QUESTIONS USED BY TEACHERS WITH SKILLED AND LESS SKILLED READERS

DISSERTATION

Presented to the Graduate Council of the North Texas State University in Partial Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

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This study described the way teachers used questions with skilled and less skilled readers during reading instruction. The cognitive level and functions of questions were analyzed based on data collected through direct observation within the natural environment of the classroom. In addition, the patterns of questioning which included wait-time and sequencing of questions were identified and reported.

Twenty sixth grade teachers randomly selected from a metropolitan school district were observed while instructing skilled readers and less skilled readers. Data collected during non-participatory observation of reading instruction through audiotape recordings, a low-inference observation instrument, and field notes were analyzed using the chi-square statistic, log-linear analysis, and descriptive statistics. Each question/response/response loop which occurred during the eighty observations was analyzed as to the cognitive level and function of the question, designation and wait-time of the student's response, the appropriateness, type, and length of the student's response, and the content of the teacher's response.

Within the limitations of this study, the following conclusions have been formulated.
1. Teachers use different cognitive levels of questions for particular functions as dictated by the specific needs and characteristics of the students in the skill level.

2. Although teachers ask the majority of questions at the cognitive-memory and convergent levels rather than the higher divergent and evaluative levels among both skilled and less skilled readers, the primary function is that of extending. It appears that teachers use questions as a way of encouraging student participation during reading instruction.

3. Among both skilled and less skilled readers, teachers practice a fast pace approach to questioning, waiting an average of one to two seconds for a response.

4. Paths of sequence for question/response/response loops are similar for both skilled and less skilled reading groups. The function of extending typically followed focusing and clarifying, demonstrating the teacher's apparent effort to include as many students as possible during instruction.
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CHAPTER I

INTRODUCTION

Background and Significance of the Study

One of the most widely accepted goals of formal education is to promote the development of independent thinking. Reading, a thinking process, is a basic means of learning in formal education (Goodman, 1970; Thorndike, 1917). Therefore, opportunities for children to experience a variety of thinking tasks during reading instruction are essential to the fulfillment of this educational goal.

Ever since Socrates questioned Meno's slave (Warmington, 1967), the utility of questioning has been assumed by those who instruct (Aschner, 1961; Guilford, 1959; Taba, 1964). Because questions are considered reflective of the cognitive level of instruction (Bloom, 1956; Gallagher & Aschner, 1963; Sanders, 1966; Taba, 1965), questioning has been the focus of much research concerning the type of thinking being promoted in the classroom.

Results of research on questioning indicate that approximately 70 per cent or more of the questions posed by teachers require recall from recognition or memory (Gall, 1970, 1978, 1984; Guzak, 1966; Hare & Pulliam, 1980; Hunkins, 1966). The level of questions teachers use during
reading instruction is thought to influence the level of student thinking. Therefore, teachers are encouraged to ask higher level questions in order to promote higher level thinking (Gallagher, 1965; Hunkins, 1972; Redfield & Rousseau, 1981; Sanders, 1966).

However, correlational and experimental studies investigating the cognitive level of questioning as related to student achievement tend to indicate that there is no significant difference between higher levels of questions and lower levels of questions (Hunks, 1966; Ryan, 1974; Stanford Program of Teaching Effectiveness, 1976). Furthermore, findings which support the functional value of low level questions (Brophy & Evertson, 1974; Stallings & Kaskowitz, 1975; Ward & Tickunoff, 1975), and the lack of significance for higher order questions (Bedwell, 1974; Ryan, 1973; Savage, 1972; Stanford Program on Teaching Effectiveness, 1976), have led educators to conclude that the types of questions and their effects need to be reevaluated.

In addition, recent research results indicate that particular levels of questions vary in effectiveness to facilitate achievement according to the ability of the student (Brophy & Evertson, 1974; Soar, 1973; Ward & Tickunoff, 1975; Whittemore, 1979). Appropriate sequence and placing of questions appear to be the "chief ingredients for a high level of mental functioning in students of low
ability" (Taba, 1965, p. 542). Clearly specifying the sequence and wait-time for particular levels of questions may be crucial factors in clarifying the effectiveness of questions as related to the ability of students (Hunkins, 1972; Ruddell, 1974; Taba, 1965). Hargie (1978) has concluded that there is a need for more specific research concerning the use of teachers' questions as related to the ability of the student. Analyzing how particular levels of teachers' questions are used with skilled and less skilled readers may clarify the effect of teachers' questions in reading instruction.

Through classroom observation the questions teachers use are "subject to the influence of the natural setting rather than the specialized influences of research settings" (Wilson, 1977, pp. 248-249). Therefore, this study was conducted through direct observation in the natural setting of reading instruction as recommended by Wolf and Tymitz (1976-1977) and Winne (1979).

Questions used by teachers while they instruct skilled and less skilled readers was the focus of this study. By observing teachers in two student performance level settings, it was thought that differences in questions due to performance level of the students would be revealed.
Statement of the Problem

The problem of this study was to analyze how teachers use questions while instructing skilled and less skilled readers.

Purpose of the Study

The purpose of this study was to determine the extent to which teachers use different questioning procedures for skilled and less skilled readers during reading instruction. Specifically, this study identified observable differences in the cognitive levels of questions, the functions of questions, and the patterns of questioning teachers used while instructing skilled readers as compared to less skilled readers.

Research Questions

To carry out the purpose of this study the following questions were researched.

1. Is there a significant difference in the cognitive level of questions teachers use while instructing skilled readers as compared to less skilled readers?

2. Is there a significant difference in the functions of questions teachers use while instructing skilled readers as compared to less skilled readers?

3. Is there a significant difference in the interaction between cognitive level of questions and functions
of questions teachers use while instructing skilled readers as compared to less skilled readers?

4. Are there patterns of questioning teachers use while instructing skilled readers and less skilled readers? If so, what are those patterns of questioning?

Definitions of Terms

Cognitive level of questions is the level of thinking considered necessary to respond to the particular question as determined by the observer based on the categories indicated by the Aschner-Gallagher System.

Function of questions is the teacher's purpose for using a particular question during reading instruction as determined by the observer based on categories indicated by Taba and Ruddell.

Patterns of questioning is the sequencing and wait-time for questions teachers use during reading instruction as determined by the observer.

Skilled readers are students who are perceived by their teacher as above average in reading comprehension as compared to the remainder of the students within a given class.

Less skilled readers are students who are perceived by their teacher as below average in reading comprehension as compared to the remainder of the students within a given class.


A review of the research concerning questions used by teachers reveals that the majority of teachers' questions continue to focus on recall of factual information. Higher level questioning has been considered as prerequisite to higher level thinking. However, research results appear to indicate that higher level questions have no significant effect on student achievement as indicated by post tests. Therefore, a more comprehensive method of analyzing the teachers' questioning procedures is needed. Focusing on the functions of questions as well as the cognitive level of questions appears to be a valid method of analysis. Gathering data from the natural classroom setting through direct observation provides the necessary context for analysis of questions used by teachers during reading instruction.

This review of related literature is discussed under the following topics:

(1) research findings related to teachers' questions,
(2) systems of classifying questions, and
(3) direct observation as a method of studying questions teachers use.
Research Findings Related to Teachers' Questions

After a review of the research over the last fifty years, Gall (1970) stated:

It is reasonable to conclude that there has been no essential change in the types of questions which teachers emphasize in the classroom (p. 713).

Gall estimated that 60 per cent of teachers' questions require recall of factual information, 20 per cent require students to think, and 20 per cent are procedural in nature. Furthermore, Clegg (1971) concluded that emphasis has been on the lowest levels of thinking in classroom instruction since the turn of the century.

Floyd (1960) found that 42 per cent of the questions from a sample of forty of the "best" teachers in elementary classrooms required only specific facts. A further analysis of Floyd's study conducted by Gall (1970) revealed that only 20 per cent of those questions asked required thoughtful responses from students.

Guszak (1967) sought to examine the interaction between the teacher and students in the reading circle. The results of his study led him to conclude that 70 per cent of the questions asked by teachers are at the literal comprehension level. In addition, he noted that many of the recall questions centered on trivial facts which actually led the students away from basic literal understanding of story plots, events and sequences (p. 233).
Davis and Tinsley (1967) used Bloom's **Taxonomy of Educational Objectives** (1956) as the criteria for judging the cognitive level of questions used in classrooms. They studied the questions used by forty-four social studies student teachers using their instrument, Teacher Pupil Question Inventory (TPQI). The TPQI included nine categories of cognitive levels: memory, translation, interpretation, application, analysis, evaluation, affectivity, and procedure. Davis and Tinsley found that "memory or acquisition of knowledge was the major cognitive objective apparent in teachers' and pupils' verbal questions" (pp. 24-25). This level of cognition was equated with lowest levels of cognition as described by Bloom.

In summary, research results generally conclude that teachers continue to ask the majority of their questions at the recall or recognition level. Recent investigation of student's preference of cognitive level of questioning (Wilhen & Serles, 1977), indicates that students have become conditioned to respond to narrow and closed questions which require recall of knowledge and information.

Current research focuses on student achievement as related to cognitive level of questions. Results tend to indicate that there is no significant difference between higher level questions as compared to lower level questions as measured by achievement on post tests. Several recent studies support this finding. Winne (1979) reviewed
eighteen experimental studies concerned with the relationship between the teacher's use of higher cognitive questions and student achievement. The studies selected for review represented two kinds of experimental studies. "Training experiments" were those that used teacher's training in the use of higher cognitive level questions as the independent variable. "Skills experiments" were those in which the frequency and manner of the teacher's questioning behavior were prescribed by the experimenter.

On the basis of his analysis, Winne stated that only one of nine training experiments (Bedwell, 1974) and six of nine skills experiments (Buggey, 1971; Gall, et al., 1978; Ryan, 1973, 1974; Savage, 1972; Stanford Program on Teaching Effectiveness, 1976), were judged sufficiently valid for "relatively accurate inferences about the effects of higher order cognitive questions versus fact questions on student achievement" (p. 43). Results appear to indicate that "whether teachers use predominately fact questions makes little difference in student achievement" (p. 43).

A similar conclusion was reached by Rosenshine (1971), after he summarized seven studies on teachers' cognitive behavior. He observed that

No clear linear relationship has been found between the frequency with which the teacher uses certain types of questions and the achievement of pupils. The experimentally increased use of specified procedures of types of questions has not resulted in significantly increased achievement (p. 125).
Dahlberg (1969) investigated the relationships among the cognitive level of teacher questioning behavior and teacher variables: total years of teaching experience, level of professional preparation, grade level taught, and subject matter taught. He found no significant difference between the cognitive level of teachers' questions and the four selected variables.

In a more recent experimental study, Bedwell (1974) trained four practice teachers to create and use varying levels of questions using Bloom's *Taxonomy of Educational Objectives* (1956). The teachers then taught each of their classes using two different levels of questioning. One group of students received 40 per cent higher level questions which included application, analysis, synthesis, and evaluative. The other group of students received only knowledge and comprehension level questions, the lower levels of questions on Bloom's taxonomy. In reviewing this study, Winne (1979) stated that it was strengthened by controlling for teacher effects. Bedwell had each teacher teach each kind of lesson. Results of pre and post testing indicated no significant difference in achievement for higher level question groups as compared to lower level question groups.

However, there has been some research to indicate that higher cognitive level questioning has significant positive effect on student achievement. An analysis of the
same studies reviewed by Winne (1979) led Redfield and Rousseau (1981) to conclude that the "predominant use of higher cognitive level questions has a positive effect on student achievement" (p. 244). The studies were analyzed using the meta-analysis technique which involved calculating the effect sizes of program monitoring, experimental validity, and level of teacher questioning. The results indicated that the "average student could be expected to score at the 77th percentile after treatment as opposed to the 50th percentile where he or she would be assumed to score if not treated at all" (p. 241). The discrepancy of this conclusion in comparison to that reached by Winne was attributed to the method of analysis. Redfield and Rousseau concluded that the manner of analysis is of critical importance when determining the effectiveness of questioning on student achievement.

Ladd (1969) used Smith and Meux's Logic of Teaching system (1962) to code question levels used by forty fifth grade science teachers after they were trained to use higher level questions. Results of the study led Ladd to conclude that teachers who ask a greater proportion of higher inquiry questions cause a higher level of achievement in students as measured by the post test examination.

In 1970 Davidson conducted a study which compared the effectiveness of two teaching strategies, Directed-Reading-Activity (DRA) and Directed-Reading-Thinking-Activity (DRTA)
(Stauffer, 1969). The relationship between teachers' questions and students' responses was used as a basis for comparing the two strategies. Among the major findings of this study were: (1) fact questions tend to elicit literal responses, and (2) interpreting, inferring questions tend to stimulate responses which involve theorizing and hypothesizing.

Soar and Soar (1976) reported the results of four studies conducted over seven years, using subjects from first to the fifth grades, who represented a wide range of socioeconomic levels. In each study measures of pupils' behavior were taken in fall and spring. Observations of classes were coded on low-inference observation schedules. Recorded information included: teacher's classroom management, teacher's affective response to students, and teacher-pupil cognitive interaction following Bloom's taxonomy. A major conclusion of these extensive studies has been that "teachers should spend more time working at higher cognitive levels" (p. 266).

However, in a recent review of teacher's questioning practices (Gall, 1984) characterized by teacher question/student response, it was concluded the "teacher questions do not necessarily elicit good student answers" (p. 46). Nevertheless, teachers continue to use questions in classroom instruction because both higher and lower level types appear to be effective in helping students learn curriculum.
In contrast to those studies which indicated a positive relationship between higher cognitive level questions and student achievement, Rosenshine (1976) has reported that "lower order questions tend to be positively related to achievement" (p. 358). In reviewing three correlational studies of questioning behaviors (Brophy & Evertson, 1974; Soar, 1973; Stallings & Kaskowitz, 1976), he concluded that the frequency of factual, single-answer questions was correlated positively and significantly with achievement; whereas, the frequency of more complex, difficult, or divergent questions had negative correlations.

Peterson and Walberg (1979) recently suggested that high achievement correlates with low cognitive level questions for at least two reasons. First, questions which are classified as high cognitive level tend to be open-ended and opinion oriented. These open-ended questions may represent nonacademic questions. Secondly, tests do not often employ open-ended questions. Therefore, analysis of how higher and lower level questions are used in testing and instruction could clarify their relationship to student achievement. Analysis of the correspondence between teacher's questions and students' responses is one way of studying how questions are related to student achievement. This correspondence was studied by Smith (1977) who used the average length of communication as the unit of analysis.
The subjects, sixty second and fourth graders, were presumed to represent two stages of cognitive development. These states were preoperational and concrete operational. Smith determined the relationship between the level of question and language production. She concluded that factual questions appeared to inhibit the higher cognitive processes for subjects who were in either stage of cognitive development. However, interpretative questions stimulated the higher cognitive processes. Adams (1974) also found a significant relationship between student responses and higher cognitive level questions.

However, Mills and his associates (1980) investigated the correspondence of the teacher's questions and students' responses. They concluded that the relationship is not a particularly strong one (p. 202). Audiotape recordings of discussions conducted by teachers who had participated in a training course on questioning were analyzed. The overall correspondence between questions and responses was only 53 per cent.

It was suggested that students seemed to lack a common frame of reference with their teachers regarding cognitive discussions. This discrepancy could be reduced through two means: (1) providing mutual reinforcement for teachers and students to engage in cognitive dialogues, and (2) reducing the length of time it takes students to catch on to the higher cognitive discussion "game" (p. 203).
Reading performance level of the student tends to be an efficient indicator of how effectively students learn to function in higher cognitive levels of discussion (Ryan, 1974). Whittemore (1979) studied the relationship between the levels of questions asked by teachers and different reading ability levels of students. She also investigated other teacher variables: teacher experience, teacher training, and race. Thirty-three teachers leading a Directed-Reading-Thinking-Activity were observed and questions were coded on a four-point scale: literal, reorganization, inferential, and evaluation.

Whittemore found that all the variables studied were significantly related to the percentage of inferential questions asked by teachers. However, student reading ability level was the single more important variable that influenced the inferential comprehension questions. Further analysis of teacher's questioning strategies as related to different reading performance level groups is needed (Hargie, 1978; Rosenshine, 1976; Whittemore, 1979).

There is a discrepancy in the apparent effect of levels of questions on achievement. Some research results appear to indicate lower level questions have a significant positive effect on student achievement levels. However, other research continues to demonstrate the effectiveness of higher cognitive level questions. An understanding of these differences could be clarified through analysis of how
questions are used with particular reading performance level students. Analysis of questions teachers use during reading instruction of different reading performance level groups involves classification of questions.

Systems for Classifying Questions

There are several major systems for classifying questions. Three of these will be discussed because of their relationship to the present study. These three classification methods are Bloom's Taxonomy of Educational Objectives (1956), the Gallagher-Aschner System (1963), and categories of questions by functions (Ruddell, 1974; Taba, 1964).

