogitative range (T-39 and C-17), less frequently in the incogitant range (omitting teacher utterances opening class and turn calling) (T-21 and C-26) and cogent range (T-3 and C-0), thus characterizing Pattern II Communication.
2. For the teacher the matrix further indicates that nearly one-third of the acts of conversation were cogitative questions, about one-fourth were interpretive, about one-fourth were cogitative remarks and inferences, and about one-sixth distributed between command, verbalization, and hypothesizing.
3. For child acts of conversation the matrix indicates that about one-fourth were verbalizations, half were cogitative replies and remarks, and about one-fifth in the upper cogitative range and interpretive primarily.
4. About three-fourths of all teacher-child acts of conversation were in the cogitative portion of the matrix, with about one-half of all lower cogitative and one-fourth upper cogitative.

### Analysis of Frequency Pattern.

1. The frequency pattern of interacts indicates that fifteen of twenty-five children were identifiably recorded as verbal interactants and produced about two-thirds of the child interacts. About one-half of the child acts of conversation were produced by four children.
2. The frequency pattern indicates that the total number of interacts was practically evenly divided between the teacher and the children. And, regarding the total of acts of conversation, about a three-teacher to two-child ratio prevailed overall.
3. Somewhat more than one-fourth of the child interacts and one-fifth of child acts of conversation were not identifiably recorded due to several episodes involving open group

discussion centered in controversial commentary.

4. Analysis of the tapescript indicates that free discussion was the dominant nature of teacher-child verbal exchange.
5. The first half of the discussion required little direction except for initial focusing of content with questions by the teacher in interacts eight through eleven. Content was accepted as the child offered it. The overall thought process was simple recall.
6. Teacher interacts twenty-five, fifty, fifty-two, and fifty-five clarified the original focus on content.
7. Teacher interacts sixty, sixty-two, seventy, and seventy-five narrowed the focus on content about midway through the verbal exchange in an apparent effort for semi-controlled discussion.
8. With teacher interact one hundred-twelve, about three-quarters through the verbal exchange, semi-controlled discussion, with the teacher bringing information together for the specific purposes of the educational activity, became apparent.
9. Teacher use of questions and interpretations seemed to reduce to a minimum "telling" the child.
10. Communication seemed to be characterized by an open-end nature with child freedom for thought.
11. Many teacher questions intentionally did not elicit a direct detailed reply by the child and consequently there were as many cogitative child remarks as replies.

TABLE II. COMPLETED COGNITIVE SCALE RECORD OF TEACHER-CHILD ACTS OF CONVERSATION  
FORMULATING COMMUNICATION PATTERNS BY DISTRIBUTION OF ACTS

TYPE OF ACT OF CONVERSATION	DISTRIBUTION OF ACTS BY COGNITIVE MEANING				DISTRIBUTIONS BY COMMUNICATION PATTERNS						
	I INCOGITANT				I						
	TEACHER	CHILD			T	C					
SILENCE 0	0	1111 11			0	7					
COMMAND 1	1111 1111 1111 11	0			17	0					
VERBALIZE 2	1111 1111 1	1111 1111 1111 1111 11	II COGITATIVE		11	22					
GUESS 3	0	1	TEACHER	CHILD	0	1	T	C			
REMARK -4,4	- 1111 11	1	1111 1111 1111 1111 1111 1111 1111 1111 1		7	1	21	19			
REPLY -5,5	0	1	1	1111 1111 1111 1111 1111	III COGENT	0	1	1	24		
QUESTION-CLOSED -6,6	- 1111	0	1111 1111 1111 1111 11 1111 1	TEACHER CHILD	5	0	26	2	T	C	
	QUESTION-OPENEND +,7		1111 1111 11	0			12	0	0	0	
	INTERPRET +,8		1111 1111 1111 1111 1111 1111 1111 1111 1111				30	14	0	0	
	INFER +,9		1111 1111 111				9	3	0	0	
	ANALYZE +,10						0	0	0	0	
			SYNTHESIZE 11						0	0	
			HYPOTHESIZE 12	+ 111					3	0	
			EVALUATE 13								
TOTALS OF TEACHER AND CHILD ACTS BY PATTERNS					40	32	99	62	3	0	
TOTAL OF ALL ACTS BY TEACHER					142						
TOTAL OF ALL ACTS BY CHILD					94						

TABLE III. A FREQUENCY PATTERN OF TEACHER-CHILD INTERACTS AND ACTS OF CONVERSATION FROM A TAPESCRIP

INTERACTS* WITH PARENTHETICALLY CODED THOUGHT VALUE OF CONSTITUTING ACTS OF CONVERSATION						
INTERACTS	8 - 42	43 - 77	78 - 112	113 - 144	TOTAL	
CHILD					INTER-	ACTS OF
					ACTS	CONVERSATION
RICH	12(5)	47(4,4,8),76(4,5,8,8)	87(8)	131(2),133(5)	6	11
TIM	14(5,8,8,9)	44(4),58(2,2), 72(8,4,8,4,4,9)	78(2,2,2), 92(5,8,8,4)		6	20
MIKE	16(4)	49(4)	85(4,8),109(4,8)		4	6
MARTA	18(5)	56(5),74(4)	80(5)		4	4
KEN	20(4,5), 32(2),38(4)	45(4)	96(5),101(2)		8	8
DAVID	22(2,2)	53(4)			2	3
ARTHUR	24(2)	51(5),65(2),71(5)			4	4
DARRYL	26(5)	67(5)		115(5),117(4)	4	4
JOHN	28(2)	63(5,8)	103(5)		3	4
LINDA	34(5)				1	1
DARCY	36(2)				1	1
DARREL	40(9)				1	1
CHERYL		69(5)			1	1
SANDRA			107(6)		1	1
CINDY				125(5)	1	1
					47	70
UNIDEN-						
TIFIED	30(2),42(2)	59(2),61(2)	83(2),88(8), 90(0),98(4), 105(2),111(0)	113(3),119(-4),121(5), 123(5),127(2),129(5), 135(0),137(0),139(5), 141(6),143(0)	21	16
					68	86
TEACHER	8(6),9(1,4), 10(6,2),11(6), 13(1),15(6), 17(1),19(6), 21(6),23(1), 25(8,7,6), 27(2),29(2), 31(1),33(2), 35(1),37(2), 39(1),41(8)	43(4),46(8,8), 48(1),50(7),52(8), 54(8),55(7),57(2), 60(4,4,8),62(6), 64(-6),66(2),68(-4), 70(2,4,7),73(9,7), 75(2,4,7,7),77(1)	79(12,7),81(2), 84(4,8),86(9), 89(8,9),91(8,9), 93(6),95(6), 97(9,7),99(6), 100(7),102(7), 104(2,6,4,4), 106(1),108(5,8,8,8), 110(12,7,4,12,8), 112(4,6)	114(6),116(-4),118(6), 120(4,4,6),122(6), 124(-4,6), 126(-4,6,4,8,8,9,9,8,6), 128(6), 130(-4,8,4,8,8,1,1,-4,5), 132(6),134(-4,4,8,4,8), 136(4,8,8,8,8,6), 138(4,6), 140(8,8,4),142(8), 144(4)	69	124

\*AN INTERACT INVOLVES ONE ACT OF CONVERSATION, OR MORE IN ASSOCIATION BY CONTIGUITY, ATTRIBUTED TO ONE INDIVIDUAL.