Since the development of Bloom's Taxonomy of Educational Objectives (1956), efforts have been made to relate the cognitive level of thinking to questioning. A review of the literature reveals numerous studies of questioning based on Bloom's taxonomy. It appears to represent "the commonalities that exist among the classification systems" (Gall, 1970, p. 710). In an extensive review of twenty-one classification systems for classroom questions, Riegle (1974) concluded that Bloom's taxonomy is "the most representative and by far the most popular cross subject questions classification system" (1976, p. 156).

Among the researchers who used Bloom's taxonomy as the criteria for coding questions are the following:
Dahlberg (1969) who studied the questions asked by teachers in the fourth, fifth, and sixth grades; Bernstein (1973) who investigated the relationship of source of question to achievement; and Farley (1968) who used Bloom's taxonomy to train teachers to ask higher order questions in experimental studies. In order to clarify the application of Bloom's taxonomy to this proposed study, a brief explanation of the taxonomy will be given. There are six levels of cognition in the taxonomy.

**Knowledge**, the lowest level, involves the psychological process of remembering. Cognitive functioning at this level, however, involves recall or memory of data from simple fact through complex universals and abstractions.

**Comprehension** refers to "objectives, behaviors, or responses which represent an understanding of the literal message contained in the communication" (Bloom, 1956, p. 89). At the comprehension level a student must transfer information into another form. This process involves translating, inferring, generalizing, or summarizing.

**Application** relates to the ability to select an abstraction without help and apply it in a new situation. A student must take facts, principles, or generalizations and apply these to a particular problem.

**Analysis** "emphasizes the breakdown of material into its constituent parts and detection of the relationships of the parts and the way they are organized" (Bloom, 1956,
At the analysis level a student must identify and comprehend the elements as parts of a process, communication, or series of events.

**Synthesis** relates to construction of a unique or an original product from available parts. A student must engage in original thinking. Implicit in this level of thinking are personal expression and participation.

**Evaluation**, the highest level in the taxonomy, refers to using established internal or external criteria for "highly conscious quantitative and/or qualitative judgments" (Bloom, 1956, p. 185). A student must determine how closely a concept or an idea is consistent with his standards or values.

To further clarify the application of Bloom's taxonomy to questioning, Riegle offered examples of questions at each level of the taxonomy (1976, p. 156). These questions by each level of Bloom's taxonomy are as follows.

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<th>Level</th>
<th>Question</th>
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<tbody>
<tr>
<td>Knowledge</td>
<td>In the electoral college, what determines the number of electors from each state?</td>
</tr>
<tr>
<td>Comprehension</td>
<td>How could you contrast the electoral college system with a direct democracy?</td>
</tr>
<tr>
<td>Application</td>
<td>How would it be possible for a candidate to receive a majority of the popular vote and still not be elected president?</td>
</tr>
<tr>
<td>Analysis</td>
<td>Which step in the process of electing a president would you think the American people know the least about?</td>
</tr>
<tr>
<td>Synthesis</td>
<td>What would be included in a Constitutional amendment which would preserve</td>
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the electoral college system but which
would prevent the election of a presi-
dent who did not receive the largest
number of popular votes?

Evaluation
After examining criticisms of the
electoral college and proposals for
change, which proposed change do you
think would be the most democratic?

Use of Bloom's taxonomy as the criteria for classifi-
cation of classroom questions has been criticized. Gall
(1970) noted that this cognitive-process approach to
question classification is basically inferential. These
processes cannot be observed directly; therefore, it would
be difficult to tell at what level a student was functioning.

Sanders (1966), who adapted Bloom's taxonomy into a
handbook for teachers, Classroom Questions: What Kinds?,
supports Gall's criticism. He states that response to a
question depends on several factors: "the nature of the
question itself, the knowledge of the subject that each
student brings to the classroom, and the instruction which
precedes the asking of the question" (p. 8). For example,
Gall (1970, p. 710) posed the question, "What are some
similarities between the Greek and American forms of
democracy?"

This question could be answered on various levels
of cognitive processing. The nature of the question could
elicit high level cognitive processing which involves the
analysis of Greek and American forms of government to
discover their similarities. However, the student who has
had opportunity for first hand experience with the Greek culture, may use cognitive processing at a comprehension level by generalizing from his own experience. If a class discussion of the similarities between Greek and American forms of government had just occurred, the student might depend on knowledge recall only. Therefore, he would be using the lowest level of the taxonomy.

Another criticism of Bloom's taxonomy has been that it does not include all types of questions teachers ask in classroom instruction (Gall, 1970; Riegle, 1976; Sanders, 1966). Gall concluded that Bloom's taxonomy is representative of existing taxonomies which classify questions "teachers ask to test students' recall of information and to develop their critical thinking processes" (1970, p. 710).

However, there are other useful and common question types used in the classroom. Those suggested by Gall include

(1) questions which cue students to improve on initially weak responses, such as, "Can you tell me more?"

(2) questions which create an atmosphere conducive to discussion, such as, "Billy, do you agree with Sue's position?"

(3) questions which stimulate students' sense of curiosity and inquiry, such as, "How would you propose to find an answer to this question?", and

(4) questions which guide students' learning of a problem solving, behavioral, or affective skill
such as, "What do you think we do next to solve this problem?" (1970, p. 710).

A system for question classification should include all types of questions and should reveal the function of the question based on the context in which it occurred. In order to accomplish this goal, two systems of classification will be used in the proposed study. These are the Aschner-Gallagher System, to classify all levels of questions, and categories of functions, to classify all questions according to the purpose of the question.

A classification system which incorporates all levels of questions was proposed by Gallagher and Aschner (1963). It is based on the concept of "productive thinking." This concept was derived from Guilford's (1956) theoretical structure of the intellect which consists of types of content, intellectual operations needed to process content, and the products of thought which result from the processing of information (Guilford, 1956, 1959).

Implementing Guilford's "operations" concept, Gallagher and Aschner stated that "productive thinking includes divergent, convergent, and evaluative operations whereby the individual draws upon available past and present acts, ideas, associations, and operations in order to bring forth new ideas, facts, and conclusions" (1963, p. 183).

The Aschner-Gallagher System for classifying classroom verbal interaction consists of five categories: cognitive-
memory, convergent, divergent, evaluative, and routine. Gallagher and Aschner combined Guilford's cognition and memory categories, and added the category, routine. Operational definitions and illustrations of each cognitive level are included in "Chapter III--Methodology."

Descriptions of each category and examples of questions which would be categorized at each level are listed below (Gallagher & Aschner, 1963).

**Cognitive-memory** operations represent the simple reproduction of facts, formulas, or other items of remembered content through the use of such processes as recognition, rote memory, and selective recall.

Example--Who wrote the book, *Moby Dick*?

**Convergent** operations represent the analysis and integration of given or remembered data. It leads to one expected end-result or answer because of the tightly structured framework through which the individual must respond.

Example--What is the main idea in Paton's novel, *Cry the Beloved Country*?

**Divergent** operations represent intellectual processes wherein the individual is free to generate independently his own data within a data-poor situation, or to take a new perspective or direction on a given topic.

Example--Suppose Spain had conquered England in 1588 instead of being defeated. What do you think the world would be like today, if it had happened?

**Evaluative** operations represent processes which involve judgment, values, and choices.

Example--What do you think of Captain Ahab as an heroic figure in *Moby Dick*?
Routine category of questions consists of familiar and conventional interpersonal communication in the classroom management and student control.

Example—Do you have your books ready? Do you have to do that, Janie?

The Aschner-Gallaqher System is derived from Guilford's theories of the intellect. However, the system also reflects Bloom's taxonomy as illustrated in Figure 1.

BLOOM-----------------GUILFORD----------------- ASCHNER-GALLAGHER
Knowledge-----------Cognition
Comprehension-------Memory
Application---------Convergent
Analysis----------Convergent
Synthesis-----------Divergent
Evaluation--------Evaluative
Routine

Fig. 1--Relationships among the three classification systems.

The Aschner-Gallaqher System for classifying verbal interaction has been used in research studies and teacher training projects (Bane, 1973; Gallagher, 1965; Hutchinson, 1967; Wilhen & Serles, 1977). Most recently, Mills (1980) analyzed the correspondence between teacher's questions and students' responses in classroom dialogue. Three classification systems were used to reanalyze the data from a previous study of teachers' questions (Gall, et al., 1970): Bloom's Taxonomy of Educational Objectives (1956);
Ascher-Gallagher System (1963); and Smith and Meux's Logic of Teaching (1962).

An important difference among the three classification systems was revealed in the study. Mills and his associates found that when the total number of questions asked was considered, not all the questions could be categorized by all of the systems. The systems "failed" to classify some questions. However, Aschner-Gallagher System failed only .4 per cent of the time.

Mills and his associates concluded that the "most useful system in terms of coding the greatest amount of teacher/student dialogue, appeared to be the Ascher-Gallagher System" (p. 200). In addition, it was found that the correspondence between questions and responses was greater for the fourth through sixth grades than for the seventh and eighth grades. Analysis of the correspondence between teacher's questions and students' responses indicated that the clarity and specificity with which teachers phrased their questions influenced the clarity, specificity, and correspondence of the students' answers. Mills noted that this finding remained the same for both lower and higher level cognitive questions.

Results of another study which indicated the importance of the way a teacher asks a question was conducted by Gallagher (1965). He reported a study of the verbal expressiveness of 235 junior and senior high students
who represented the top 5 per cent of their age group based on group IQ scores. Five consecutive hours of audiotape recording were obtained from each of the ten classes. In addition, observers were present in the classroom and took extensive notes concerning environmental and attitudinal factors.

Furthermore, Gallagher (1965) noted environmental factors which included the following: writing on blackboards, written materials, textbook references, charts, demonstration equipment and techniques. Inferred attitudes between teacher and class based on observation were recorded. Examples of these attitudes were the following: censure, praise, frustration, and humor. Transcriptions of the audiotape recordings were classified according to the Aschner-Gallagher System.

Results of Gallagher's investigation indicated that the majority of teachers' questions and students' responses were on the cognitive-memory and convergent levels. Furthermore, the evaluative and divergent types of questions appeared to be dependent upon teacher initiation. Two major conclusions noted by Gallagher were that the expressive behaviors in the classroom in both kind and amount of thought output seemed dependent on the teacher's style of questions asked and the goals of the teacher in a given lesson (1965, p. 568).
In summary, the Aschner-Gallagher System both reflects and extends Bloom's Taxonomy of Educational Objectives and Guilford's structures of intellect in question classification. However, classification of questions by cognitive level does not consider the function of the question (Gall, 1970). Questioning observed in this study will be analyzed both by level and by function.

Classification of questions by cognitive function places the emphasis on the context in which those questions are asked (Ryan, 1973). Taba and her associates (1964) defined function as "a thought unit which functions in the context of discussion" (p. 529). Taba's interpretation of cognition as "cognitive commerce" was based on several theoretical constructs (1962, 1964, 1965). Learning to think involves

1. active transaction between the individual and his environment but becomes available to the individual only to the extent that he performs certain operations on the information he receives.

2. development of thought which follows a sequence in which the simpler and more concrete operations must precede and prepare for the more complex and abstract.

3. constant reorganization of conceptual schema. Piaget (1950) referred to this as assimilation and accommodation (Taba, 1965, pp. 537-538).

These constructs form the basis for Taba's concept of the interrelationship of context and context in teaching. Three cognitive tasks and the operations associated with each were formulated in order to translate the theoretical
constructs into teachable and learnable aspects of thought. These cognitive tasks are described below (Taba, 1965, pp. 536-537).

1. **Concept formation** consists of differentiating among properties or characteristics of objects and events, grouping common characteristics of objects or events, and labeling or categorizing objects or events.

2. **Interpretation of data and inference** consists of evolving generalizations and principles from analysis of concrete data. Specifically this involves identifying specifics, explaining specifics, and forming inferences which go beyond that which is directly given.

3. **Application of principles** which consists of using known facts to explain new phenomena or to predict consequences. Specific operations are (a) predicting and hypothesizing which require analysis in order to make application and (b) developing informational or logical parameters which constitute a causal link.

Taba and her associates (1964) applied the theory of cognitive tasks in a study which examined "the processes of thought in the classroom." The study involved twenty elementary classrooms. Each teacher used a social studies curriculum outline of basic ideas planned in a sequence, designed to enhance the development of generalization and application. The outline was organized for inductive discovery and development of these ideas.

Teachers were trained to analyze thought processes and devise effective teaching strategies. A time sampling was taken of "thought units." A thought unit was a "remark or series of remarks expressing a complete idea, serving a
specified function, and classifiable according to a level of thought" (1964, p. 529). Verbal transactions were recorded in order to describe simultaneously the teaching acts and levels of thinking of the students. These transactions were scored on the basis of designation, function, and level of thought. Designation described the source of the thought unit. Function is used to describe the way a thought unit was used to effect the subsequent thought of the students. Finally, level of thought was identified as a hierarchy of levels from simple to complex, concrete to abstract. This hierarchy was applied to each of the three cognitive tasks previously described.

Results of the study indicated that two groups of teaching strategies seemed to affect the development of cognitive skills, either positively or negatively. These two troupes of strategies were

(1) questions or statements made by teachers or students which were psychological or managerial in function and unrelated to the logic of the content, and

(2) teachers' questions or statements which gave direction to discussions and were related to the logic of the content and of the cognitive operations sought.

On the basis of these two major findings, Taba concluded that "the role of questions becomes crucial and the way of
asking questions the far more influential single teaching act" (1964, p. 53).

This study sought to determine how teachers use questions during reading instruction. Bases for the design of the study came from Taba's research and work by Ruddell, who continues to refine Taba's ideas (1974). A description of these functions as applied to questioning is below (Taba, 1965). Each function is operationally defined and illustrated in "Chapter III--Methodology."

Functions of questioning are focusing, refocusing, changing focus, and deviating from focus. Functions also include extending thought on the same level, lifting thought to a higher level, and controlling thought (p. 539).

**Focusing** questions are used to set the cognitive task. They are used to establish the content of the topic and the cognitive operations to be performed. Refocusing, changing the focus, and deviating from the focus are variations of the focusing category. They describe the way a teacher uses questions to guide the direction of the discussion.

**Extending** questions are used to maintain thought at the same level which provides time for assimilation and accommodation of ideas before another idea is introduced. There are two characteristics of this category of function. First, it is dependent on a number of students in the group responding to the same question. Secondly, it provides time for participation of slower students.
Lifting questions are used to direct students' thinking to a level higher than the previously established one. However, for each lifting function, the extending function would be applied to provide opportunity for clarification and elaboration.

Controlling questions are used to enable the teacher to perform the cognitive task which the student should be doing.

Ruddell (1975) has suggested that questions can also be used to clarify ideas during discussions. The function of clarifying will be a separate category in this study.

Clarifying questions are used to redefine previous information. This function differs from extending because it does not elicit additional information, but returns to previously discussed information for clarification.

The study of the functions of questions interacting with the levels of questions, led Taba to conclude that the level of thought is determined by the whole pattern of question functions, in conjunction with appropriate sequencing and wait-time for questions (1964). Taba's conclusion has been supported by numerous researchers and educators who encourage teachers to be aware of functions, sequence, and wait-time (Brophy, 1979; Hunkins, 1966, 1972; Hyman, 1979; Rowe, 1969; Ruddell, 1974; Sanders, 1966).

Notably, Ruddell and his associates (1972) have devised interaction strategies for a research investigation of the
literacy teaching model, Project DELTA. A Self-Analysis Record of Classroom Interaction (1974, 1978) instrument was developed for the project. Questions and responses were coded for level of comprehension (Barrett, 1968) and strategies. In the study 24 primary grade teachers and the response levels of 144 primary grade children were studied. Ruddell found that teachers posed twice as many literal level questions as interpretative questions. This finding is consistent with previously cited studies of cognitive level of teacher questions.

However, Ruddell's method of study further clarified the use of those literal level questions. He found that the extending function was used most often when asking literal level questions and raising function was used most often when asking interpretative level questions. Focusing and extending functions represented approximately 70 per cent of all the functions used. Ruddell concluded that the technique of combining functions of questions with levels of questions provided a valuable tool in the assessment of classroom verbal interaction.

In addition, attention should be given to the sequencing and wait-time for questions. Sequencing of questions should be analyzed to determine whether or not the question sequence produced their stated or observed objectives (Brophy, 1979). The effect of wait-time on students' participation and length of responses has been studied by
Rowe (1974). Results of Rowe's study indicated that the pace of interaction appeared to influence the quality of interaction. Teachers who usually asked two or three questions per minute, seldom waited more than one second for student answers. Students' responses tended to be short, incomplete sentences. However, in classrooms where the wait-time was three seconds, there were marked differences both in teacher statements and student responses, and more students participated in the discussion.