### Implications Drawn from Analyses of Information

1. The process of questioning by the teacher was crucial in the overall process of teacher-child communication. Asking questions seemed far the more influential single teacher act of conversation. Examine the kinds of questions asked, e.g., focus, refocus, open-end, closed, etc., noting relationships of remarks and interpretations.

2. Examine verbalizations in terms of cause and effect.

3. Examine the possibilities, if desirable, of being involved with other thought processes, e.g., comparing and differentiating, than the dominant overall thought processes of recall.

4. Assess the frequency pattern of teacher-child interacts and acts of conversation.

### Scope of Analyses and Implications

The preceding analyses and implications were rather rigorously limited to a fairly small number of considerations of specific nature for the purposes of the cooperating teacher. It is presupposed that it would not be desirable, even if it were possible, to try to analyze as many of the teacher-child processes as could be recognized for then the task of positive action would be insurmountable. The desire was to help the teacher

recognize a process which could be strengthened and with a sharp, almost singular focus go about planning, organizing, and producing that improvement in teacher/child educational effectiveness.

As with the pilot program experiences, information from this use of the Cognitive Scale Record proved helpful in establishing teacher recognition of prevailing classroom cognitive patterns of communication through self-analysis of acts of conversation as acts of thought.

### Summary

The point of view in this chapter is filled with the implication that stable changes in patterns of teacher influence -- changes that result in improvement -- are self-motivated. Only the teacher himself can bring change to himself, and only after he has discovered, or been helped to discover, the need for change and how to meet that need. The thrust of this implication -- the importance of relating to the teacher in terms of his conceptualization of his reality -- is apparent in the observer's professional responsibility to understand as best possible the complexities of any particular teacher's classroom tasks. The different forms of information gathered through the use of the classification instrument are more the evidence of phenomenological treatment by



the teacher observed than the development of mutual considerations with the observer.

A summary of the present study and recommendations for further study follow in Chapter V.

## Chapter V

### RECAPITULATION, FINDINGS, AND RECOMMENDATIONS

#### Recapitulation of the Study

Research indicated that the scientific study of teacher-child educational effectiveness is so immature that, at this time, the education field lacks a theoretical framework for it. There is a need to identify the process variables within the complex of teacher-child verbal interaction and the instruments for assessment of cognitive meaning in these processes.

Thus, the problem in this study was to develop an instrument for classifying teacher-child verbal interaction in terms of acts of conversation related to acts of thought to formulate patterns of communication characterized by qualities of cognitive meaning.

Survey of literature related to the problem led to the creating of a rudimentary paradigm restricting and patterning the variables in the problem. A preliminary classification instrument was designed from this paradigm.

This preliminary instrument was given 92 trials in a small scale pilot program in regular public school classrooms. It was improved and developed gradually and generally with critical appraisals of teachers,

principals, and the investigator.

Continuing modification of the classification items and expansion of systematization through the use of complementary tape recordings and tapescripts brought the instrument to a stage of refinement satisfactory to the persons involved in its development. Alterations of the rudimentary paradigm occurred concurrently with changes in the instrument in a highly interrelated way to develop a desired research paradigm.

At this point the research paradigm provided the design for a field improved and developed classification instrument and its systematization. The improved instrument was used in a setting outside the pilot program to find whether or not it provided the teacher with identification of cognitive meaning in classroom verbal interaction.

#### Summary of Cognitive Scale Findings

All of the results were subordinate to the achieved design of an instrument for the classification of teacher-child verbal interaction according to its cognitive meaning. The instrument seemed to be a reliable means for the teacher in developing and comprehending a classroom cognitive pattern of communication.

The data secured in relation to the instrument were

generally treated by the teacher and observer jointly. In many instances, however, the teacher treated the data in an independent or phenomenological manner.

Findings From a Natural Classroom Setting. Use of the Cognitive Scale Record (Appendix VIII, p. 80) in a natural classroom setting by the observer provided a classification-tally record of classroom verbal interaction. These data were tabulated by the cooperating teacher into Communication Patterns I, II, and III. The quantified data were utilized in three ways:

1. As a frequency distribution of the acts of conversation;
2. As a ratio of teacher to child acts of conversation; and
3. As a matrix for characterizing the classroom cognitive pattern of communication.

Findings From a Structured Classroom Setting. The cooperating teacher's desire for qualitative data led to use of the complete systematization of the instrument. A tape recording and tapescript were made of the teacher-child verbal interaction. These data were used in the following ways:

1. The Tapescript Form (Appendix IX, p. 81) provided the cooperating teacher and observer the means for identifying the tape recorded teacher-child acts of

conversation according to the Cognitive Scale Record Code.

The teacher treated the data in a phenomenological manner and with high level cognitive function, i.e., analyzing, hypothesizing, and evaluating in terms of the instrument.

2. The Cognitive Scale Record Form (Table II, p. 49) provided the means to tally each of the acts of conversation as classified in the Tapescript. As in the use of the Cognitive Scale Record in the natural classroom setting (cited on p. 56) these data were tabulated into Communication Patterns I, II, and III and utilized in the three ways described.

3. The Frequency Pattern Form (Table III, p. 50) provided the means for assigning personally each teacher and child interact with its constituting act(s) of conversation.

In treating these data, the teacher identified the developmental aspects of the classroom verbal interaction as it moved through the acts of conversation setting early focus on content, semi-controlled discussion, purposes of the lesson, and teacher-controlled discussion.

The teacher found the total number of interacts nearly evenly divided between teacher and child and a 3:2 ratio of teacher to child acts of conversation.

4. Emphasis was placed upon independent or phenomenological teacher treatment of the data produced by the Cognitive Scale Record systematization. This manner of teacher involvement could be described as a self-in-service education activity.

General Findings. Following are some general findings pertinent to teaching arising from the use of the Cognitive Scale Record.

1. The teacher had to seek the cogitative and cogent ranges of classroom communication by thoughtful patterning of his acts of conversation. Thoughtful single acts of conversation, especially in terms of feedback, on the part of the teacher tended to raise the level of cognitive meaning in classroom communication.

2. The teacher's aimless or purposeful acts of conversation determined both what the child was thinking and how he was to think about it. The teacher's talk seemed to free and open, or control and close both the content and nature of teacher-child classroom communication. It dictated, literally, the educational effectiveness of both teacher and child.

3. Use of the instrument sensitized both teacher and investigator to the fact that as a group teachers are isolated from systematic information about their own classroom.

4. Appropriate involvement of a teacher in the phenomenological treatment of systematic information about his own classroom seemed to reinforce the intrinsic nature of his values. Decreasing external authority seemed to lead to the internalized organization of the teacher's values pertinent to educational effectiveness, pointing up his self-control in implementing particular patterns of communication; sensitivity in diagnosing the needs of the moment; and skill in predicting the consequences concomitant to alternative actions.

5. A self-informed teacher seemed to have unusual opportunity to develop motives valuing professional and procedural changes contributing to the improvement of teacher-child educational effectiveness. This appeared to be a highly personalized matter for both teacher and child, and was uniquely characterized by a high level of mutual respect for individuality.

6. This study affirms Flanders' statement (9, p. 229) that providing a reasonably intelligent teacher of average emotional adjustment with systematic information about the qualities characterizing the classroom cognitive pattern of communication leads to improvement in teacher-child educational effectiveness.

### Recommendations for Further Study

As a result of this study further research is recommended on the following problems:

1. The study and development of systematized observation of classroom interaction providing major opportunities for teacher-child phenomenological involvement and self-in-service education;

2. The study and development of instruments for classification of acts of conversation as acts of thought to formulate patterns of communication at the various levels of cognitive maturity, i.e., early preschool, later preschool, primary school, higher education, and adulthood;

3. Further study of the design and application of the Secondary Form of the Cognitive Scale Record of Teacher-Child Acts of Conversation (Appendix VI, p. 76) originated in the present study;

4. Further study the design and application of the Internalization Scale Record of Teacher-Child Affective Behaviors (Appendix X, pp. 95-96) originated as a companion record to the Cognitive Scale Record designed in this study.



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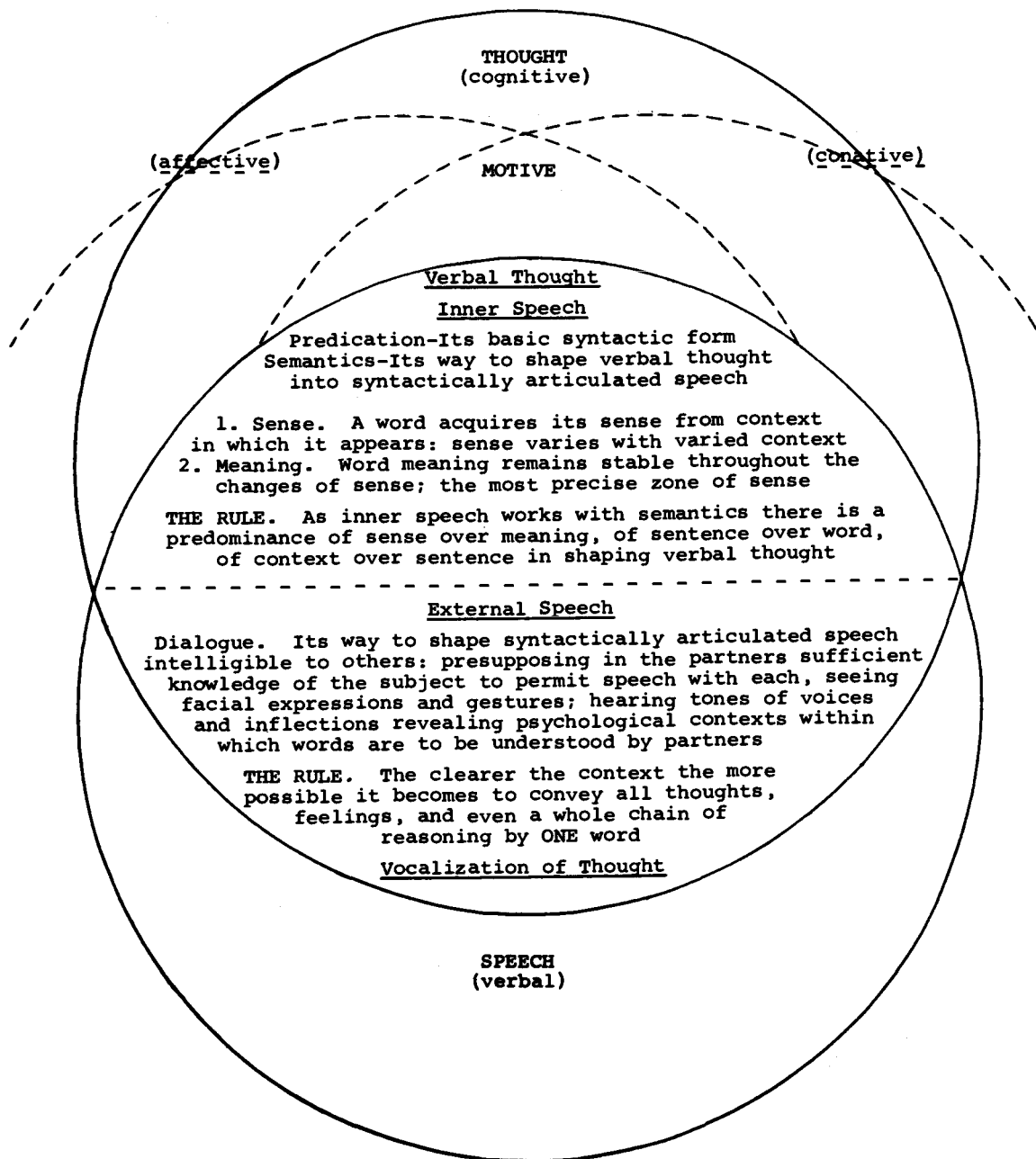
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## APPENDICES

## APPENDIX I

An original schematic analysis of interaction of thought and word.  
Adapted from the work of Vygotsky (28) .



## APPENDIX II

## ACTS OF CONVERSATION CODING SCHEME

Sequential relationships in the communication pattern can be established by noting clock times and key words periodically in the left column of the record form. Patterns of the acts of conversation of any member of a group discussion may be determined by a system of coding indicated in the scheme codes.