In a time-series experiment conducted by Honea (1982) the effect of wait-time on both teachers and students was studied. The content of the study used in the experiment was highly structured. Sixty per cent of the questions were of a higher order. The teacher's reactions were praise oriented with little criticism. The wait-time for one treatment was one to two seconds and three to five seconds for the other. Results indicated that when the wait-time was extended the teacher asked fewer questions, there were more student-to-student interactions, and there were more student questions. In addition, the length of student response increased and the number of unsolicited but appropriate responses increased when the wait-time was extended.

When the sequencing of questions includes an opinion type question, Dillon (1981) found that the student responses were twice as long as when the questions were
fact oriented. This finding supports conclusions reached by Gall (1970). However, Dillon also found "the initial question in a series put to the same student elicited virtually the same amount of response as subsequent questions in that series" (1981, p. 9).

In conclusion, analyzing questions in terms of function with emphasis on wait-time and sequence appears to clarify the teacher's use of particular levels of questions. Through direct observation this analysis can be conducted within the context of the natural environment, the classroom.

**Direct Observation as a Method of Studying Questions Teachers Use**

Direct observation as a method of study has been in use since the eighteenth century when Pestalozzi recorded his observations of his young son. Early observation studies were in the form of journalistic recordings, biographies, and diaries. These studies tended to have a limited influence because they were often based on unsystematic, biased, and selected observations (Boehm & Weinberg, 1977).

More recently, Piaget (1960) recorded more objective, detailed observations of children. Boehm and Weinberg (1977) noted that these observations have provided much of the basic theory operating in current viewpoints of cognitive, social, and language development.

Observation in the educational setting has been a vital part of research (Doyle, 1979). Classroom
observations have become more precise and efficient with the
development of systematic methods of observation (Bellack,
Kliebard, Hyman, & Smith, 1963; Flanders, 1970; Medley &
Mitzei, 1963; Smith & Meux, 1962). Although classroom
observation is accepted as a method of study, experimental
research continues to dominate the reading field (Wolf &

Traditional experimental research approaches emphasize
the artificially controlled manipulation of the environment
in order to gain knowledge of the possible effect on a given
variable (Boehm & Weinberg, 1977). The use of this
"measurement/behavioral research paradigm" to study reading
has tended to produce techniques which treat reading as a
"static set of skills" rather than a "dynamic process"
(Wolf & Tymitz, 1976-1977). Experimental research asks,
"What works?" or "What works with whom?", whereas,
systematic direct observation poses the question, "What
is happening here and why?" (Clark, 1979). Describing
what occurs in the natural setting of instruction is an
integral part of a research paradigm proposed by Rosenshine

The descriptive-correlational-experimental loop is a
research paradigm which contains three elements:

(1) Developing of procedures for describing teaching
    in a quantitative manner;

(2) Correlational studies in which the descriptive
    variables are related to measure of student
growth;
Experimental studies in which the significant variables obtained in correlational studies are tested in a more controlled situation.

It should be noted that these steps are not fixed and are not interrelated (Rosenshine & Furst, 1973). Research which focuses on the "natural setting would make use of all three elements."

This study included the first element and a modification of the second element of the research paradigm. Questions used by teachers while instructing skilled and less skilled readers were described in a "quantitative manner." This quantitative analysis was accomplished through frequency counts of questions by cognitive levels and functions. There was no intervention in the instructional process or intentional contact with the teacher and students during observation of reading instruction.

The second element was included in the study only to the extent that the teacher was observed while instructing two reading performance levels, skilled and less skilled readers. Results of the descriptive data were then compared in order to identify any differences in questions that may be due to the reading performance level of each group of students.

"Systematic observation can help the classroom observer unravel and understand the complex behavioral exchanges among participants in the instructional context" (Boehm & Weinberg, 1977, p. 75). However, careful
preparation for the study is necessary in order to collect accurate and complete data. First, the problem of the study should be clearly defined. The setting should be carefully analyzed. Finally, an observation instrument which is appropriate for the setting and addresses the stated problem should be chosen or devised.

A clearly defined purpose is necessary to focus the direction of the study. The purpose should be stated in operational terms. For example, the following question would be difficult to answer: "Are boys more restless than girls during reading instruction period?" The word "restless" should be restated to direct the observer's attention to observable behavior. The question should be: "Do boys leave their chair more frequently than girls during reading instruction period?" (Boehm & Weinberg, 1977). Specifying the behavior reduces the level of inference necessary to answer the question. The purpose of this study has been clearly defined. Categories for classification of questions teachers use while instructing skilled and less skilled readers have been operationally defined.

The setting should be carefully and completely described. Barker (1968) emphasizes that the environment or context of the behavior has its own structures which limit and dictate an individual's behavior. The observer must be aware of the environment in which the teacher and
students interact. For this study, provision has been made for describing the setting of instruction.

The number of instruments used in classroom observation has increased significantly since Medley and Mitzel discussed "direct observation" in 1963. In Mirrors for Behavior (Simon & Boyer, 1974), there are ninety-nine observation instruments discussed. Most of those listed have been used for classroom observation. Two major characteristics which distinguish the differences in the instruments are the recording procedure and the amount of interference required to code the behaviors.

Recording procedures for most observation instruments are category, sign, or rating. When using a category system, each time an event occurs, it is recorded. The Aschner-Gallagher System, previously discussed, is an example of an observation instrument which uses the category system.

If an event is recorded only once, if it occurs within a specified time period, the system is called a sign system. Flanders' (1970) Interaction Analysis is an example of an observation instrument which uses a sign system.

Finally, a rating instrument requires the observer to estimate the frequency of a particular behavior at the end of an observation period. A five- to seven-point scale is usually used to rate behaviors as occurring "most of the time or strongly agree" to "seldom or strongly disagree."
Galloway (1968) added ratings on affective tone of the teacher's response to Flanders' Interaction Analysis.

Some instruments require the observer to make judgments such as, "harsh," "responsive," and "receptive" (Galloway, 1968). These are high inference items because they depend on the observer's judgment. A low inference instrument is one that depends less on observer judgment. Items, such as "the child sits for five minutes," or "teacher gives direction" are considered low inference items.

Raths (1973) has enumerated some difficulties associated with describing activities. He suggested that defining the unit of observation is a common problem. Then once the unit has been defined, a classification system must be devised that will accurately reflect the event as it occurs in the classroom. An example of two different organizations for observation in the classroom is the work of Durkin (1978) and Quirk (1975). Durkin (1978) studied comprehension instruction in elementary schools using real time. She chose the second as the unit of time. An elaborate classification system was devised in an effort to discover how much time teachers were involved in comprehension instruction. Quirk (1975) and his associates studied classroom behaviors during reading instruction using fixed interval time to code both the mode of instruction and the content of instruction. Results of
both studies indicated that teachers spend little time on teaching comprehension during reading instruction.

Another difficulty in observational studies is the selection of a sample (Raths, 1973). Medley and Mitzel (1963) advocated the random selection of samples and use of the most powerful statistics for analysis of data. However, after the selection of the sample teachers tend to be reluctant to allow an observer into the classroom. Steps can be taken to reduce some of this resistance (Medley & Mitzel, 1963). Teachers should be informed of the general nature of the study, the confidentiality of all results, and that results will be made available to them at the end of the study.

Finally, another problem involved in observational studies is that of observer bias. Brophy (1979) recommends that the observer use objective coding of behavior to guard against bias. A low inference observation instrument used by a trained observer can be an effective means of gathering data. However, observation studies which are dependent on observer opinion can be open to the criticism, "observer bias" (Perfetti, 1978). Observer bias will not be controlled completely in any observational study in the natural environment. However, a clearly defined focus of purpose, awareness of environmental factors, and an efficient, objective observation instrument can reduce observer bias.
In conclusion, direct observation as a method of studying questions teachers use has been discussed with emphasis on the place of observation in the descriptive-correlational-experimental loop proposed by Rosenshine and Furst. Important differences in observation instruments have been illustrated. Research results indicate that observation is a valid method of study in the classroom when based on objective means of data collection.
CHAPTER REFERENCES


CHAPTER III

METHODOLOGY AND PROCEDURES

Research Design

The questions used by teachers during reading instruction for skilled and less skilled readers were studied through direct observation within the natural classroom setting (Barker, 1968). The research design, illustrated in Figure 2, focused on the cognitive level of questions and the function of questions used by teachers while instructing skilled readers as compared to less skilled readers.

Fig. 2--Research design
In addition, patterns of questioning which appeared in the sequence and wait-time for questions were observed and recorded for further analyses of the questioning procedures used with skilled and less skilled readers. These patterns of questioning revealed the emergence of a question/response/response loop which contained discrete categories of information.

Each loop consisted of a question posed by the teacher, a response from the student, and a response to the student's answer from the teacher. Mutually exclusive categories of information for each element of the loop were content of the question, time until student's response, length of student's response, and the teacher's response to the student's answer. Every question/response/response loop was coded with information in each of these categories.

Descriptive information was recorded for each loop. This information included school, teacher, skill level, observation number, question number, response number, gender of responder, and identification number of responder. Coding of descriptive information was used throughout analysis of data to facilitate objectivity.

Population

The population of the study included sixth grade teachers within a metropolitan school district who taught reading instruction to skilled readers and less skilled
readers. Reading skill level groups were predetermined by the teacher as those students who were at the highest levels of reading achievement in their class, skilled readers; and as those students who were at the lowest levels of reading achievement in their class, less skilled readers.

The school district had an approximate enrollment of 128,700 students. The ethnic composition of the district was 49 per cent Black, 30 per cent Anglo, 19 per cent Hispanic, 1 per cent Asian, and less than 1 per cent American Indian. The students were from predominantly middle to lower socioeconomic backgrounds.

There were eighty-five elementary schools in the district which had a sixth grade. An average of three sixth grade teachers taught reading instruction to skilled and less skilled readers in each of the eighty-five schools. Therefore, the population for this study was approximately 255 sixth grade teachers.

Selection of the Sample

The sample was chosen by randomly selecting ten elementary schools from the eighty-five schools in the district which had a sixth grade. The average population of selected schools was 628 students ranging from 452 students to 941 students. The ethnic make up included 48 per cent Black, 31 per cent Anglo, 20 per cent Hispanic, 1 per cent Asian, and 1 per cent American Indian. As shown
In Table I, the ethnic distribution of the selected schools accurately reflected the ethnic distribution of the entire school district.

### Table I

**Comparison of Ethnic Distribution by Percentage**

<table>
<thead>
<tr>
<th>Group</th>
<th>Black</th>
<th>Anglo</th>
<th>Hispanic</th>
<th>Asian</th>
<th>American Indian</th>
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<tr>
<td>Population</td>
<td>49%</td>
<td>30%</td>
<td>19%</td>
<td>1%</td>
<td>1%</td>
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<tr>
<td>Sample</td>
<td>48%</td>
<td>31%</td>
<td>20%</td>
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In addition, the selected schools were geographically distributed proportionally among the five subdistricts of the school district. As shown in Figure 3 (p. 55) there was one school in sections A, D, E, and F, two schools in section B, and four schools in section C.

The socioeconomic status of students in the selected schools was estimated by the percentage of students who participated in the free or reduced lunch program. Five of the ten selected schools had approximately 50 per cent of the student population who participated in the lunch program. Two of the schools had 90 per cent or more of the students on the lunch program. Three of the ten schools had only 20 per cent of the student population who participated in the lunch program. These percentages indicated a wide range and normal distribution of socioeconomic backgrounds among
Fig. 3—Geographic distribution of randomly selected schools
students in the schools which were randomly selected for this study.

The subjects were twenty sixth-grade teachers who taught reading instruction to skilled and less skilled readers. These twenty teachers were selected for the study because they taught reading instruction and they were the only teachers in the selected schools who taught reading instruction in the sixth grade. The range of teaching experience among these twenty teachers was one to thirty years. The median number of years was ten and twelve years and the mean was 13.8 years. Educational background ranged from a bachelor's degree to eighteen hours beyond a master's degree. Fifty-five per cent of the teachers had a master's degree.

The placement of students in skilled and less skilled reading levels was predetermined by the teacher. Skilled readers were those students who were at the highest levels of reading achievement in the class and less skilled readers were those students who were at the lowest levels of reading achievement in the class.

The number of students in the skilled and less skilled reading groups varied among teachers. Skilled reading groups ranged in number from four to twenty-seven with a mean of fourteen. Less skilled reading groups ranged in number from three to twenty-five with a mean of eight.
The number of students in both the skilled and less skilled groups was pre-established by the teacher.

For descriptive purposes the reading comprehension scores from the Iowa Test of Basic Skills (ITBS) for each student was obtained by the observer. Scores were available for 258 of the 291 students categorized as skilled readers and 127 of the 161 students categorized as less skilled readers. The mean reading comprehension score for the 89 per cent of skilled readers was 45.8. The mean reading comprehension score for 79 per cent of the less skilled readers was 17.1. Within groups the mean reading comprehension scores ranged from 3.35 to 71.51 for skilled readers and 4.13 to 49.34 for less skilled readers.

Procedures for Collection and Analysis of Data

Data for the study were collected through direct observation, audiotape recordings, and school records. Collection and analysis of data were accomplished in three phases: (1) classroom observation and audiotape recording; (2) collection of descriptive data; and (3) analysis of questions. Specifically, procedures for data collection and analysis were conducted in the following manner.

Phase I—Classroom Observation and Audiotape Recording

Data for the study were collected through direct observation in the natural environment of the classroom.
during reading instruction. Audiotape recordings were made during the observations for the purpose of gathering the precise account of the verbal interaction which occurred during the reading instruction. In addition, an observation instrument was used in order to record the specific elements of the reading instruction which could not be recorded on the audiotape.

The observations were made with the consent of each teacher. However, the teacher did not know the nature of the observation. The teacher was informed that "a study of reading instruction in sixth grade classrooms was being conducted for a research project and this class had been randomly selected for observation. Skilled readers and less skilled readers are to be observed. Audiotape recordings and written notes will be taken to insure accurate transcription of verbal interaction." The only information collected from the teacher was the classification of the reading group as skilled or less skilled readers. The groups were not manipulated in any manner by the observer. Therefore, observations were non-participatory.

Each of twenty teachers was observed four times over a one week period of time. Total observation time was from February 1 to April 15. Two observations were made while the teacher was teaching the group designated as skilled readers and two observations were made while the teacher was teaching the group designated as less skilled readers.
The length of observation varied as determined by the length of the lesson conducted by the teacher. There was no intervention by the observer. Lengths of observation ranged from 10 minutes and 31 seconds to 58 minutes and 14 seconds.

The total observation time for twenty teachers was 2076 minutes and 10 seconds, or 34 hours, 36 minutes, and 10 seconds. The total observation time for skilled reading groups was 962 minutes and 16 seconds as compared to 1113 minutes and 54 seconds for less skilled reading groups. This observation time for groups was 16 hours, two minutes, and 16 seconds for skilled readers as compared to 18 hours, 33 minutes, and 54 seconds for less skilled readers.

Every effort was made to maintain the integrity of the natural classroom setting. Precautions were taken to reduce observer interference (Medley & Mitzel, 1963). Prior to the observation time the observer obtained the teacher's permission to study reading instruction among skilled and less skilled readers. Each teacher was told that the sessions would be audiotape recorded and that low inference notes would be taken by the observer (Brophy, 1979). Before the reading instruction had begun the observer was seated in an inconspicuous location in the classroom. These steps eliminated any need for the observer to interact with the teacher or students during the observation.

The observation instrument, as shown in Figure 4 (p. 60), was used to record classroom events during each
### OBSERVATION INSTRUMENT

- **SCHOOL**: ___
- **TEACHER**: ___
- **OBS**: ___
- **TAPE**: ___
- **GROUP**: ___
- **DATE**: ___

**Instructional environment:**

**Instructional context:**

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**Anecdotal records:**

---

Fig. 4--Observation Instrument
observation period. This instrument included the use of a priori categories in order to decrease observer bias (Wolf & Tymitz, 1976-1977). The grid was used to record priori categories, in order to facilitate the recording of rapidly occurring responses to questions posed by the teacher.

A priori categories were recorded as unstructured notes. Priori categories were recorded as structured notes. In order to clarify the use of the observation instrument, structured and unstructured notes are explained and data from a sample transcript are recorded on an observation instrument.

Unstructured Notes

A priori categories of data were recorded as unstructured notes. This information included the following: instructional environment, instructional context, anecdotal records, and summary notes.

Instructional environment concerned the number of students in the groups, arrangement of the groups, location of the group, and other information which described the setting of instruction. In addition, the instructional environment included equipment used during instruction, such as tape recorders, overhead projector, chalkboard, charts, and other similar materials. An example of a recording is described thus: Seven students sit around a
table at the back of the classroom. Teacher uses overhead projector to demonstrate lesson.

Instructional context referred to the materials being used for instruction, such as books, workbooks, worksheets, transparencies. An example of a recording follows: Students use books for reading. Teacher uses a transparency to demonstrate a study skill.

The stated purpose and topic of the lesson was also noted. For example, if the teacher said, "Today, we will review the story of Toby and his horse. We are going to write a play about Toby," the topic of the lesson was review; the purpose was to prepare for a writing activity.

Anecdotal records included information that would not be recorded as instructional environment, instructional context, or as structured notes. Purposeful and systematic anecdotal records were recorded during each observation period. Recording spontaneous unexpected behaviors required an open-ended, unstructured format (Cartwright & Cartwright, 1974).

However, descriptions were recorded using clear, concise, and factual language. For example, it would be inappropriate to record such comments as: Teacher favors boys in the discussion of the story. Appropriate recording of the anecdotal note would be: Only boys responded to teacher's questions during discussion of story.
Anecdotal records were evaluated only after all observations for each teacher had been completed. Interpretations of anecdotes were based on patterns of recorded events rather than isolated events.

Summary notes were made immediately after the observation period. These notes were more reflective and subjective than previously recorded unstructured notes. Summary notes included the general reaction of the observer to the session and specific details concerning events which would enable the observer to interpret accurately data gathered during the observation period.

Structured Notes

Priori categories of data were recorded as structured notes. This information included the following: sequence of questions, designation of questions, and frequency of response per question. These details were mapped to illustrate visually questions used by the teacher and responses given by the students (Cartwright & Cartwright, 1974; Ruddell, 1974; Taba, 1965).

In order to map these details, a four by five grid was included on the observation instrument as shown in Figure 4 (p. 60). This grid provided spaces for twenty students in a group. When the number of students in a group exceeded twenty the grid was further divided at the time of the observation period to allow one space per student. Spaces
on the grid were assigned to students in the group in a manner which approximated the student's position within the group setting.

One space in the lower right hand corner of the grid was used for group responses to the teacher's questions. A response was judged to be from the group when two or more students responded simultaneously rather than one individual student. Also, a response was considered to be from the group when the question was directed toward the whole group and the whole group responded.

Sequence of questions was indicated by numbering teacher questions in order of occurrence. The sequence number was recorded in the space which represented the student who responded. If a question was responded to by more than one student individually, it was recorded as a serial response with a letter subscript: $l_a$, $l_b$, and in sequence. If the group responded, it was recorded in the designated space within the grid.

Designation of question referred to which student responded to the teacher's question. Each student was assigned an identification code which included a gender number code and a letter. Male students were coded as 1 plus A, B, C, and so on. Female students were coded as 0 plus A, B, C, and so on. The identification code was recorded in the lower right hand corner of the space which represented that student. The word GROUP was recorded in
the lower right hand corner of the space which represented group responses. Sequence numbers of questions were recorded in the appropriate spaces representing individual student responses or group responses.

**Frequency of response per question** was indicated by the cumulated codings of sequence numbers recorded in all spaces which represented individual students or the group.

At the end of the observation period, the recording process described above indicated the following: which students responded to which questions; which questions were responded to more than one time; and which questions were responded to by the group. In order to clarify further the use of the observation instrument, a sample audiotape transcription shown below was recorded on the observation instrument shown in Figure 5 (p. 68).

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>T</td>
</tr>
</tbody>
</table>

The workbook page we're going to do is on getting the main idea. Now before you do it, I want to go over just a couple of these with you. Okay. Would you read number one silently, please? Then, we'll talk about what the main idea of this is. Can you see it?

You can't see it?

Can ya'll see it now? It's paragraph number one.

(Students read.)

Is everybody through with it? All right, there are three choices for main idea: eating at table, a different
kind of food, and a little boy who eats snails. Think about which one of these could not possibly be the main idea because there's nothing in the sentence about it. Which one is that, Lawana?

C.

T C. There's just no information in the paragraph about that. Okay. The next one. Is there one that it tells about but it doesn't tell enough about? Greg.

S The little boy who eats snails.

T Well, no, it doesn't tell about . . . Now you'd better read again, if you think Jeff eats snails. Does Jeff eat snails in that?

S Uh-huh.

T Little boys can eat snails, but I don't think Jeff is a snail eater. I think he leaves the escargot at home. Tamara?

S Eating at a table.

T Eating at a table. They are eating at a table, so there is information about that in it. But I don't think it tells enough. The main idea of a paragraph is what every bit of it is talking about. What do they want you to get out of the paragraph? Shane.

B.

T Okay. All right, now let's do paragraph two.

(Students read.)

T Now does it tell about peas and cheese for dinner?

G (Various responses.)
Phase II—Collection of Descriptive Data

Data which described students who were included in the groups perceived by teachers as skilled readers and less skilled readers were collected by the observer. Information included in the collection was group placement, gender identity, and reading comprehension score. An explanation of these three items of information is given below.

Group placement was predetermined by the teacher based on his or her perception of the students' reading performance level of the students in each group. Names of students in the skilled and less skilled reading groups were obtained from class records.

Gender identity was recorded for each student in the skilled and less skilled reading groups. Male students were coded as "1" and female students were coded as "0".

Reading comprehension scores of those students in the skilled and less skilled reading performance groups were
Observation Instrument

School: 9  Teacher: A  Obs: 2  Tape: NA  Group: LS  Date: 2-17

Instructional environment: 8 students sit at long tables at one side of the room. Teacher uses blackboard for examples.

Instructional context: Students use workbook sheet exercise to find the main idea of a paragraph.

Anecdotal records:

Two boys who did not respond to any questions were out of their seats 4 times.

Fig. 5--Observation instrument: sample
obtained from the reading comprehension results of the Iowa Test of Basic Skills (ITBS). This standardized test was administered in the spring of 1980. The scores were recorded among official school records and were copied by the observer with permission from the principal. The reading comprehension scores based on a national sample were presented in the students' official records as percentiles. The observer converted these scores to a Normal Curve Equivalency Score (NCE) because percentiles are not the same size. Therefore, they should not be used in arithmetic computations. The NCE scale is a normalized, equal interval scale with a mean of fifty and a standardized deviation of 21.06 (Guidance Teaching Associates, 1977).

Transformation of percentiles to NCE scores permitted the use of the reading comprehension scores for descriptive and t-test statistics for comparison of skill level groups, skilled readers as compared to less skilled readers. The descriptive data described above were recorded by the observer. The form that was used is illustrated in Figure 6 (p. 70).

Phase III--Analysis of Questions

The analysis of questions teachers used while instructing skilled readers as compared to less skilled readers was made to determine differences in cognitive
### Descriptive Data Form

**Date** ___________________ **School #** _______ **Teacher #** _______

**Student Performance Level** Skilled Less Skilled

<table>
<thead>
<tr>
<th>SEX</th>
<th>Spring, 1980 ITBS Reading Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Total:</th>
<th>Total:</th>
<th>Mean:</th>
</tr>
</thead>
</table>

Fig. 6—Descriptive data form
levels of questions, functions of questions, and patterns of questioning.

Cognitive levels and functions of questions were determined on the basis of priori criteria for guidelines. Patterns of questioning were investigated on the basis of a priori data gathered during observation of reading instruction.

Analysis of data collected through observation within the natural setting of the classroom revealed question/response/response loops which consisted of the question posed by the teacher, response given by the student, and the response from the teacher. Analysis of these loops was conducted in the following stages: (1) transcription of audiotape recordings to transcript format; (2) coding of transcript; (3) preparation of data for computer analysis; and (4) statistical analysis using computer programs.

Stage 1--Transcription of Audiotape Recordings to Transcript Form

After each observation of reading instruction the observer transcribed the audiotape recording. The observer listened to the tape and typed the verbal interaction from the reading instruction observation period. A consistent format was maintained throughout the transcript process.
Each set of transcript and audiotape recording was correlated with an identifying code. Use of a code rather than the names of teachers and schools increased the objectivity of the observer during analysis of the data. A number was assigned to the school, a letter was assigned to the teacher, and a number was assigned to the audiotape recording.

Therefore, each transcript and audiotape recording had an identifying code, such as 10S077. The skill level of the group being observed was coded with a "1" for skilled readers and a "2" for less skilled readers. The skill level was recorded at the top of each transcript. A sample transcription of one observation is found in Appendix C.

Stage 2—Coding Transcripts

The process of recording transcripts took place in four steps.

_Identification of questions_ the teacher asked during the observation of reading instruction was the first step. Each transcript was read through by the observer while listening to the audiotape recording. Every question asked by the teacher was underlined.

_Labeling questions_ with the student or group designation code was the second step in the coding process. The observation instrument with the students' responses mapped on the grid was used to identify which student responded to
each question. For example, if a male student, labeled C on the grid, responded to the question on the transcript, the code 1C was used to label the question on the transcript. If a female student, labeled H on the grid, responded to the question, the code OH was used to label the question. If the response was from the group, the question was labeled as G on the transcript. A sample of a mapped grid from one observation is in Appendix B.

Timing two elements of the transcription was the third step in the coding process. The two elements were the length of entire observation and the length of time until student response was begun. A digital stop watch was used to time the seconds and hundredths of a second in timing both the entire observation and the time until student response was begun.

The length of the entire observation was from the time the teacher began the lesson until the lesson was concluded by the teacher. Timing of the entire observation proceeded without interruption except when the teacher left the group to lead another group. In that situation, timing of the entire observation period was segmented only when the teacher assigned silent reading to the group observed. Totals for the length of observations by teacher, by group, and by individual observation periods are displayed in Table II (p. 74).
### TABLE II

**SUMMARY: OBSERVATION TIME OF SKILLED AND LESS SKILLED READERS**

<table>
<thead>
<tr>
<th>Code</th>
<th>Group</th>
<th>Time</th>
<th>Observation Time</th>
<th>Total Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skilled</td>
<td>Less</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1A01</td>
<td></td>
<td></td>
<td>58'59&quot;</td>
<td>43'02&quot;</td>
</tr>
<tr>
<td>2C02</td>
<td></td>
<td></td>
<td>48'47&quot;</td>
<td>63'08&quot;</td>
</tr>
<tr>
<td>2D03</td>
<td></td>
<td></td>
<td>60'30&quot;</td>
<td>66'35&quot;</td>
</tr>
<tr>
<td>2R04</td>
<td></td>
<td></td>
<td>49'09&quot;</td>
<td>38'09&quot;</td>
</tr>
<tr>
<td>3F05</td>
<td></td>
<td></td>
<td>33'45&quot;</td>
<td>22'01&quot;</td>
</tr>
<tr>
<td>3G06</td>
<td></td>
<td></td>
<td>40'20&quot;</td>
<td>77'15&quot;</td>
</tr>
<tr>
<td>3H07</td>
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<td></td>
<td>52'54&quot;</td>
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<tr>
<td>4I08</td>
<td></td>
<td></td>
<td>48'14&quot;</td>
<td>34'19&quot;</td>
</tr>
<tr>
<td>4J09</td>
<td></td>
<td></td>
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<td>65'27&quot;</td>
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<tr>
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<td></td>
<td>62'14&quot;</td>
<td>35'20&quot;</td>
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<td>9U018</td>
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<td></td>
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<td>45'30&quot;</td>
<td>49'37&quot;</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>962'16&quot;</strong></td>
<td><strong>1113'54&quot;</strong></td>
</tr>
</tbody>
</table>

*Skilled level*
Twenty teachers were observed four times each for a total of eighty observations. Individual observation times are shown in sequence of observation. The skill group level varied in sequence according to the individual teacher. Therefore, for each teacher the individual observation of skilled reader groups is indicated on the Table with an asterisk (*). Due to this variation, individual observation times in sequence were not tallied. However, group time for skill levels by teacher and by group were tallied. In addition, total time by teacher was calculated and tallied. The total observation time was 2076 minutes and 10 seconds.

Length of time until student response was begun was determined by listening to the audiotape recordings of observations and by visually following the typed transcripts. The time was recorded in seconds and hundredths of a second. Each result was written beside the underlined question on the transcript.

Timing was begun at the end of the teacher's questions and ended when the student or group began responding to the question. In the event that the teacher's question was repeated without pause for student response, the timing was begun after sequence of questions ended. For example, the teacher asked: "What's the first thing that you do? Did you find that? What's the first thing that you do when you clean a fish?" The timing was begun at the end of the last question because there was no pause or hesitation between
the questions. The timing was ended when the student responded, "You can cut the skin."

Categorization of each question/response/response loop was the fourth step in the coding process. First each question was categorized, then the students' and teachers' responses were categorized. The question/response/response loops were categorized in the following ways: cognitive levels of questions, functions of questions, and patterns of questioning.

Cognitive levels of questions.--The cognitive levels of questions were determined by the observer based on guidelines specified in the Aschner-Gallagher System (1963). The specific categories established by Gallagher and Aschner (1963) were designed to categorize general classroom interaction. The purpose of this study was to classify only teacher's questions. Therefore, the portions of the Aschner-Gallagher System which applied directly to questions were used as criterion for analysis of questions.

Four cognitive levels of questions were derived from Guilford's (1956) structure of the intellect: cognitive-memory, convergent, divergent, and evaluative. Gallagher and Aschner added one category, routine, because of the frequency of occurrences in classroom discourse and lack of application to any of the four cognitive levels of questions. For purposes of clarity, all five categories
were referred to as cognitive levels. Each cognitive level of question is operationally defined and illustrated as follows.

**Cognitive-memory** (CM). A question is judged to be cognitive-memory level as indicated by request for simple reproduction of facts, formulas, and other items of remembered content through recognition, rote memory, or selective recall.

**Convergent** (C). A question is judged to be convergent level as indicated by request for integration of given or remembered content through comprehension, application, and analysis. Convergent level questions lead to expected answers because of the closed framework which limits the responses.

**Divergent** (D). A question is judged to be divergent level as indicated by request for ideas and conclusions generated within a data-poor situation through synthesis which often takes a new direction or perspective. Divergent level questions lead to unplanned answers because of the open-ended framework which does not limit the responses.

**Evaluative** (E). A question is judged to be evaluative level as indicated by request for judgments concerning given or remembered content through evaluation which is based on personal values or given values.
Routine (R). A question is judged to be routine level as indicated by request for procedural information for the purpose of management of the classroom, structuring of class discussion, and approval or disapproval of an idea or a person.

For example, a teacher's questions are classified by cognitive level in the classroom discussion recorded below (Ruddell, 1974, p. 402).

CM Teacher: In our story, what is the little boy's name?
Student: Mark.

C Teacher: What was the reason for Mark's disappointment?
Student: He wanted to go with his father, but there wasn't any room.

C Teacher: Why wasn't there any room?
Student: The car was full of junk.

C Teacher: Was there any other reason there wasn't any room?
Student: Another man was going with his father.

D Teacher: What ways can you think of that Mark might have persuaded his father to take him anyway?
Student: He could have begged.
Student: He could try talking to his dad about it.

E Teacher: Do you think Mark had a good attitude about his father leaving him?
Student: No, I think he should not have asked to go.
Student: Well, I think he had every right to go. I don't blame him for feeling hurt.

Teacher: Okay, you can each write about your own ideas concerning Mark. Now, does everyone have a worksheet?

**Functions of questions.**—The functions of questions were determined by the observer using the guidelines specified by Taba (1964) and Ruddell (1974). Decisions concerning functions were based on observable patterns as perceived by the observer and recorded in observation notes, audiotape recordings, and transcripts (Boehm & Weinberg, 1977). This multidimensional approach to data gathering facilitated the context in which the questions occurred. There was no attempt to attain input from the teacher concerning the intention of the questions.

Therefore, the function was decided by the observable effect of the question within the context of the reading lesson rather than a specified intention as stated by the teacher. Categories of function included these: focusing, extending, lifting, clarifying, and controlling. The following criterion was used to categorize equations by function.

**Focusing (F).** Focusing is the function of questioning as indicated by questions which center the discussion on a topic, initiate a discussion, or set a cognitive task (Taba, 1965). Refocusing and changing the focus are
functions of questioning as indicated by questions which
direct the discussion back to the original topic, or shift
the discussion to another subject matter.

Extending (EX). Extending is the function of
questioning as indicated by questions which elicit
additional information or elaboration on the same subject
matter at the same cognitive level.

Lifting (L). Lifting is the function of questioning
as indicated by questions which raise the cognitive level
of thought to a higher cognitive level than was previously
established.

Clarifying (CL). Clarifying is the function of
questioning as indicated by questions which redefine
previously given information. Clarification differs from
extension as a function in that a review of previously
stated information is required; whereas, additional
information is required when extension is the function of
the question (Ruddell, 1974).

Controlling (CO). Controlling is the function of
questioning as indicated by questions which inhibit student
response. Questions which do not require an answer or
which the teacher answers for the student, represent
questioning used for control. In addition, the function
is considered controlling if the teacher is seeking to
manage the classroom by using questions.
For example, teacher's questions are classified by function in the classroom discussion recorded below (Hyman, 1979, p. 42).

Teacher: Now that it's spring again and our minds turn to the outdoors, let's tie in our study of machines with a popular vehicle, the bike. Can someone name the parts of a bicycle?

Student: The wheel and chain.

Student: Brake, seat, handlebars, fender.

Teacher: We've got six so far. What else?

Student: Spokes, tire, inner tube, bell . . .