In the right column brief comments noting significant information, i.e., nonverbal interaction, are shown. Notations indicating hunches and the findings on units of inquiry are also entered here.

## CODES:

I. Types of Acts of Conversation in Group Communication

1. Question - to ask questions of; interrogate; put queries to.
2. Comment - to remark, as in observation or criticism.
3. Guess - to form a judgment or estimate of (something) without actual knowledge.
4. Annotate - to provide critical or explanatory notes for.
5. Reply - to answer in detail satisfying the question asked.
6. Interpret - to bring out meanings not immediately

apparent, as by translation, searching insight, or special knowledge.

7. Analyze - to separate or break up (any whole) into its parts so as to find out their nature, proportion, function, relationship.
8. Summarize - to form by bringing together separate parts.
9. Hypothesize - to tentatively accept an unproved plan to explain certain facts or to provide a basis for further investigation, argument, etc.
10. Instruct - to communicate knowledge to: to give facts of the matter to; inform.
11. Command - to give an order or orders to; direct with authority.
12. Erratic - not clearly contributing to the point of conversation, or to any other speaker.

## II. Personnel

Gr - Group

CT - Cooperating Teacher

IT - Intern Teacher

Pupils -  $J_1$ / odd number=girl + J=Jane

$J_3$ / odd number=girl + J=Janet (according to alphabetical order)

$J_2$ / even number=boy + J=Jack

$J_4$ / even number=boy + J=James

e.g., IT/1 J<sub>1</sub>/2 J<sub>4</sub>/3 J<sub>3</sub>/4 J<sub>2</sub>/5 IT/6 J<sub>3</sub>/7 J<sub>2</sub>/8  
 J<sub>1</sub>/9 IT/10 or IT/1 J<sub>1</sub>/3 J<sub>2</sub>/3 J<sub>3</sub>/3 J<sub>4</sub>/3 J<sub>1</sub>/12  
 J<sub>2</sub>/12 IT/1-1-1-12-1

-----

### Application of Personnel Code to an Actual Classroom

Classroom 6

7/9, 10:30 AM, Communications

Dick Jones-CT/Norman Thomas-IT

Mr. Thomas-IT

B<sub>2</sub>-Bill

B<sub>4</sub>-Brad A.

B<sub>6</sub>-Brad S.

B<sub>8</sub>-Brad V.

B<sub>10</sub>-Bryan

D<sub>2</sub>-David

G<sub>2</sub>-Glen

G<sub>4</sub>-Guy

J<sub>2</sub>-John

K<sub>2</sub>-Kevin

M<sub>2</sub>-Mark

M<sub>4</sub>-Merle

M<sub>6</sub>-Mickey

N<sub>2</sub>-Norman

S<sub>2</sub>-Steve L.

S<sub>4</sub>-Steve R.

W<sub>2</sub>-Willis

J<sub>1</sub>-Judy

K<sub>1</sub>-Kerri

T<sub>1</sub>-Terri

C<sub>1</sub>-Cheryl

Guy

G<sub>4</sub>

Brad S.

B<sub>6</sub>

Steve R.

S<sub>4</sub>

Mickey

M<sub>6</sub>

Kevin

K<sub>2</sub>

Brad A.

B<sub>4</sub>

Bryan

B<sub>10</sub>

Mr. Jones  
CT

Judy

J<sub>1</sub>

Kerri

K<sub>1</sub>

Cheryl

C<sub>1</sub>

Terri

T<sub>1</sub>

Merle

M<sub>4</sub>

Mark

M<sub>2</sub>

Glen

G<sub>2</sub>

Norman

N<sub>2</sub>

Steve L.

S<sub>2</sub>

David

D<sub>2</sub>

Brad V.

B<sub>8</sub>

Bill

B<sub>2</sub>

Willis

W<sub>2</sub>

John

J<sub>2</sub>



Application of Acts of Conversation Code to Actual Discussion in a Classroom Minus Individual Pupil Coding

#1

7/9, 10:30 AM, Communications, Classroom 6

<u>Notations</u>	<u>Acts of Conversation</u>	<u>Comments</u>
Time/Word		
10:38	T/1-P/2-T/1-P/2 P/2 P/2	Teacher dominance
All caught & stuff	T/2 T/1-P/5-T/1-P/3 P/12 P/12 T/1-P/5-P/5	Responsible pupils seeking to discover teacher's intention or at least respond and irresponsible
Lngh of newspaper	T/1T/1 T/1 - P/2 P/5 P/12 T/2 P/5	
Lngh of radio	T/1 Gr/2,3,12	
10:42	T/6 T/2-P/2 P/6-T/1-P/5 P/6 P/6 P/7-T/1 P/1 P/7 T/12 T/1 T/1 P/2 T/12 T/1 P/5	pupils biding time (some mal-contributing)
10:45	T/1 P/2 T/2	
What happened. That is what story told you	T/2 P/2 P/6 T/12 T/1 T/1 P/2 T/4 P/2 T/1 P/6 P/4 T/1 P/4 P/4 P/4 P/4	
10:48	T/1 P/5 P/4 P/4	
There was a real diff. between radio & newspaper	P/2 P/1 P/1 P/3 P/3 T/12 T/2 P/2 P/4 P/2 T/4 T/1 P/6 P/12 P/2 T/1 P/5 P/6 P/12 T/2,1 P/2 T/4 T/1 P/5 T/2,4,6 T/11 P/12 T/1 P/6	
10:53	T/1,2 P/4 P/12 P/12 P/2	
equal ??		
Mark would you get newspaper	P/4 T/1 P/2 P/2 P/2 T/11	

<u>Notations</u>	<u>Acts of Conversation</u>	<u>Comments</u>
10:55 Do you suppose a newspaper	P/2 T/11 P/2 P/12 P/12 P/12 T/11 erratic - Gr/12	erratic
10:58	T/11 Gr/12 T/11 Gr/12 T/11 T/2	Gr. settles
Do you have one?	T/1 T/1 T/1 T/1 P/12 T/1 P/12 T/1 P/4 P/2 P/1 P/12 T/1 T/2	Pupils indicating stories found
11:00 Do you all have a story. I have base-ball story	T/1 P/2 T/1 P/3 T/1 P/3 T/1 P/2 P/2 - - - -	
#2		
7/9		
Move chairs	T/11 Gr/12 T/12	erratic
OK ready	T/10,1,2,12,4,1 P/12	
11:02 Tape recorder playback	T/1.1.1 P/2 Gr/12 P/6	
Assignment	T/1,2,6,6,6 P/1 T/6,6 Gr/12 T/11 P/1 T/5 P/1 T/5 P/1 T/5 T/1 P/1 T/6 P/1	Directions interrupted by P/1 T/7
11:07 Starting recorder	T/1,3,2,1 CT 2,11 T/2 T/4 T/6,11,11,2,11,6	
Kerri's our first news broadcaster		
Kerri	T,1,1,1,1, P/2 T/6,4 T/11,6 P/1 T/5 T/6 P/2 T/11	Discontinuity in directions due to explanations
Pupil Newscast	T/2,4 T/6,6,6,4,6,6,4	

<u>Notations</u>	<u>Acts of Conversation</u>	<u>Comments</u>
Ready go ahead Pupil Newscast	T/1 P/3  T/2,4,6	

#### Summary Comment

Basic management problem is inadequate control of plan. This leads to erraticism in activities and then tends toward not "getting pupils" and leading to lowering of pupil interest in learning and loss of pupil motivation to initiate self-learning.