Teacher: That gives us ten which I've listed on the board. In order now, what's the purpose of the wheel?

Student: To go 'round and make you go forward.

Teacher: The chain?

Student: To get the wheel to move. It connects the pedal to the wheel.

Teacher: Who can remember what was said about the chain?

Student: To move the wheel.

Teacher: Okay, we've talked about some of the parts of a bicycle and how they are used. Now, would you like to read a story about an unusual bicycle?

I like bicycles, don't you?

Patterns of questioning—Patterns of questioning were investigated through analyses of question/response/response loops as recorded in observation notes, audiotape recordings, and transcripts. A Coding Key as shown in
Figure 7 (pp. 92 and 93) was devised to record classification status of each question/response/response loop.

Elements of patterns which related to questions included sequence, wait-time, and content. Patterns of questioning which related to responses included the appropriateness, type, and length of students’ responses and the content of teachers’ responses. A description of the coding criterion is given below.

**Sequence of questions.** The sequence of questions teachers asked during reading instruction was recorded in numerical order for each observation period. The sequence number of questions proceeded in consecutive order with the following exception.

If a question was repeated as it was directed to more than one individual student or if the repeating of the question was implied as evidenced by more than one student responding to the question, the number of the question was retained throughout the series. The lower case numbers, a, b, c, and so on, were added to the numeral to indicate the sequence of response by more than one student.

When a question was repeated as described the cognitive level and function categories remained the same. However, the response number proceeded in consecutive order and all other information related to that question/response/response loop changed to fit that particular loop. Only
the question number and categories of cognitive level and function remained the same.

Wait-time for the question. The wait-time for the question referred to how quickly the questions and responses progressed throughout each observed reading instruction period. Calculations of time until the student's or group's response was begun were recorded next to the respondent on the transcript.

Content of the question. The content of the question related to patterns of questioning as identification of the basic substance or subject matter of the question. Seven mutually exclusive categories of content emerged as a result of question analysis. Each category was assigned a numerical code for the purpose of computer analysis. These categories are described below.

Management of classroom, coded as a "0", referred to those questions which were used to regulate, monitor, or control the direction of the class or group as a whole or of an individual student within the class or group.

Comprehension of connected prose, coded as a "1", referred to those questions which related to understanding the meaning of written or spoken language that was in sentence or paragraph form.

Practicing reading skills, coded as a "2", referred to those questions which related to understanding vocabulary
meaning, phonics, or structural analysis of individual words or phrases.

**Practicing reference skills**, coded as a "3", referred to those questions which related to understanding alphabetic order; reading maps, graphs, or tables; and using encyclopedias or dictionaries.

**Using grammar exercises**, coded as a "4", referred to those questions which related to using correct capitalization, punctuation, or parts of speech.

**Using spelling exercises**, coded as a "5", referred to those questions which related to using correct spelling of words in written language.

**Referring to personal experience**, coded as a "6", referred to those questions used to elicit information from the student or group which was not dependent on the comprehension of connected prose in order to respond. Instead, the content of the question required information from personal experience, opinion, or knowledge.

**Practice of comprehension skills**, coded as a "7", referred to those questions which required an understanding of fact and opinion, figures of speech, outlining, or using context to gain meaning from connected prose.

**Students' response.** Patterns of questioning which are related to students' responses included three variables: appropriateness of response, type of response, and length of
response. These variables are described in the following discussion.

**Appropriateness of response** referred to the manner in which the student's response related to the question.

There were eleven mutually exclusive categories of appropriateness which emerged as a result of response analysis. Each category was assigned a numerical code for the purpose of computer analysis.

The code, "0", indicated **no response**. The student or group did not answer the question. The category, no response, was recorded only if there was no apparent confusion from the student or group.

The code, "1", indicated **correct response**. The answer to the question was correct and on the subject of the question.

The code, "2", indicated **incorrect response**. The answer to the question was incorrect but it was on the subject of the question.

The code, "3", indicated **related response**. The answer to the question was neither correct nor incorrect, but it was on the subject of the question.

The code, "4", indicated **unrelated response**. The answer to the question was neither correct nor incorrect, and it was not on the subject of the question.

The code, "5", indicated **various responses**. Different answers from more than one student were given
simultaneously so that one individual response could not be distinguished.

The code, "6", indicated follows teacher's directions. The student or group answered the question by following directions without a verbal response.

The code, "7", indicated a "yes" or "no" response. The answer to questions classified as cognitive-memory, convergent, or evaluative was only a "yes" or a "no" without any further comment.

The code, "8", indicated an asks for clarification response. The answer to the question was a request for more information for the purpose of clarifying the question itself.

The code, "9", indicated a doesn't know response. The answer to the question was a specific statement, "I don't know."

The code, "10", indicated apparent confusion response. The answer to the question was not given because the student or group appeared to be confused about the question itself. Apparent confusion was evidenced by observable behaviors, such as non-verbal expressions or gestures, or verbally commenting to one another in an apparent effort to understand the question.

Type of response referred to the source of information used in answering the question. There were six mutually exclusive categories of type which emerged as a result of
response analysis. Each category was assigned a numerical code for the purpose of computer analysis.

The code, "0", indicated no response. No response was given to the question.

The code, "1", indicated self. The source of information used in answering the question was the student or group of students without the use of reading material.

The code, "2", indicated oral reading of connected prose. The source of information used in answering the question was connected prose read from a basal or a duplicated reading sheet.

The code, "3", indicated oral reading of words or phrases. The source of information used in answering the question was from words or phrases read from a basal reader, workbook, duplicated sheet, overhead projection, chalkboard, or poster.

The code, "4", indicated oral reading of prepared answers. The source of information used in answering the question was from answers prepared by the student prior to the reading instruction lesson.

The code, "5", indicated marking of answers. The source of information used in answering the question was from words, phrases, or sentences marked on the chalkboard or overhead projection. The student marked the response with chalk or pen rather than responding verbally.
Length of response referred to the number of words or sentences the student or group used to answer the question. There were eleven mutually exclusive categories of length which emerged as a result of response analysis. Each category was assigned a numerical code for the purpose of computer analysis.

The code, "0", indicated no response. No response was given to the question.

The code, "1", indicated one word response. The question was answered using only one word.

The code, "2", indicated two or more words response. The question was answered using two or more words.

The code, "3", indicated one complete sentence response. The question was answered using one complete sentence. A sentence was defined as "the largest linguistic unit, composed of at least one subject and its predicate" (Harris & Hodges, 1981, p. 291).

The code, "4", indicated two or more complete sentences response. The question was answered using two or more complete sentences.

The code, "5", indicated a non-verbal response. The question was answered using a non-verbal behavior. Movement of the head, raising the hand, marking on the board without speaking, or following the teacher's directions without speaking were examples of the non-verbal response category.
The code, "6", indicated spelling of a word response. The question was answered using the spelling of a word only.

Teachers' responses. Finally, the patterns of questioning which related to the content of the teachers' responses to the students' answers were analyzed. There were thirteen categories of content which emerged from the analysis of responses. Each category was assigned a numerical code for the purpose of computer analysis.

The code, "0", indicated no response. The teacher did not respond verbally to the student's answer.

The code, "1", indicated accepts with comment. The teacher acknowledged as correct or appropriate a student's answer. Included in this acknowledgement was a comment of affirmation of more than one word, a comment that was related to the student's answer, or a restatement of the student's answer.

The code, "2", indicated accepts without comment. The teacher acknowledged as correct or appropriate a student's answer. However, acknowledgement included only a one-word response or non-verbal gesture of acceptance of the student's answer.

The code, "3", indicated rejects with comment. The teacher did not acknowledge as correct or appropriate a student's answer. Included in this rejection was a comment of more than one word relating to the student's answer, a correction of the student's answer, or a restatement of the
student's answer in a manner that communicated that the answer was incorrect or inappropriate.

The code, "4", indicated rejects without comment. The teacher did not acknowledge as correct or appropriate a student's answer. However, rejection included only a one-word response or non-verbal gesture of rejection of the student's answer.

The code, "5", indicated answers question. The teacher answered the question for the student.

The code, "6", indicated responds to request for clarification. The teacher responded to the student's request for clarification of information pertaining to the question itself.

The code, "7", indicated apparent confusion. The teacher appeared to be confused about the answer to the question. Apparent confusion was evidenced by observable behaviors, such as, non-verbal expressions and gestures, or verbally commenting to oneself or others in an apparent effort to understand the student's answer.

The code, "8", indicated interrupts student's answer. The teacher interrupted the student's answer to the question with a comment, inhibiting the student from completing the answer.

The code, "9", indicated ignores student's answer. The teacher ignored the student's answer to the question by not acknowledging the response verbally or non-verbally.
The code, "10", indicated directs same question to another student. The teacher directed the same question to another student by repeating the question or by implying the repetition of the question using non-verbal gestures, or verbal cues of one or two words.

The code, "11", indicated directs same question to the same student. The teacher directed the same question to the same student by repeating the question or by implying the repetition of the question using non-verbal gestures, or verbal cues of one or two words.

The code, "12", indicated slices same question for clarification. The teacher reduced the complexity of the question by slicing the question in order to clarify the question or to encourage the student to respond. "Slicing" was accomplished in two ways: "recast the question, asking for a smaller part . . . , or change the task from a recall to a recognition mode by offering alternatives from which to select" (Pearson & Johnson, 1972, p. 185).

A Coding Key, shown in Figure 7 (pp. 92 and 93), was devised by the observer as a means of maintaining consistent objectivity throughout the analysis of data. This Coding Key was used in conjunction with the audiotape recording and the observation instrument throughout the coding process to ensure accuracy, consistency, and thoroughness.
CODING KEY

**DESCRIPTIVE:**

<table>
<thead>
<tr>
<th>School</th>
<th>1-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>1-20</td>
</tr>
<tr>
<td>Skill level of group</td>
<td></td>
</tr>
<tr>
<td>1 - Skilled</td>
<td></td>
</tr>
<tr>
<td>2 - Less Skilled</td>
<td></td>
</tr>
<tr>
<td>Observation number</td>
<td>1-4</td>
</tr>
<tr>
<td>Question number</td>
<td></td>
</tr>
<tr>
<td>Response number</td>
<td></td>
</tr>
</tbody>
</table>

**Sex**

| 1 - Male |
| 0 - Female |
| 3 - Male and Female in Group |

**Student identification**

| 1-17 - Individuals |
| 00 - Group |

**QUESTIONS:**

<table>
<thead>
<tr>
<th>Cognitive Level</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Cognitive memory (CM)</td>
<td>6 - Focusing (F)</td>
</tr>
<tr>
<td>2 - Convergent (C)</td>
<td>7 - Extending (EX)</td>
</tr>
<tr>
<td>3 - Divergent (D)</td>
<td>8 - Lifting (L)</td>
</tr>
<tr>
<td>4 - Evaluative (E)</td>
<td>9 - Clarifying (CL)</td>
</tr>
<tr>
<td>5 - Routine (R)</td>
<td>10 - Controlling (CCN)</td>
</tr>
</tbody>
</table>

**Content of Questions**

0 - Management of classroom
1 - Comprehension of connected prose
2 - Reading skill - vocabulary, phonics, structural analysis
3 - Reference skill - alphabetical order, map skills, graphs
4 - Grammar exercise - includes capitalization and punctuation
5 - Spelling exercise
6 - Personal experience or opinion or knowledge
7 - Comprehension skill - practice - fact and opinion, figure of speech, outlining, using context

**RESPONSES:**

**Student's Response**

<table>
<thead>
<tr>
<th>Appropriateness of response</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - no response</td>
</tr>
<tr>
<td>1 - correct, on subject</td>
</tr>
<tr>
<td>2 - incorrect, on subject</td>
</tr>
<tr>
<td>3 - related, neither correct nor incorrect</td>
</tr>
<tr>
<td>4 - unrelated, neither correct nor incorrect</td>
</tr>
<tr>
<td>5 - various responses from group</td>
</tr>
<tr>
<td>6 - follows teacher's directions</td>
</tr>
<tr>
<td>7 - yes or no to cognitive levels: 1, 2, 3, or 4</td>
</tr>
<tr>
<td>8 - asks for clarification</td>
</tr>
<tr>
<td>9 - says - &quot;I don't know&quot;</td>
</tr>
<tr>
<td>10 - apparent confusion</td>
</tr>
</tbody>
</table>

Fig. 7--Coding key for questions and responses
RESPONSES (continued)

Student's Response (continued)

<table>
<thead>
<tr>
<th>Type of response</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - no response</td>
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<tr>
<td>1 - self</td>
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<tr>
<td>2 - oral reading - connected prose in basal, ditto sheet</td>
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<tr>
<td>3 - oral reading - words or phrases from basal, ditto sheet, workbook, overhead, board, poster</td>
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<tr>
<td>4 - oral reading - student prepared answer</td>
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<tr>
<td>5 - student marks on board or overhead</td>
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Length of response

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<tr>
<th>Length of response</th>
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<th>5</th>
<th>6</th>
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</thead>
<tbody>
<tr>
<td>0 - no response</td>
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<td>1 - one word</td>
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<tr>
<td>2 - two or more words</td>
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<td>3 - one complete sentence</td>
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<td>4 - two or more complete sentences</td>
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<td>5 - non-verbal only</td>
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<td>6 - spells word or words</td>
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Teacher's Response

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<thead>
<tr>
<th>Content of response</th>
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<th>6</th>
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<th>9</th>
<th>10</th>
<th>11</th>
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<tbody>
<tr>
<td>0 - no response</td>
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<td>1 - accepts with comment - includes repeating answer</td>
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<td>2 - accepts without comment</td>
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<td>3 - rejects with comment</td>
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<td>4 - rejects without comment</td>
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<td>5 - answers question for student(s)</td>
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<td>6 - responds to student's request for clarification</td>
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<td>7 - apparent confusion</td>
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<td>8 - interrupts student's answer with comment</td>
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<td>9 - ignores student's answer</td>
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<td>10 - directs same question to another student</td>
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<td>11 - directs same question to same student</td>
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<tr>
<td>12 - slices same question for clarification</td>
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Fig. 7—Continued
Stage 3--Preparation of Data for Computer Analysis

All data were prepared for computer analysis by first assigning a code to all categories of every variable for each question/response/response loop. The coding key shown in Figure 7 (pp. 92 and 93) was used by the observer throughout the coding process.

Variables identified in each loop related to the descriptive information: school, teacher, observation period, skill level, question number, response number, and gender and identification code of student. Variables for statistical analysis were cognitive level of questions and functions of questions. Finally, variables related to patterns of questioning for descriptive analysis were sequence, wait-time, and content of questions; the appropriateness, type, and length of the student's responses; and the content of the teacher's responses.

The coded variables were transferred to keypunch worksheets for card processing. One card for each question/response/response loop was punched. Data information was then transferred to a floppy-disk for computer analysis.

Stage 4--Statistical Analysis of Data

There were two computer programs used to analyze the data statistically: Statistical Package for the Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) and BMDP Statistical Software, 1981 (BMDP) (Dixon, 1981).
Questions used by teachers during two student performance levels, skilled and less skilled, were observed and recorded. In order to test for significant differences between the two performance level groups at the .05 level, t-test for independent samples was implemented. The two variables which were tested were the performance level, skilled and less skilled, and reading comprehension level, as determined by ITBS reading comprehension scores.

The data related to cognitive level of questions, functions of questions, and patterns of questioning were analyzed using chi-square, log-linear analysis, and descriptive statistics. Significant differences were determined at the .05 level. The specific research questions were treated in the following manner.

Research question 1.—"Is there a significant difference in the cognitive level of questions teachers use while instructing skilled readers as compared to less skilled readers?" was analyzed using a chi-square statistic because the variables were discrete and data were recorded by frequency distribution.

Research question 2.—"Is there a significant difference in the functions of questions teachers use while instructing skilled readers as compared to less skilled readers?" was analyzed using a chi-square statistic because
the variables are discrete and data were recorded by frequency distribution.

Research question 3.--"Is there a significant difference in the interaction between cognitive level and function of questions teachers use while instructing skilled readers as compared to less skilled readers?" was analyzed using a log-linear analysis because the variables are discrete.

Research question 4.--"Are there differences in the patterns of questioning teachers use while instructing skilled and less skilled readers? If so, what are those patterns of questioning?" This question was analyzed and reported using descriptive statistics.

Validation of Coding Criteria

The validity of the observational data was established according to the guidelines suggested by Medley and Mitzel (1963, p. 250). They state that validity of measurements depends on 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.
(3) The records must be scored so as to accurately reflect differences in behavior.

Provisions were made for the fulfillment of those guidelines. First, the sample observed was randomly selected from a population of sixth grade teachers who taught reading. The observation period of 2076 minutes and
10 seconds revealed 5146 question/response/response loops which were analyzed for differences in the questions used by teachers while instructing skilled readers as compared to less skilled readers. Secondly, an accurate record of observed behaviors was accomplished through a multidimensional approach to data collection. This approach included the use of an observational instrument, audiotape recordings, and school records. Finally, specific guidelines for recording data and classifying questions were clearly defined and followed throughout the study.