## APPENDIX III

RUDIMENTARY PARADIGM  
FOR TEACHER-CHILD ACTS OF CONVERSATION

Some types of acts of conversation involved in teacher-child communication ranked in low (1) to high (12) order of cognitive implementation.

<u>Acts of Conversation</u>		<u>Patterns of Communication</u>		
<u>Types</u>	<u>Range</u>	<u>I</u>	<u>II</u>	<u>III</u>
		<u>Cogent</u>	<u>Cogitative</u>	<u>Incogitant</u>
		Typified by Frequent Involvement		
Command	1 ↑	↑	↑	↑
Err	2 ↑ Incogitant	Less frequent	Less frequent	Frequent
Guess	3 ↓	↓	↓	↓
Comment	4 ↓	↓	↓	↓
Question (5,-5,5+)	5		Most frequent	Most frequent
Reply (6,-6,6+)	6 ↑ Cogitative	Most frequent	↓	↓
Analyze	7			Less frequent
Annotate	8		Frequent	Frequent
Interpret	9 ↓	↓	↓	
Summarize	10 ↓ Cogent	Frequent	Less frequent	
Hypothesize	11			
Instruct	12 ↓	↓	↓	↓

### Predictions

When contrasted with other teachers, the teacher-child acts of conversation of a Pattern I teacher will be most frequently in the entire cogitative range, frequently in the cogent range, and less frequently in the incogitant range. Pattern II teachers will be most frequently in the lower cogitative range, frequently in the upper cogitative range, and less frequently in the cogent and incogitant ranges. Pattern III teachers will be most frequently in the lower cogitative range, frequently in the incogitant range, and less frequently in the upper cogitative and cogent ranges.

**APPENDIX IV. COGNITIVE SCALE RECORD OF TEACHER-CHILD ACTS OF CONVERSATION FORMULATING  
COMMUNICATION PATTERNS BY DISTRIBUTION OF ACTS.**

TYPE OF ACT OF CONVERSATION	DISTRIBUTION OF ACTS BY COGNITIVE MEANING				DISTRIBUTIONS BY COMMUNICATION PATTERNS			
	I INCOGITANT				I	II	III	
	TEACHER	CHILD			T	C		
NONE								
COMMAND								
VERBALIZE			II COGITATIVE					
GUESS			TEACHER	CHILD			T	C
COMMENT								
QUESTION								
REPLY					III COGENT			
					TEACHER	CHILD		
								T C
	ANNOTATE							
	INTERPRET							
	ANALYZE							
			SUMMARIZE					
ACTIVITY: _____								
TEACHER: _____			HYPOTHESIZE					
NUMBER CHILDREN: BOYS _____ GIRLS _____								
GRADE LEVEL: _____ GROUPING: _____			INSTRUCT					
TOTALS OF TEACHER & CHILD ACTS BY PATTERNS								
TOTAL OF ALL ACTS BY TEACHER								
TOTAL OF ALL ACTS BY CHILD								

## APPENDIX V

## DEFINITION OF TERMS

Terms used in the text of the study are intended to have these precise meanings:

Classification Instrument. An ordinal scale which arranges teacher-child acts of conversation as acts of thought weighted for cognitive meaning in a series ranging from lowest to highest.

Natural Classroom Setting. A functioning classroom in which an unobtrusive observer directly tally-classifies teacher-child acts of conversation on a classification instrument.

Structured Classroom Setting. A functioning classroom in which teacher-child verbal interaction is tape recorded by an observer.

Tapescript. A stenographic transcript of all the teacher-child verbal interaction tape recorded during a particular observation period, providing numbered identification for each interact, identifying each interactant, placing a rank value on each act of conversation, and reproducing each act of conversation.

Model I Assumptions. The results obtained are not generalizable to teachers other than those actually observed, times other than those in which the classrooms

were actually visited, or observers other than those actually making the observations.

Observer. The person involved in the systematic observation of teacher-child verbal interaction through use of the classification instrument who directly tally-classifies acts of conversation in a natural classroom setting or indirectly as the result of a structured classroom setting.

Cooperating Teacher. An experienced teacher employed in the local school system to work with children and college students, i.e., intern teachers, during their supervised teaching experiences.

Intern Teacher. A graduate student whose teaching assignment and in-service professional growth plan conform to the cooperative internship plan of the university and the local school system; such plan provides for a major portion of the day, for a full school year, with supervision by the university resident coordinator as well as by local supervisors, and with additional provision for parallel course work and college credit; paid by the local school system though on a lower basis than regular teachers.



**APPENDIX VI COGNITIVE SCALE RECORD OF TEACHER/LEARNER ACTS OF CONVERSATION DEVELOPING PATTERNS OF COMMUNICATION DEALING WITH CLASSROOM MESSAGE. (FORM 2 SECONDARY)**

NATURE OF UTTERANCE MANIFESTING QUALITY OF COGNITION PROCESSING MESSAGE	FREQUENCY OF TYPES OF ACTS OF CONVERSATION EXPRESSING LEVEL OF THOUGHT IN MESSAGE							TOTALS BY PATTERNS OF COMMUNICATION	
	QUESTION		REPLY		COMMENT			TEACHER	LEARNER
	TCHR	TOT	LRNR	TOT	TCHR	TOT	LRNR		
<b>I INCOGITANT</b>									
1. COMMANDED									
2. GUESSED									
3. ERRED									
TOTALS									
<b>II COGITATIVE</b>									
4. TRANSLATED									
5. INTERPRETED									
6. EXTRAPOLATED									
7. DEMONSTRATED									
TOTALS									
<b>III COGENT</b>									
8. APPLIED									
9. ANALYZED									
10. SYNTHESIZED									
11. EVALUATED									
TOTALS									
SUMMARY OF FREQUENCY ACTS OF CONVERSATION	TCHR		LRNR		TCHR		LRNR		

## APPENDIX VII

## DEFINITION OF TERMS

Terms used in the paradigm and classification instrument are intended to have these precise meanings:

Paradigm. A representation of variables and their relationships in some graphic or outline form.

Silence. To give no verbal response.

Command. To compel response to an order or a decree based in absolute authority alone.

Verbalize. To be wordy and not clearly contribute to the point of conversation, or to any other speaker.

Guess. To form a supposition on something haphazardly without actual knowledge.

Remark. To make a more or less casual statement of opinion as an observation or in criticism.

Reply. To satisfy or set at rest a question with a "right" answer.

Question-closed. To call for specific or limited information.

Question-openend. To elicit a wide range of ideas and encouragement in utilization of feedback by several interactants.

Interpret. To identify and comprehend the major ideas included in a communication as well as understand their relationships.

Infer. To extend the ideas in a communication to intermediate, past, future, or other conditions and situations.

Analyze. To break down a communication as an aid to fuller comprehension or as a prelude to evaluation.

Synthesize. To arrange and combine ideas, or elements in an idea, with independence of thought and action as a personal expression.

Hypothesize. To create a guiding idea or tentative explanation as a forecast solution or answer.

Evaluate. To make judgments about the value, for some purpose of ideas, works, solutions, methods, materials, etc., involving criteria determined by the child or those which are given to him.

Act of Conversation. The smallest utterance in verbal exchange which can be recognized as belonging to one of the paradigm classifications; a function of an act of thought.

Act of Thought. A psychological process within a person, engendered by a motive, which shapes a thought first in inner speech, then in the meanings of words, and finally in external speech intelligible to others.

SYN. - Mental function producing cognitive meaning.

A Pattern of Communication. All of the tally-classified teacher-child acts of conversation for a

particular period of thought and then summarized according to their frequency in each level of cognitive meaning into a pattern.

Incogitant. Unthinking; thoughtless.

Cogitative. Thoughtful; meditative.

Cogent. Knowing; perceptive.

APPENDIX VIII. COGNITIVE SCALE RECORD OF TEACHER-CHILD ACTS OF CONVERSATION FORMULATING  
COMMUNICATION PATTERNS BY DISTRIBUTION OF ACTS.

TYPE OF ACT OF CONVERSATION	DISTRIBUTION OF ACTS BY COGNITIVE MEANING				DISTRIBUTIONS BY COMMUNICATION PATTERNS					
	I INCOGITANT				I		II		III	
	TEACHER	CHILD			T	C				
SILENCE 0					0	0				
COMMAND 1	1111	1			6	0				
VERBALIZE 2		1111 1111 1111 11	II COGITATIVE		0	17				
GUESS 3		1111	TEACHER	CHILD	0	4	T	C		
REMARK -4,4		1111 111	1111 1111	1111 1111	0	8	35	34		
			1111 1111	1111 1111						
			1111	1111						
REPLY -5,5			1111 1111 1111 11		0	0	0	17		
QUESTION-CLOSED -6,6	1111		1111 1111 11 1111 1	TEACHER CHILD	4	0	16	2	T	C
		QUESTION-OPENEND 7	1111 1111 11 1111 1111 11 1111 11				27	2	0	0
		INTERPRET 8	1111 1111 1111 1111 11 1111 1111 1111 1111 1111 1111				12	39	0	0
		INFER 9	1 1111 1111 1				1	11	0	0
		ANALYZE 10	1 1111				1	4	0	0
			SYNTHESIZE 11						0	0
ACTIVITY: SCIENCE DISCUSSION			HYPOTHESIZE 12	1					1	0
TEACHER:			EVALUATE 13						0	0
NUMBER CHILDREN: BOYS 12 GIRLS 12										
GRADE LEVEL: 4 GROUPING: CLASS										
TOTALS OF TEACHER & CHILD ACTS BY PATTERNS					10	29	92	109	1	0
TOTAL OF ALL ACTS BY TEACHER							93			
TOTAL OF ALL ACTS BY CHILD							139			

## APPENDIX IX

## Tapescript of Teacher-Child Interaction in a Fourth Grade Language Lesson.

Inter-act	Inter-actant	Act of Conv.	
1	T	1	All hands on top of the desk and hands quiet.
		1	All papers put away.
		-6	Are you listening?
2	C	-5	Yes.
3	T	1	Each person take out your language book and set it on the desk.
4	T	-6	Terry, have you followed directions?
5	C	0	(silence)
6	T	-6	Marta, what are you doing?
7	T	1	Simply set the book on your desk.
		-4	Some of you haven't followed directions.
		1	Simply set the book on the desk right beside you.
8	T	6	How many of you have ever received a letter in the mail? (repeat)
9	T	1	All right, hands down.
		4	That's most of you, isn't it?
10	T	6	How many of you have ever written a letter -- a letter and actually mailed it, to someone you know?
		2	Well, good, fine.
11	T	6	What reason do we have for writing letters? Richard.
12	Rich	5	Well, we like people, we want to write to people and -----.

Inter-act	Inter-actant	Act of Conv.	
13	T	1	Tim.
14	Tim	5	Well, tell them that you -- tell them that you're fine.
		8	You can tell them how you are.
		8	You can ask them how they are.
		9	Say you hope they're fine and tell them what you've been doing -- things like that.
15	T	6	Yes, what would you write, Mike?
16	Mike	4	Telling them about what's going on and what's been happening.
17	T	1	Marta.
18	Marta	5	Ask them if they could come up some time and ask them if they were fine.
19	T	6	Yes, Kenyon, what would you say?
20	Ken	4	And, how um, if -- if any exciting things have happened around the town or anything.
		5	Or accidents or somebody got killed.
21	T	6	David, what would you say?
22	David	2	Well, one day I got a letter from my Grandmother and Grandfather 'cause my Grandfather had two heart attacks in one day.
		2	He came through it and then my Grandmother she wrote back and uh -- I was going to write again and I forgot to.
23	T	1	Arthur.
24	Arthur	2	Um, the ..... about four heart attacks back in Idaho and one was a real estate who's selling the place back there.