In order to obtain reliable observational data, precise unambiguous specifications concerning the focus of the observation are prerequisite (Boehm & Weinberg, 1977). The purpose of this observational study was clearly defined as to determine the extent to which teachers use different questions during reading instruction for skilled and less skilled readers. Specifically, this study identified observable differences in the cognitive levels of questions, functions of questions, and patterns of questioning teachers used while instructing skilled readers as compared to less skilled readers.

Provision was made for the establishment of reliability of the observer in classifying questions by cognitive level and function. Two persons were employed by the observer to establish reliability of question classification by cognitive level and function.
Person "A" is an authority in the area of question classification by cognitive level and function. Person "B" is an experienced teacher who is familiar with question classification. Persons "A" and "B" were provided with detailed guidelines for classification of questions by cognitive level and function and transcribed scripts of reading instruction. The transcriptions were from observations made by the observer prior to the beginning of the study. There were eighty-four questions marked on the three observation transcripts. Each question was classified by cognitive level and function. Therefore, there were 168 total response codings to the classification of the questions.

Codings from Person "A" were used to establish the criteria for classifying the questions. The codings of Person "B" and the observer were used to calculate the rate of coder agreement as proposed by Good and Brophy (1973). The following formula was used:

Step 1—Establish the number of coding decisions that were made.

Step 2—Compute the percentages of these decisions upon which the two coders agreed (p. 59).

Reliability was checked before data analysis was begun. An acceptable rate of coder agreement was predetermined to be .95. Analysis of codings from Person "B" and the observer indicated a .8512 rate of coder agreement.
Therefore, reliability of question classification by the observer was accepted as appropriate.

Summary of Data Treatment

The data were organized throughout the study in order to compare questions teachers used while instructing skilled readers as compared to less skilled readers. The following conceptual framework shown in Figure 8 (p. 100) illustrates the statistical treatment of the data.

The two-by-five tables illustrate the comparison of cognitive level of questions between reading skill levels and functions of questions between reading skill levels. The three-way table illustrates the interaction of function of question, cognitive level of questions, and reading skill levels.

Limitations of the Study

The study was limited by the reliability of the observer as an objective, consistent, and thorough collector and analyzer of the data. The study was further limited by the validity of the observation instrument and the classification systems used to categorize the teacher's questions according to cognitive level and function.

The study was also limited by the effect of an observer in the classroom. There was no attempt to elicit from the teacher an intended function for each question. Therefore, function classifications were based on the observable effect
### Cognitive Level

<table>
<thead>
<tr>
<th></th>
<th>CM</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less Skilled</td>
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</tbody>
</table>

### Function

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>EX</th>
<th>L</th>
<th>CL</th>
<th>CON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled</td>
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<tr>
<td>Less Skilled</td>
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</tbody>
</table>

### Interaction

<table>
<thead>
<tr>
<th>Function</th>
<th>Cognitive Level</th>
<th>Skilled</th>
<th>Less Skilled</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Fig. 8—Conceptual framework for data analysis
of each question as indicated by the context of the inter-
action.
CHAPTER REFERENCES


CHAPTER IV

ANALYSIS OF DATA

Introduction to Analysis of Data

The purpose of this study was to determine the extent to which teachers use different questioning procedures during reading instruction for skilled and less skilled readers. Specifically, the study investigated the observable differences in the cognitive level of questions, the functions of questions, and the patterns of questioning teachers used while instructing skilled readers as compared to less skilled readers.

Results of data analysis include comparison of students in reading levels in terms of composition and reading comprehension performance. The analyses of cognitive level of questions and functions of questions between the reading levels using the chi-square statistic are presented. Interaction of cognitive level and function of questions between reading levels using log-linear analysis is reported. Finally, descriptive statistics are implemented to compare patterns of questioning used with skilled readers and less skilled readers. These patterns include elements of instructional environment and context of reading. 

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instruction; content, wait-time, designation, and sequence of questions; appropriateness, type, and length of students' responses; and content of teachers' responses.

Reading Levels

Composition of Reading Groups

There was no attempt by the observer to select students for the two observed reading levels, skilled readers and less skilled readers. The observed reading levels were pre-established by the teacher on the basis of the teacher's perception of the student's reading performance level. In addition, there was no attempt by the observer to alter the number of students in the reading level groups. Group membership varied in number by teacher from four to twenty-seven with a mean of fourteen for skilled readers and from three to twenty-five with a mean of eight for less skilled readers.

The population of skilled reading level is 124 male students and 167 female students totaling 291 students. The population of less skilled reading level is 102 male students and 59 female students totaling 161 students. The total number of students between both reading levels is 452. Although there is an equal number of male and female students between levels, 226 each, there are twice as many female students in the skilled level as there are in the less skilled level. In addition, there are almost twice as
many male students as female students in the less skilled reading level. Throughout the observation time there were no occasions when students participated in both skilled and less skilled reading level groups. Therefore, group membership was mutually exclusive.

As shown in Table III, 167 female students are in the skilled reading level as compared to 59 female students in the less skilled reading level, whereas 124 male students are in the skilled reading level as compared to 102 male students in the less skilled reading level. When comparing less skilled readers to skilled readers, the ratio of female students is 2.82 to 1, and for male students the ratio is 1.22 to 1.

<table>
<thead>
<tr>
<th>TABLE III</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBSERVED FREQUENCIES OF GROUP MEMBERSHIP BY LEVEL AND GENDER</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Level</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Skilled</td>
<td>Less Skilled</td>
</tr>
<tr>
<td>Female</td>
<td>167</td>
<td>59</td>
</tr>
<tr>
<td>Male</td>
<td>124</td>
<td>102</td>
</tr>
<tr>
<td>Total</td>
<td>291</td>
<td>161</td>
</tr>
</tbody>
</table>
Within reading levels 167 female students are in the skilled reading level as compared to 124 male students. However, 59 female students are in the less skilled reading level as compared to 102 male students. When comparing students by gender within reading levels the ratio of male to female students within the skilled reading level is 1 to 1.35, whereas the ratio of male to female students within the less skilled reading level is 1.73 to 1.

Among all reading level and gender categories less skilled female, 59, accounts for the least number of students. In the skilled female category, 167, accounts for the greatest number of students. Finally, the skilled male and less skilled male categories account for 124 and 102 of the total number of students in both reading levels.

Reading Comprehension Levels

The reading comprehension score on the Iowa Test of Basic Skills (ITBS) was obtained from school records by the observer for each student in the two reading levels and used to statistically compare the students in the two reading performance levels, skilled readers and less skilled readers. Since not all students had taken the ITBS test, scores were not available for all students. Therefore, the t-test for independent samples is based on 88.7 per cent of
the skilled reading level students and 78.9 per cent of the less skilled reading level students. Scores for 85.2 per cent of the students in the study were used in the t-test for independent samples.

Reading comprehension scores from the ITBS are recorded as percentiles. These scores are converted to a Normal Curve Equivalency Score (NCE) in order to perform the mathematical computations in a t-test for independent samples. The NCE scale is a normalized, equal interval scale with a mean of fifty and a standard deviation of 21.06 (Guidance Testing Associates, 1977). Computed means and standard deviations for skilled and less skilled reading levels indicate a significant difference in the reading performance level of the two reading levels.

Figure 9 (p. 109) shows the mean for 258 skilled readers is 45.7880 with a standard deviation of 19.341. The mean for 127 less skilled readers is 17.1528 with a standard deviation of 14.954. Since the number of cases is unequal and the assumption of homogeneity of variance has been violated, a separate variance estimate was used to compute the t-test for independent samples. The t-value is 15.98 with 314.41 degrees of freedom. Therefore, the two reading levels are significantly different at the .001 level, two tailed.

This t-test is conservative with respect to committing Type-1 errors because the larger N is paired with the larger
variance. "The true probability of a Type-1 error is always less than the normal probability when the larger N and larger variance are paired" (Hopkins & Glass, 1978, p. 257).

<table>
<thead>
<tr>
<th>Reading Level</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Separate Variance Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled</td>
<td>258</td>
<td>45.7880</td>
<td>19.341</td>
<td></td>
</tr>
<tr>
<td>Less Skilled</td>
<td>127</td>
<td>17.1528</td>
<td>14.954</td>
<td>15.98*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>314.41</td>
</tr>
</tbody>
</table>

* p < .001, two-tailed

Fig. 9—t-test for independent samples for skilled and less skilled reading levels.

In summary, it is concluded that the two reading levels are significantly different based on reading comprehension scores from the ITBS. Reading comprehension scores were available for 88.2 per cent of the students in the two skill groups. Since the t-test for independent samples is used to examine differences between random samples from two different populations the absence of some of the reading comprehension scores does not effect the outcome of the test (Roscoe, 1975, pp. 217-218).

The population of the two reading level groups is unevenly divided between genders with 226 males and 226 females. However, the population of the two reading level groups differs within by gender. There are 291 students in
the skilled reading level group and 161 students in the less skilled reading level group.

The larger size of the skilled level group was a consistent characteristic among all twenty teachers who were observed. In addition, there was a consistent pattern of more males in the less skilled reading level group and more females in the skilled reading level group among all twenty teachers.

Cognitive Level of Questions

Description of Analysis

The observer analyzed the cognitive level of questions teachers used during reading instruction. Categories established by Gallagher and Aschner (1963) were used to classify questions originating from the teacher while instructing skilled readers and less skilled readers.

The questions occurred during verbal interaction between teacher and students within the natural setting of the classroom. There was no attempt by the observer to manipulate the level of interaction. Questions identified for analysis were from the observation notes, audiotape recordings, and transcriptions obtained by the observer.

Discrete and independent categories of cognitive levels are cognitive-memory (CM), convergent (C), divergent (D), evaluative (E), and routine (R). The research question, "Is there a significant difference in the cognitive level
of questions teachers use with skilled readers as compared to less skilled readers?" was addressed by means of a contingency table and the chi-square statistic.

The following report begins with the distribution of cognitive level of questions among all categories, within categories, and between categories for skilled and less skilled reading levels using percentages from the contingency table, shown in Table IV (p. 112). Finally, statistical analysis of the data is reported using the chi-square statistic.

**Description of Frequencies**

Distribution of the cognitive level of questions by level is shown in Table IV (p. 112). Analysis of the data reveals that 2303 question/response/response loops occurred while instructing skilled readers as compared to 2843 question/response/response loops which occurred while instructing less skilled readers. The total number of question/response/response loops is 5146 which is distributed between skilled readers, 44.8 per cent, and less skilled readers, 55.2 per cent.

The most frequently occurring category of cognitive level among all categories is cognitive-memory (CM) which accounts for 47.8 per cent of the total number of questions. The convergent (C) level of questions accounts for 32.9 per cent of the total questions. The next most frequently
### TABLE IV
CONTINGENCY TABLE: COGNITIVE LEVEL OF QUESTIONS FOR SKILLED AND LESS SKILLED READERS

<table>
<thead>
<tr>
<th>Cognitive Level</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive-memory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM</td>
<td>a 967</td>
<td>1493</td>
<td>2460</td>
</tr>
<tr>
<td></td>
<td>b 39.3</td>
<td>60.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c 42.0</td>
<td>52.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d 18.8</td>
<td>29.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(16)</td>
<td>(13)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1493</td>
<td>47.8</td>
<td></td>
</tr>
<tr>
<td>Convergent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>864</td>
<td>829</td>
<td>1693</td>
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<tr>
<td></td>
<td>51.0</td>
<td>49.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>37.5</td>
<td>29.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16.8</td>
<td>16.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(15)</td>
<td>(12)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>32.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divergent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>97</td>
<td>113</td>
<td>210</td>
</tr>
<tr>
<td></td>
<td>46.2</td>
<td>53.8</td>
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<tr>
<td></td>
<td>4.2</td>
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</tr>
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<tr>
<td></td>
<td>(.095)</td>
<td>(.078)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>48</td>
<td>42</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>53.3</td>
<td>46.7</td>
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<tr>
<td></td>
<td>2.1</td>
<td>1.5</td>
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<td></td>
<td>0.9</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.6)</td>
<td>(1.3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>327</td>
<td>366</td>
<td>693</td>
</tr>
<tr>
<td></td>
<td>47.2</td>
<td>52.8</td>
<td></td>
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<tr>
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<td>14.2</td>
<td>12.9</td>
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<tr>
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<td>6.4</td>
<td>7.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.9)</td>
<td>(.8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13.5</td>
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<td></td>
</tr>
<tr>
<td>Totals</td>
<td>2303</td>
<td>2843</td>
<td>5146</td>
</tr>
<tr>
<td></td>
<td>44.8</td>
<td>55.2</td>
<td></td>
</tr>
</tbody>
</table>

Key:  
a = observed frequency  
b = row per cent  
c = column per cent  
d = total per cent
occurring cognitive level question is routine (R) which accounts for 13.5 per cent of the total number of questions. The divergent (D) level of questions appears in 4.1 per cent of the total number of questions. Finally, the least frequently occurring cognitive level of questions among all categories is evaluative (E) which accounts for 1.7 per cent of the total number of categories. Among all categories of cognitive levels, skilled and less skilled, less skilled reading level accounts for the greater percentage of question/response/response loops as compared to the skilled reading level.

When comparing column per cents within reading levels by cognitive level, skilled reading level accounts for a greater percentage in the convergent, divergent, evaluative, and routine categories of cognitive levels. Skilled reading level in the convergent (C) category is 17.5 per cent as compared to 29.2 per cent in less skilled reading level. Skilled reading level in the divergent (D) category is 4.2 per cent as compared to 4.0 per cent in the less skilled reading level. Skilled reading level in the evaluative (E) category is 2.1 per cent as compared to 1.5 per cent in the less skilled reading level. Finally, skilled reading level in the routine (R) category is 14.2 per cent as compared to 12.9 per cent in the less skilled reading level.

However, when comparing column per cent within reading levels by cognitive level, the less skilled reading level
accounts for a greater percentage of questions in the
cognitive-memory (CM) level. In this category 52.5 per cent
of the questions are in the less skilled reading level as
compared to 42.0 per cent in the skilled reading level.
Distribution by percentages within reading levels is illus-
trated in Figure 10.

Levels: Skilled

Less

Skilled

Fig. 10--Line graph of cognitive level of questions
within skilled and less skilled reading levels.
When comparing row per cents between reading levels by cognitive level, skilled reading level accounts for a greater percentage of the questions in the convergent and evaluative categories of cognitive levels. Skilled reading level in the convergent (C) category is 51.0 per cent as compared to 49.0 per cent in the less skilled reading level. Skilled reading level in the evaluative (E) category is 53.3 per cent as compared to 46.7 per cent in the less skilled reading level.

However, when comparing row per cents between reading levels by cognitive level, less skilled reading accounts for a greater percentage of the questions in the cognitive-memory, divergent, and routine categories of cognitive levels. Less skilled reading level in the cognitive-memory (C) category is 60.7 per cent as compared to 39.3 per cent in the skilled reading level. Less skilled reading level in the divergent (D) category is 53.8 per cent as compared to 46.2 per cent in the skilled reading level. Finally, less skilled reading level in the routine (R) category is 52.8 per cent as compared to 47.2 per cent in the skilled reading level. The bar graph in Figure 11 (p. 116) illustrates the similarities and differences in distribution of questions between reading levels for cognitive level of questions.
Fig. 11—Bar graph of cognitive levels of questions between skilled and less skilled reading levels.
The chi-square test of significance was used with nominal level variables, reading level and cognitive level of questions, to determine whether there was a systematic relationship between the variables. Obtaining a chi-square of 61.01373 with four degrees of freedom indicated a .0001 level of significance. Based on a predetermined .05 level of acceptance, the computed chi-square is considered statistically significant.

The analysis of the contingency table of cognitive levels of questions by reading level reveals a significant difference in the cognitive level of questions teachers use while instructing skilled readers as compared to less skilled readers. When considering the total number of questions used by teachers with both skilled and less skilled readers, more questions are asked at the cognitive-memory and convergent levels than the divergent, evaluative, and routine levels. The cognitive-memory and convergent levels of questions account for 80.7 per cent of the questions teachers use with skilled and less skilled readers.

Divergent and evaluative levels account for only 5.8 per cent of the questions teachers use with skilled and less skilled readers. However, routine level accounts for 13.5 per cent of the questions teachers use with
skilled and less skilled readers. Therefore, teachers use routine level questions more than twice as often as divergent and evaluative level questions with both skilled and less skilled readers.

Within reading levels the distribution of cognitive levels by reading level varies. Skilled reading level cognitive-memory and convergent levels are more evenly distributed, 42.0 and 37.5, as compared to less skilled reading level, 52.5 and 29.2. There is a 4.5 per cent discrepancy when comparing cognitive-memory and convergent levels of questions within skilled reading. However, there is a 23.3 per cent discrepancy when comparing cognitive-memory and convergent levels of questions within less skilled reading level. Therefore, teachers use cognitive-memory level questions over five times as often with less skilled readers as with skilled readers.