Inter-act	Inter-actant	Act of Conv.	
25	T	8	You get news in letters, don't we?
		7	Who are the people that you actually write to?
		6	Who have you been writing to, Darryl?
26	Darryl	5	I wrote to my aunt.
27	T	2	To your aunt. John.
28	John	2	I wrote to three of my grandmothers.
29	T	2	Three of your grandmothers.
30	C	2	Three.
31	T	1	Kenny.
32	Kenny	2	My grandmothers.
33	T	2	To your grandmothers. Linda.
34	Linda	5	I write to my cousins in Norway.
35	T	1	Darcy.
36	Darcy	2	I write to my grandmother.
37	T	2	Your grandmother. Ken.
38	Ken	4	There was this ad in the -- in a comic book and I wrote to this place in -- up in New York.
39	T	1	Darrell.
40	Darrell	9	You can write to your friend in -- um that has um moved far away.
41	T	8	True, you could write to somebody like Eddy.
42	C	2	Yeah.
43	T	4	If you have his address.



Inter-act	Inter-actant	Act of Conv.	
44	Tim	4	Like my friend Mike -- he has Eddy's address.
45	Ken	4	So does Richard.
46	T	8	Eddy might have some very interesting things to tell you.
	T	8	And he might be very interested in hearing about what's going on in Arago because he lived here. Richard.
47	Richard	4	Eddy wrote me a note and told me that um it was strange up there.
		4	And all the people were very -- looked like that, and, but I didn't get his address.
		8	But he should have put it on.
48	T	1	Mike.
49	Mike	4	Well, uh I wrote to my friends up in Portland.
50	T	7	Yes, we write -- what reasons do we have for writing? Arthur.
51	Arthur	5	We write if you just want to give a greeting or tell you some what goes on.
52	T	8	Yes. We want to get news, don't we? David.
53	David	4	You can send in for something like off a back of a box of cereal.
54	T	8	Hm mm. It might be a letter, but they usually have a coupon on the back.
55	T	7	Marta, why else do you think we might write a letter?
56	Marta	5	Well, probably if someone was sick.

Inter-act	Inter-actant	Act of Conv.	
57	T	2	Someone was sick, yes. Tim.
58	Tim	2	I write to my Grandmother she lives up in _____. I write to my uh Gramma and my Uncle and -- and my sister, she, wrote to my aunt who -- no, no, she uh I think she's my aunt or my cousin, but she wrote to my aunt who lives in Hollywood.
59	C	2	Hollywood -- Hollywood -- uh ha -- etc.
60	T	4	Uh, I have an idea that you might be needing to write a letter soon.
		4	And it is the kind of a letter that you haven't uh - spoken of.
		8	It would be a thank you letter.
61	C	2	Oh, yeah.
62	T	6	Why do you write thank you letters? John.
63	John	5	Because someones given you something?
		8	Something you like real well.
64	T	6	Yes, uh what did you say, Arthur?
65	Arthur	2	Something that you like real well.
66	T	2	Something that you like real well. Uh, Darryl.
67	Darryl	5	Uh, like writing to your room mother and -----
68	T	4	True. Cheryl.
69	Cheryl	5	Well, for people coming over and you write thank you for coming.
70	T	2	Thank you for coming over.

Inter-act	Inter-actant	Act of Conv.	
70	T	4	Uh, Arthur, you said something which interests me.
		7	Do we only write thank you letters for something because you liked the gift?
71	Arthur	5	No, uh -
72	Tim	8	You could write somebody that - that like Cheryl said that somebody that came over. And - and like what Arthur said.
		4	Arthur said that somebody gave you something.
		8	You could write to somebody that gave you pictures of them.
		4	Like - like if they lived up in by - Mt. Rainier someplace, well you could - they could pick you up.
		4	Well, you could write thank you when they came back in about a week.
		9	You could write to them and say thank you for taking me.
73	T	9	Yes, this is a very important thing we call a courtesy to someone who has done something extra special for us.
		7	Are there some more ideas about thank you notes? Marta.
74	Marta	4	You could write um back where other people that if they write back - if they write an answer.
75	T	2	An answer, yes.
		4	Uh, today I'd like you to think about a thank you letter.
		7	What would you put in a thank you letter?
		7	What would you say? Richard.
76	Rich	4	Um -- like Tim said, if someone took you someplace.

Inter-act	Inter-actant	Act of Conv.	
76		5	Um - thank you for taking me.
		8	Um - I was very happy.
		8	I had a nice time and was very glad you took me.
77	T	1	Tim.
78	Tim	2	Um - Last year, well, if you, we um, in Mrs. Coffman's room, well, we - we uh wrote down, we wrote down the names, other people's names, and then, uh, our address.
		2	Then they, uh, exchanged them with the -- she took them and she passed them out and we had to write a letter to 'em.
79	T	12	What if I suppose that this isn't -- uh, Tuesday, December 21st, but that it is Tuesday, December 28th, and you have gotten a Christmas present from Grandmother and Grandfather, or Aunt or Uncle.
		7	Now what are you going to say in the letter to this person who has sent you a gift? Marta.
80	Marta	5	Uh, I'd say that I liked it.
81	T	2	All right, you'd say you liked what they gave you. Kenyon.
82	Ken	2	Well, you -- sometime you could buy them a watch or something, you could send it to 'em and probably some ---
84	T	4	Yes, but what I want you to write is a thank you letter for something that they have sent you.
		8	Something you found under the Christmas tree and it's for you -- a gift. Mike.
85	Mike	4	Well, you could say like - Marta, thank you and also say I'm glad -

Inter-act	Inter-actant	Act of Conv.	
85		8	Very glad I can use it.
86	T	9	Yes, to tell them that you can use it or how you use it might please them very much. Rich.
87	Rich	8	Well, you could say you jumped up and down with joy when you found it.
88	C	8	Oh, you wouldn't say that in a letter. (Controversy/commentary, differences of opinion expressed)
89	T	8	If you did it.
		9	I think Richard might say it and I think he might do it.
90	C	0	(Controversy and differing opinions)
91	T	8	You wouldn't do it, but Rich might.
		9	If you do it then certainly you can say it. (Controversy and differing opinions continues) Tim.
92	Tim	5	Uh - well, you say, like if you got a gift, well you could say, thank you for the gift you sent me.
		8	I like it very much and it's very useful.
		8	If it was something like a pocket knife.
		4	You could write that.
93	T	6	True. Kenyon, do you have something to add?
94	Ken	0	----- (?)
95	T	6	Before you see her though, what could you do?
96	Ken	5	Write a letter.

Inter-act	Inter-actant	Act of Conv.	
97	T	9	You could write her a note, yes, because she took her time to make those socks and it would take you only a little time to write her a note.
		7	Now, is all you are going to say in the letter is simply thank you for the lovely ----
98	C	4	No.
99	T	6	-- or the set of trains or the lovely pocket knife?
100	T	7	What else would you say?
101	Ken	2	Pocket knife.
102	T	7	What else might you talk about? John.
103	John	5	Well, what's happening around you.
104	T	2	Write about what's happening around you, yes.
		6	And what has been happening by next Tuesday?
		6	What has been happening by next Tuesday?
		4	Think ahead.
		4	Put on your time machines and move into next week.
105	C	2	Ahhh!
106	T	1	Sandra.
107	Sandra	6	You mean we come back to school?
108	T	5	Well, not quite.
		8	What I was thinking was that we will have just had Christmas, you see.
		8	And Christmas is the time when people come with their gifts.