Finally, there is little variation in the distribution of divergent, evaluative, and routine levels of questions within skilled and less skilled reading levels. The distribution of divergent, evaluative, and routine levels of questions within the skilled reading level, 4.2, 2.1, and 14.2, is slightly different as compared to the distribution of divergent, evaluative, and routine levels of questions within the less skilled reading level, 4.0, 1.5, and 12.9.

Therefore, it would appear that knowledge of the cognitive level of questions does significantly discriminate
the reading skill level since there is a significant
difference in the cognitive level of questions teachers use
while instructing skilled as compared to less skilled
readers. Furthermore, results indicate that the greater
variation in difference between the two skill level groups
occurs at the cognitive-memory and convergent levels of
questions.

Function of Questions

Description of Analysis

The observer analyzed the functions of questions
teachers used during reading instruction. Criteria for
classifying questions by function was established by Taba
(1962) and Ruddell (1974).

Bases for classifying questions were the observable
patterns of questioning as recorded in observation notes,
audiotape recordings, and transcriptions. The function of
each question was determined by observing the effect of the
question within the context of the reading level rather than
relying on the specified intention of the teacher.

Discrete and independent categories of functions are
focusing (F), extending (EX), lifting (L), clarifying (CL),
and controlling (CON). The research question, "Is there a
significant difference in the functions of questions
teachers use while instructing skilled readers as compared
to less skilled readers?", was addressed by means of a contingency table and the chi-square statistic.

The following report begins with a description of the distribution of functions of questions among all categories, within categories, and between categories for skilled and less skilled reading levels using percentages from the contingency table, shown in Table V (p. 121). Finally, statistical analysis of the data is reported using the chi-square statistic.

**Distribution of Frequencies**

Distribution of the functions of questions by level is shown in Table V (p. 121). Analysis of the data reveals that 2303 question/response/response loops occurred while instructing skilled readers as compared to 2843 question/response/response loops which occurred while instructing less skilled readers. The total number of question/response/response loops is 5146 which is distributed between skilled readers, 44.8 per cent, and less skilled readers, 55.2 per cent.

The functions of extending (EX) is the most frequently occurring function among all categories, accounting for 32.6 per cent of the total number of questions. The function of focusing (F) accounts for 23.8 per cent and controlling (CON) accounts for 18.9 per cent of the total questions. Clarifying (CL) as a function accounts for 14.5
**TABLE V**

CONTINGENCY TABLE: FUNCTIONS OF QUESTIONS FOR SKILLED AND LESS SKILLED READERS

<table>
<thead>
<tr>
<th>Function</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focusing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a 562</td>
<td>664</td>
<td>1226</td>
</tr>
<tr>
<td></td>
<td>b 45.8</td>
<td>54.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c 24.4</td>
<td>23.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d 10.9</td>
<td>12.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.31)</td>
<td>(.25)</td>
<td>23.8</td>
</tr>
<tr>
<td><strong>Extending</strong></td>
<td>771</td>
<td>905</td>
<td>1676</td>
</tr>
<tr>
<td></td>
<td>EX 46.0</td>
<td>54.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>33.5</td>
<td>31.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15.0</td>
<td>17.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.6)</td>
<td>(.5)</td>
<td>32.6</td>
</tr>
<tr>
<td><strong>Lifting</strong></td>
<td>238</td>
<td>290</td>
<td>528</td>
</tr>
<tr>
<td></td>
<td>L 45.1</td>
<td>54.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10.3</td>
<td>10.2</td>
<td></td>
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<td></td>
<td>(0)</td>
<td>(0)</td>
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</tr>
<tr>
<td><strong>Clarifying</strong></td>
<td>298</td>
<td>446</td>
<td>744</td>
</tr>
<tr>
<td></td>
<td>CL 40.1</td>
<td>59.9</td>
<td></td>
</tr>
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<td></td>
<td>12.9</td>
<td>15.7</td>
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<td>5.8</td>
<td>8.7</td>
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</tr>
<tr>
<td></td>
<td>(4)</td>
<td>(3)</td>
<td>14.5</td>
</tr>
<tr>
<td><strong>Controlling</strong></td>
<td>434</td>
<td>538</td>
<td>972</td>
</tr>
<tr>
<td></td>
<td>CON 44.7</td>
<td>55.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>18.8</td>
<td>18.9</td>
<td></td>
</tr>
<tr>
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<td>8.4</td>
<td>10.5</td>
<td></td>
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<td></td>
<td>(0)</td>
<td>(0)</td>
<td>18.9</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>2303</td>
<td>2843</td>
<td>5146</td>
</tr>
<tr>
<td></td>
<td>44.8</td>
<td>55.2</td>
<td></td>
</tr>
</tbody>
</table>

Key:  
- a = observed frequency  
- b = row per cent  
- c = column per cent  
- d = total per cent
per cent and lifting (L) accounts for only 10.3 per cent of the total number of questions. Among all ten categories of functions, skilled and less skilled, less skilled reading level accounts for the greater percentage of question/response/response loops as compared to the skilled reading level.

When comparing column per cents within levels by function the skilled reading level accounts for a greater percentage of questions in the focusing, extending, and lifting functions. Skilled reading level in the focusing (F) category is 24.4 per cent as compared to 23.4 per cent in the less skilled reading level. Skilled reading level in the extending (EX) category is 33.5 per cent as compared to 31.8 per cent in the less skilled reading level. Skilled reading level in the lifting (L) category is 10.3 per cent as compared to 10.2 per cent in the less skilled reading level.

However, when comparing column per cents within levels by function the less skilled reading level accounts for a greater percentage of questions in the clarifying and controlling functions. In the clarifying (CL) category 15.7 per cent of the questions are in the less skilled level as compared to 12.9 per cent in the skilled reading level. In the controlling (CON) function 18.9 per cent are in the less skilled level as compared to 18.8 per cent in the
skilled reading level. This distribution of functions within levels by percentages is illustrated in Figure 12.

**Fig. 12--Line graph for functions of questions within skilled and less skilled reading levels.**

When comparing row per cents between reading levels by function, less skilled reading level accounts for a greater percentage of the questions in focusing, extending, lifting, clarifying, and controlling categories of functions. Less
skilled reading level in the focusing (F) category is 54.2 per cent as compared to 45.8 per cent in the skilled reading level. Less skilled reading level in the extending (EX) category is 54.0 per cent as compared to 46.0 per cent in the skilled reading level. Less skilled reading level in the lifting (L) category is 54.9 per cent as compared to 45.1 per cent in the skilled reading level. Less skilled reading level in the clarifying (CL) category is 59.9 per cent as compared to 40.1 per cent in the skilled reading level. Finally, less skilled reading level in the controlling (CON) category is 55.3 per cent as compared to 44.7 per cent in the skilled reading level. The bar graph in Figure 13 (p. 125) illustrates the similarities and differences in the distribution of questions between reading levels for each function of question.

Statistical Analysis of Functions of Questions

The chi-square test of significance was used with nominal level variables, reading level and function of questions, to determine whether there was a systematic relationship between the variables. Obtaining a chi-square of 8.31553 with four degrees of freedom indicates a .0807 level of significance. Based on a predetermined .05 level of acceptance, the computed chi-square is considered not statistically significant.
Fig. 13--Bar graph for functions of questions between skilled and less skilled reading levels.
The analysis of the contingency table of functions by reading level reveals no outstanding difference in the functions of questions teachers use while instructing skilled readers as compared to less skilled readers. A variation in clarifying and controlling functions indicates that teachers do tend to ask slightly more questions with a clarifying or controlling function when instructing the less skilled reading level as compared to the skilled reading level.

Calculation of differences in frequency for clarifying function between skilled and less skilled reading levels, indicates 2.8 per cent more of the total number of question/response/response loops (5146) occur at the less skilled reading level as compared to the skilled reading level. Calculation of differences in frequency for controlling function between skilled and less skilled reading levels indicates 2.02 per cent more of the total number of question/response/response loops occur at the less skilled reading level as compared to the skilled reading level.

In summary, the chi-square test of significance indicates no significant difference in the functions of questions teachers use with the two reading levels, skilled and less skilled. Even though a significant \( X^2 \) was not present in the data, an analysis of the \( X^2 \) distribution by each cell does reveal the function which differed the most between skill levels. The \( X^2 \) values by
cell are shown in Table V (p. 121). The clarifying function accounts for seven $X^2$ values of the approximate eight $X^2$ values total. All other functions—focusing, extending, lifting, and controlling—account for the remaining one $X^2$ value.

Therefore, it would appear that knowledge of the function of question alone does not significantly discriminate reading skill level since there was no significant difference in the functions of questions teachers use while instructing skilled readers as compared with less skilled readers. However, based on a visual examination of the contingency table, it could be stated that the difference that does occur as indicated by the $X^2$ distribution is in the clarifying function.

Interaction of Cognitive Level and Function of Question

The observer analyzed the interaction of cognitive level and functions of questions by reading level. The statistical program, BMDP (Dixon, 1981), was used to analyze the data. The purpose of this analysis was to answer the research question: "Is there a significant difference in the interaction between cognitive level of questions and functions of questions teachers use while instructing skilled readers as compared to less skilled readers?"
An interaction among cognitive level of question, function of question, and reading skill level would imply that teachers used questions of a particular cognitive level for a particular purpose with a particular reading skill level. The way a question was used, its function, in concert with the level at which the question was asked, its cognitive level, was significantly different when comparing the two skill level groups, skilled readers and less skilled readers. Knowing this difference helped to clarify why teachers continue to ask most of their questions at lower cognitive levels, cognitive-memory and convergent, rather than higher levels, divergent and evaluative.

The summary of cognitive level distribution for all question/response/response loops is shown in Table VI (p. 129). Questions classified as cognitive-memory and convergent represented 81 per cent of the total number of questions. Among skilled readers the percentage was 80 per cent and among less skilled readers the percentage was 82 per cent. However, the way these questions were used varied among all five different functions: focusing, extending, lifting, clarifying, and controlling.

Treatment of the data using the log-linear model permitted the study of the two variables, cognitive level and function, to be analyzed in relationship to a third variable, skill level. The log-linear model analyzed all possible relationships of the three variables and identified
<table>
<thead>
<tr>
<th>Question</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive-memory</td>
<td>967</td>
<td>1493</td>
<td>2460</td>
</tr>
<tr>
<td></td>
<td>42%</td>
<td>53%</td>
<td>48%</td>
</tr>
<tr>
<td>Convergent</td>
<td>864</td>
<td>829</td>
<td>1693</td>
</tr>
<tr>
<td></td>
<td>38%</td>
<td>29%</td>
<td>33%</td>
</tr>
<tr>
<td>Divergent</td>
<td>97</td>
<td>113</td>
<td>210</td>
</tr>
<tr>
<td></td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Evaluative</td>
<td>48</td>
<td>42</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>2%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Routine</td>
<td>327</td>
<td>366</td>
<td>693</td>
</tr>
<tr>
<td></td>
<td>14%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>Total</td>
<td>2303</td>
<td>2943</td>
<td>5146</td>
</tr>
<tr>
<td></td>
<td>44.8%</td>
<td>55.2%</td>
<td></td>
</tr>
</tbody>
</table>

The one model which contained all true relationships. This model containing all true relationships was the saturated model (LCF) illustrated in Figure 14 (p. 131). Since all three variables, skill level (L), cognitive level (C), and function (F), were necessary to represent accurately the data, there was a significant interaction among the variables.
Description of Analysis

The following description of analysis includes an explanation of the log-linear model, a discussion of the observed frequency table, and a presentation of the statistical analysis of the data. A log-linear model (Dixon, 1981) was used to analyze the interaction of the discrete variables: cognitive level of questions (C), functions of questions (F), and reading skill level (L). This model was employed because the variables were not continuous. The log-linear analysis technique allowed the simultaneous examination of the interrelationship of these discrete variables in a manner analogous to the more usual multiple regression techniques used with continuous variables (Mulder, 1981, p. 636).

A log-linear model is a statement of the cell frequencies of a crosstabulation as function of parameters representing characteristics of the categorical variables and their relationship with each other (Knoke & Burke, p. 11). The observed frequencies, as shown in Table VI (p. 129) are compared to the expected frequencies generated by the log-linear model.

When comparing the expected frequencies to the observed frequencies using log-linear analysis the best fitting model was the saturated model, LCF. This model included all true relationships of variables. The interaction of reading skill level (L), cognitive level of question (C), and
function of question (F) from the model which best suits the generated expected frequencies produced by the log-linear model.

A modification of the venn diagram developed by British logician, John Venn (1982, p. 897), is used in Figure 14 (p. 132) to illustrate graphically the mutual associations of the three variables. The effects of these variables as identified in the log-linear models are represented by three interlocking circles. Each diagram is shaded to indicate inclusion, exclusion, and intersection of effects of parameters specified in each model.

The observed frequencies, as shown in Table VII (p. 133) were compared to expected frequencies generated by the log-linear model. The three-way table was used to cross-classify the discrete variables: function of question (F), cognitive level of questions (C), and reading skill level (L). Function of question (F) was categorized as focusing (06), extending (07), lifting (08), clarifying (09), and controlling (10). Cognitive level of question (C) was categorized as cognitive-memory (1), convergent (2), divergent (3), evaluative (4), or routine (5). Reading skill level (L) was categorized as skilled (1) or less skilled (2). Each interaction is defined as follows.

The function of focusing (06) was to center the discussion on a topic, initiate a discussion, or set a cognitive task (Taba, 1965). Refocusing and changing the
Fig. 14—Log-linear models of effects
# TABLE VII

**OBSERVED FREQUENCIES FOR COGNITIVE LEVEL, FUNCTION, AND READING SKILL LEVEL**

<table>
<thead>
<tr>
<th>Function (F)</th>
<th>Cognitive Level (C)</th>
<th>Level (L)</th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Skilled</td>
<td>Less Skilled</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>F (06)</td>
<td>CM (1)</td>
<td>332</td>
<td>480</td>
<td>812</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C (2)</td>
<td>164</td>
<td>84</td>
<td>248</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D (3)</td>
<td>4</td>
<td>13</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E (4)</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>R (5)</td>
<td>62</td>
<td>85</td>
<td>147</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>562</td>
<td>664</td>
<td>1226</td>
<td></td>
</tr>
<tr>
<td>EX (07)</td>
<td>CM (1)</td>
<td>383</td>
<td>538</td>
<td>921</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C (2)</td>
<td>285</td>
<td>247</td>
<td>532</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D (3)</td>
<td>31</td>
<td>38</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E (4)</td>
<td>19</td>
<td>9</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>R (5)</td>
<td>53</td>
<td>73</td>
<td>126</td>
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</tr>
<tr>
<td>Total</td>
<td></td>
<td>771</td>
<td>905</td>
<td>1676</td>
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<tr>
<td>L (08)</td>
<td>CM (1)</td>
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<td>0*</td>
<td>0</td>
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<tr>
<td></td>
<td>C (2)</td>
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<td>211</td>
<td>375</td>
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</tr>
<tr>
<td></td>
<td>D (3)</td>
<td>58</td>
<td>55</td>
<td>113</td>
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<td></td>
<td>E (4)</td>
<td>16</td>
<td>21</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td></td>
<td>R (5)</td>
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<td>3</td>
<td>3</td>
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</tr>
<tr>
<td>Total</td>
<td></td>
<td>238</td>
<td>290</td>
<td>528</td>
<td></td>
</tr>
<tr>
<td>CL (09)</td>
<td>CM (1)</td>
<td>149</td>
<td>285</td>
<td>434</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C (2)</td>
<td>140</td>
<td>149</td>
<td>289</td>
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<td></td>
<td>E (4)</td>
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<td>2</td>
<td>6</td>
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<tr>
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<td>R (5)</td>
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</tr>
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<td>Total</td>
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<td>744</td>
<td></td>
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<tr>
<td>CON (10)</td>
<td>CM (1)</td>
<td>103</td>
<td>190</td>
<td>293</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C (2)</td>
<td>111</td>
<td>138</td>
<td>249</td>
<td></td>
</tr>
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<td>D (3)</td>
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</tr>
<tr>
<td></td>
<td>E (4)</td>
<td>9</td>
<td>8</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>R (5)</td>
<td>208</td>
<td>197</td>
<td>405</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>434</td>
<td>538</td>
<td>972</td>
<td></td>
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<tr>
<td>Total</td>
<td></td>
<td>2303</td>
<td>2843</td>
<td>5146</td>
<td></td>
</tr>
</tbody>
</table>

*Structural zeros
focus were functions of questioning as indicated by questions which directed the discussion back to the original topic, or shifted the discussion to another subject matter. Teachers used the function of focusing (06) a total of 1226 of 5146 times while instructing students during the recorded observation time. The function of focusing occurred a total of 562 times while instructing skilled reading level as compared to a total of 664 times while instructing less skilled reading level.