Inter-act	Inter-actant	Act of Conv.	
108		8	Perhaps you've gotten a new toy. Mike.
109	Mike	4	Well, you could say that, write that everybody else liked it and you carved.
		8	You might carve something out.
110	T	12	Certainly! Let's pretend now, you think right now, what would you like most in the world for Christmas?
		7	What's that special something?
		4	You think - hands down -
		12	You think about that special thing you want and then pretend that you got it.
		8	That it's under the tree and you choose the person who gave it to you, your grandmother or your uncle or your aunt or your grandfather, and you are going to write a letter and thank them for that very special gift.
111	C	0	-----
112	T	4	You're all going to write a letter now, yes.
		6	And remember how you write the letter?
		6	What do we start with?
113	C	3	You write dear -- you write dear over ---
114	T	6	If this were my piece of paper -- what would I put here? Darryl.
115	Darryl	5	(Controversy/commentary. Differing opinions expressed) Put the address and the date.
116	T	4	The address?
117	Darryl	4	Arago.

Inter-act	Inter-actant	Act of Conv.	
118	T	6	How about the street first?
119	C	-4	Yup - yeah.
120	T	4	All right, and the date.
		4	We said it was going to be December 28.
		6	And what am I going to put here?
121	C	5	Dear ---
122	T	6	Dear, and after the name?
123	C	5	Comma.
124	T	4	Comma.
		6	Then in the next part where am I going to begin? Cindy.
125	Cindy	5	Under the A. (Child - I know.)
126	T	4	Under the A.
		6	You think that's a good place for it?
		4	That might be a good idea.
		8	Maybe a little further if some of you write very small.
		8	We're going to indent as if you're starting a paragraph.
		9	All right, so you will start here and you might begin by saying thank you - thank you for my wish come true.
		9	And then you would write on - then after you thank them for it you might say how you've used it or you might say, uh, we haven't had any snow here so it wasn't a white Christmas.
		8	You make a little conversation in your letter, just a sentence or two.
		6	Where do you - where do you put the closing?
127	C	2	On -- um --



Inter-act	Inter-actant	Act of Conv.	
128	T	6	Where do you put the closing of the letter?
129	C	5	At the very bottom?
130	T	4	At the very bottom, yes, down here.
		8	Because this is a relative we'll say Love instead of Sincerely.
		4	And then your name goes underneath this.
		8	Some of you wrote Friday -- put the closing and your name on the same line.
		8	They do not go on the same line.
		1	Open your books to page 192.
		1	Open your books right now.
		-4	You do not need your paper and pencil yet.
		-6	What do you see on page 192? Richard.
131	Rich	2	Uh - well - uh
132	T	-6	What kind of thing do you see -- what do we call this?
133	Rich	5	An envelope.
134	T	4	It's an envelope.
		4	Every letter must have an envelope to go around it.
		8	Every envelope must be addressed so that the postman can read it and get it to the right person.
		4	So they have shown you a long envelope here.
		8	Now, there are two things that go on the envelope, the address of the person to whom the letter goes and the address of the person from whom the letter came.
		9	You should always put a return address on because if it does not reach the person the post office will send the letter back to you if

Inter- act	Inter- actant	Act of Conv.	
134			the letter does not reach the person here.
		9	So this is an important part, also a reminder to the person you're writing to what your address is if that person doesn't have your address written down.
		8	So we begin here in the middle of our letter and on the first line we put the name of the person we are writing to.
		8	And it should be Mr. or Mrs. or Miss in front of the name.
		8	Then on the second line you put the street address.
		8	On the third line you put the city and the state and something new that they want you to put on here.
		6	What do these bunch of numbers do?
135	C	0	(Controversial/commentary, differing opinions expressed)
136	T	4	That's the zip code.
		8	That helps the post office.
		6	What do we put up in this corner?
137	C		(Controversial/commentary. Differing opinions expressed)
		5	Stamp - stamp - stamp.
140	T	8	Now what I want you to do on your papers is write your letter and turn the paper over and on the back of the paper write the address.
		8	Now I don't expect you to know the address so you make up an address.
		4	For anybody in the world anywhere in the world, but I want it written as they show you on this page.
141	C	6	Can we write to anybody?

Inter- act	Inter- actant	Act of Conv.	
142	T	8	Yes, but remember that your letter is a thank you letter for a Christmas gift, that special Christmas gift.
143	C	0	(Controversial/commentary. Differing opinions expressed)
144	T	4	-- and take out paper and pencil, put your thinking caps on for that Christmas gift.

APPENDIX X-A. COGNITIVE SCALE RECORD OF TEACHER-CHILD ACTS OF CONVERSATION FORMULATING  
COMMUNICATION PATTERNS BY DISTRIBUTION OF ACTS.

TYPE OF ACT OF CONVERSATION	DISTRIBUTION OF ACTS BY COGNITIVE MEANING				DISTRIBUTION BY COMMUNICATION PATTERNS					
	I INCOGITANT				I		II		III	
	TEACHER	CHILD			T	C				
SILENCE (0)	0	7			0	7				
COMMAND (1)	17	0			17	0				
VERBALIZE (2)	11	22			11	22				
GUESS (3)	0	1	II COGITATIVE							
			TEACHER	CHILD			T	C		
REMARK (-4,4)	7	1	21	19	7	1	21	19		
REPLY (-5,5)	0	1	1	24	0	1	1	24		
QUESTION-C (CLOSED) (-6,6)	5	0	26	2	III COGENT					
			TEACHER	CHILD					T	C
QUESTION-0 (OPEN-ENDED) (6,+6)			12	0			12	0	0	0
INTERPRET (7,+7)			30	14			30	14	0	0
INFER (8,+8)			9	3			9	3	0	0
ANALYZE (9,+9)			0	0			0	0	0	0
			SYNTHESIZE (10)		0	0			0	0
			HYPOTHESIZE (11)		3	0			0	0
			EVALUATE (12)		0	0			0	0
TOTALS OF TEACHER & CHILD ACTS BY PATTERNS					40	32	99	62	3	0
TOTAL OF ALL ACTS BY TEACHER					142					
TOTAL OF ALL ACTS BY CHILD					94					