**Focusing** was used primarily with questions at the cognitive-memory (1) level which was indicated by a request for simple reproduction of facts, formulas, and other items of remembered content through recognition, rote memory, or selective recall. There was a total of 812 questions at the cognitive-memory level used for the purpose of focusing with 332 occurring at the skilled reading level as compared to 480 at the less skilled reading level.

**Focusing** was used a total of 248 times at the convergent (2) level of questions which was indicated by a request for integration of given or remembered content through comprehension, application, and analysis. Convergent level questions for the purpose of focusing occurred 164 times at the skilled reading level as compared to eighty-four times at the less skilled reading level.

**Focusing** was used a total of seventeen times at the divergent (3) level of questions which was indicated by a
request for ideas and conclusions generated within a data-poor situation through synthesis which often took a new direction or perspective. Questions at the divergent level for the purpose of focusing occurred only four times at the skilled reading level as compared to thirteen times at the less skilled reading level.

Focusing was used only two times at the evaluative (4) level of questions which was indicated by a request for judgments concerning given or remembered content through evaluation based on personal values or given values. There were no evaluative level questions for the purpose of focusing used by teachers at the skilled reading level as compared to two which occurred at the less skilled reading level.

Focusing was used a total of 147 times at the routine (5) level of questions which was indicated by a request for procedural information for the purpose of management of the classroom, structuring of class discussion, and approval or disapproval of an idea or a person. Routine level questions for the purpose of focusing occurred sixty-two times at the skilled reading level as compared to eighty-five times at the less skilled reading level.

The function of extending (07) was to elicit additional information or elaboration on the same subject matter at the same cognitive level. Extending occurred more frequently than the functions of focusing, lifting,
clarifying, or controlling. Teachers used the function of extending (07) a total of 1676 of 5146 times while instructing students during the recorded observation time. The function of extending occurred a total of 771 times while instructing skilled reading level as compared to a total of 905 times while instructing less skilled reading level.

Extending was used primarily with questions at the cognitive-memory (1) level which was indicated by a request for a simple reproduction of facts, formulas, and other items of remembered content through recognition, rote memory, or selective recall. There was a total of 921 questions at the cognitive-memory level used for the purpose of extending with 383 occurring at the skilled reading level as compared to 538 at the less skilled reading level.

Extending was used a total of 532 times at the convergent (2) level of questions which was indicated by a request for integration of given or remembered content through comprehension, application, and analysis. Convergent level questions for the purpose of extending occurred 285 times at the skilled reading level as compared to 247 times at the less skilled reading level.

Extending was used a total of sixty-nine times at the divergent (3) level of questions which was indicated by a request for ideas and conclusions generated within a data-poor situation through synthesis which often took a new direction or perspective. Questions at the divergent level
for the purpose of extending occurred thirty-one times at the skilled reading level as compared to thirty-eight times at the less skilled reading level.

Extending was used a total of twenty-eight times at the evaluative (4) level of questions which was indicated by a request for judgments concerning given or remembered content through evaluation based on personal values or given values. There were nineteen evaluative level questions for the purpose of extending used by teachers at the skilled reading level as compared to nine which occurred at the less skilled reading level.

Extending was used a total of 126 times at the routine (5) level of questions which was indicated by a request for procedural information for the purpose of management of the classroom, structuring of class discussion, and approval or disapproval of an idea or a person. Routine level questions for the purpose of extending occurred fifty-three times at the skilled reading level as compared to seventy-three times at the less skilled reading level.

The function of lifting (08) was to raise the cognitive level of thought to a higher cognitive level than was previously established. Lifting occurred only with convergent, divergent, evaluative, and routine. Teachers used the function of lifting (08) a total of 528 of 5146 times while instructing students during the recorded observation time. The function of lifting occurred a total
of 238 times while instructing skilled reading level as compared to a total of 290 times while instructing less skilled reading level.

Lifting was not used with questions at the cognitive-memory (1) level which was indicated by a request for simple reproduction of facts, formulas, and other items of remembered content through recognition, rote memory, or selective recall. By definition the function of lifting implied that a question of a particular cognitive level of thought had been used and the question posed for the purpose of lifting was judged at a higher level of thought than the previous question. Since the cognitive-memory level question was considered the lowest level question, the functions used at this level were focusing, extending, clarifying, and controlling.

Lifting was used a total of 375 times at the convergent (2) level of questions which was indicated by a request for integration of given or remembered content through comprehension, application, and analysis. Convergent level questions for the purpose of lifting occurred 164 times at the skilled reading level as compared to 211 times at the less skilled reading level.

Lifting was used a total of thirty-seven times at the evaluative (4) level of questions which was indicated by a request for judgments concerning given or remembered content through evaluation based on personal values or given values.
There were sixteen evaluative level questions for the purpose of lifting used by teachers at the skilled reading level as compared to twenty-one which occurred at the less skilled reading level.

Lifting was used a total of three times at the routine (5) level of questions which was indicated by a request for procedural information for the purpose of management of the classroom, structuring of class discussion, and approval or disapproval of an idea or a person. Routine level questions for the purpose of lifting did not occur at the skilled reading level. However, routine level questions for the purpose of lifting did occur three times at the less skilled reading level.

The function of clarifying (09) was to redefine previously given information. Clarification differed from extension (07) as a function in that a review of previously stated information was required, whereas additional information was required when extending was the function of the question (Ruddell, 1974). Clarifying occurred more frequently with cognitive-memory and convergent levels than with divergent, evaluative, and routine levels of questions. Teachers used the function of clarifying (09) a total of 744 of 5146 times while instructing students during the recorded observation time. The function of clarifying occurred a total of 298 times while instructing
skilled reading level as compared to a total of 446 times while instructing less skilled reading level.

Clarifying was used with questions at the cognitive-memory (1) level which was indicated by a request for simple reproduction of facts, formulas, and other items of remembered content through recognition, rote memory, or selective recall. There was a total of 434 questions at the cognitive-memory level used for the purpose of clarifying with 149 occurring at the skilled reading level as compared to 285 at the less skilled reading level.

Clarifying was used a total of 289 times at the convergent (2) level of questions which was indicated by a request for integration of given or remembered content through comprehension, application, and analysis. Convergent level questions for the purpose of clarifying occurred 140 times at the skilled reading level as compared to 149 times at the less skilled reading level.

Clarifying was used a total of three times at the divergent (3) level of questions which was indicated by a request for ideas and conclusions generated within a data-poor situation through synthesis which often took a new direction or perspective. Questions at the divergent level for the purpose of clarifying occurred only one time at the skilled reading level as compared to only two times at the less skilled reading level.
Clarifying was used a total of six times at the evaluative (4) level of questions which was indicated by a request for judgments concerning given or remembered content through evaluation based on personal values or given values. There were four evaluative level questions for the purpose of clarifying used by teachers at the skilled reading level as compared to two questions which occurred at the less skilled reading level.

Clarifying was used a total of twelve times at the routine (5) level of questions which was indicated by a request for procedural information for the purpose of management of the classroom, structuring of class discussion, and approval or disapproval of an idea or a person. Routine level questions for the purpose of clarifying occurred four times at the skilled reading level as compared to eight times at the less skilled reading level.

The function of controlling (10) was to inhibit student response. Questions which did not require an answer or which the teacher answered for the student, represented questioning used for control. In addition, the function was considered controlling if the teacher was seeking to manage the classroom by using questions. Teachers used the function of controlling (10) a total of 972 of 5146 times while instructing students during the recorded observation times. The function of controlling occurred a total of 434 times while instructing skilled reading level as compared
to a total of 538 times while instructing less skilled reading level.

Controlling was used with questions at the cognitive-memory (1) level which was indicated by a request for simple reproduction of facts, formulas, and other items of remembered content through recognition, rote memory, or selective recall. There was a total of 293 questions at the cognitive-memory level used for the purpose of controlling with 103 occurring at the skilled reading level as compared to 190 at the less skilled reading level.

Controlling was used a total of 249 times at the convergent (2) level of questions which was indicated by a request for integration of given or remembered content through comprehension, application, and analysis. Convergent level questions for the purpose of controlling occurred 111 times at the skilled reading level as compared to 138 times at the less skilled reading level.

Controlling was used a total of eight times at the Divergent (3) level of questions which was indicated by a request for ideas and conclusions generated within a data-poor situation through synthesis which often took a new direction or perspective. Questions at the divergent level for the purpose of controlling occurred three times at the skilled reading level as compared to five times at the less skilled reading level.
Controlling was used a total of seventeen times at the evaluative (4) level of questions which was indicated by a request for judgments concerning given or remembered content through evaluation based on personal values or given values. There were nine questions for the purpose of controlling used by teachers at the skilled reading level as compared to eight which occurred at the less skilled reading level.

Controlling was used primarily at the routine (5) level of questions which was indicated by a request for procedural information for the purpose of management of the classroom, structuring of class discussion, and approval or disapproval of an idea or a person. Routine level questions for the purpose of controlling occurred a total of 405 times with 208 occurring at the skilled reading level as compared to 197 occurring at the less skilled reading level.

**Statistical Analysis of the Data**

Analysis of these data was based on fitting a log-linear model to the cell frequencies. In assessing how well the mode explained or "fits the data" (Knoke & Burke, 1980, p. 11), a comparison was made between the expected frequencies of the model and the frequencies actually observed.

The logarithm of the expected cell frequencies was written as an additive function of main effects and interactions in a similar way as an analysis of variance model.
where mutual associations are explored (Knoke & Burke, 1980, p. 11).

Statistical results of the log-linear analysis with all effects (λ) requested is shown in Table VIII (p. 145). The models presented are hierarchical in nature and include all models up to the "saturated model" (LCF). The models generated are hierarchical in that a higher order effect cannot be present unless all lower order effects are also included in the model.

The goodness-of-fit of the model was tested using the likelihood ratio statistic (L^2). This was asymptotically distributed as chi-square, with n - p degrees of freedom (df), where n was the number of cells minus one (50 - 1 = 49) and p was the number of independent parameters estimated for each model. The likelihood chi-square statistic was used because expected frequencies were estimated by maximum likelihood methods (Knoke & Burke, 1980, p. 30).

Table VIII, Log-Linear Model Analysis, shows seventeen models for the three variables: level of reading skill (L), cognitive level of question (C), and function of question (F). The table includes degrees of freedom (df), likelihood ratio chi-square (L^2), and probability of fitting the expected frequency table generated by the log-linear model. Statistical results were determined by comparing observed frequencies to the expected frequencies generated by the log-linear model. The hypothesized model was produced by
**TABLE VIII**

**LOG-LINEAR MODEL ANALYSIS**

<table>
<thead>
<tr>
<th>Model</th>
<th>df</th>
<th>$L^2$</th>
<th>Probability</th>
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</thead>
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</tr>
<tr>
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<td>F</td>
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<td>122.99</td>
<td>0.0000</td>
</tr>
<tr>
<td>CF,LC</td>
<td>19</td>
<td>70.25</td>
<td>0.0000</td>
</tr>
<tr>
<td>Lc,LF,CF</td>
<td>15</td>
<td>49.50</td>
<td>0.0000</td>
</tr>
<tr>
<td><strong>LCF</strong></td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Saturated model--necessary to fit the data.**
an "iterative proportional fitting algorithm" (Knoke & Burke, 1980, p. 22).

The iterative proportional fitting process produced maximal likelihood estimates of the expected cell frequencies for a hierarchical model. "Consistent and efficient" statistical estimates are produced using this method of fitting (Knoke & Burke, 1980, pp. 23-24). As the algorithm cycles through the data, expected cell frequencies were successively adjusted to fit each marginal subtotal until all models were specified.

The smallest discrepancy between successive estimates of expected frequencies was desirable (Knoke & Burke, 1980, p. 24). The criteria for convergence for the models shown in Table VIII are 0.0 to 0.0000. The best-fitting log-linear model has the lowest $L^2$ in relationship to the degrees of freedom.

Therefore, the model which represented the least discrepancy between observed and expected frequencies was accepted as the one which best fits the data. Models 1 through 17, with probabilities of fit ranging from 0.0 to 0.0000, did not fit the data. Model 18, the saturated model (LCF), was the best fitting model. This model contained the three-way interaction of level of reading skill (L), cognitive level of question (C), and function of question (F).
It was concluded that knowledge of any variable—level of reading skill (L), cognitive level of question (C), or function of question (F) to the exclusion of any other—did not significantly represent the data. There was a significant interaction of cognitive level of question and function of question when comparing reading instruction among skilled readers to reading instruction among skilled readers to reading instruction among less skilled readers.

In summary, how the teacher used a particular cognitive level of question did vary significantly with the reading skill level of the group. Since the teacher was held constant by being observed while instructing both skilled and less skilled readers, it can be concluded that the variation in use of particular level of questions (LCF) was due to the reading skill level of the group.

Patterns of Questioning

Description of Analysis

The observer analyzed the patterns of questioning which frequently occurred as teachers instructed skilled and less skilled readers. Data for analysis were collected through unstructured notes, structured notes, anecdotal records, and summary notes. Descriptive statistics and generalizations were used to report the similarities and differences between skilled and less skilled readers.
The purpose of this discussion on patterns of questioning was to describe the question/response/response loops generated 5146 times during 2076 minutes and 10 seconds of observation of reading instruction conducted by twenty teachers with forty groups of students, twenty skilled reading groups and twenty less skilled reading groups. In presenting the analysis of these data within the context of the total reading instruction setting, the following research question was addressed: "Are there patterns of questioning teachers use while instructing skilled and less skilled readers? If so, what are those patterns of questioning?"

Results are reported and discussed in three sections. The first section is based on the unstructured notes relating to the instructional environment and instructional context of the reading instruction among skilled and less skilled readers.

The second section is based on structured notes related to questions and responses. Results are reported in two parts. The first part concerns questions: content, wait-time, designation, and sequencing of questions. The second part concerns responses: appropriateness, type, and length of students' responses; then, content of teachers' responses.

The third section is a narrative summary based on frequently occurring incidences objectively recorded by the observer during reading instruction and the notes written
as a subjective analysis by the observer after the reading instruction period of observation. Due to the more subjective nature of these data, descriptive statistics are not implemented.

Analysis of the data indicates there are patterns of questioning teachers use while instructing skilled and less skilled readers. The following report describes those patterns.

**Unstructured Notes**

Clear, concise, and factual language was used to record unstructured notes. Information was based on observed behaviors and events rather than opinion. Specific categories related to instructional environment and instruction context were determined after analysis of unstructured notes from all eighty was completed.

Instructional environment of reading instruction for skilled and less skilled readers included three specific elements. These were number of students in group, position of teacher and students in the room, and equipment used by the teacher during reading instruction.

Instructional context of reading instruction for skilled and less skilled readers included two specific elements. These are the materials used by the teacher and the students during reading instruction and the stated or implied purpose of the lesson.
Instructional Environment

Number of students in group.--Instructional environment of reading instruction concerned group membership and their attendance during each observation period. The number of students in the group was noted at the beginning of the period of observation. A total of 291 students in the skilled reading level and 161 in the less skilled reading level was observed. Between groups there was a total of 226 male students and 226 female students. However, there were more male students in the less skilled group as compared to more females in the skilled group. Throughout the observation time group membership was mutually exclusive with no students participating in both skilled and less skilled reading level groups. Distribution of students by sex and reading level is shown in Table IX.

<table>
<thead>
<tr>
<th>Students</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>124</td>
<td>102</td>
<td>226</td>
</tr>
<tr>
<td>Female</td>
<td>167</td>
<td>59</td>
<td>226</td>
</tr>
<tr>
<td>Total</td>
<td>291</td>
<td>161</td>
<td>452</td>
</tr>
</tbody>
</table>
There were 102 of the total number of males in the less skilled reading group as compared to 124 males in the skilled reading group. An even greater difference in distribution occurred among female students. Only approximately 59 of the total number of females were in the less skilled reading group as compared to 167 females in the skilled reading group. The predominance of males within the less skilled reading group is consistent with male and female distribution typically found in reading groups.

The total number of students between both groups was 452. There were 291 students in the skilled group as compared to 161 students in the less skilled group. The ratio of skilled to less skilled students was less than 2:1.

Each of the twenty teachers randomly selected for study were observed four times, twice while instructing skilled readers and twice while instructing less skilled readers for a total of eighty observations. As indicated in Figure 15 (p. 152), the number of students in each observed group varied between each reading skill level and among the twenty teachers.

For some teachers there was a variation in the number of students in attendance within each reading level per observation. A difference in number of students occurred for all but three teachers in one or both skill level
NUMBER OF STUDENTS IN GROUP BY TEACHER

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A01</td>
<td>24/27</td>
<td>22/25</td>
<td>2</td>
</tr>
<tr>
<td>2C02</td>
<td>15/12</td>
<td>5/3</td>
<td>10</td>
</tr>
<tr>
<td>2D03</td>
<td>10/9</td>
<td>9/7</td>
<td>1</td>
</tr>
<tr>
<td>2E04</td>
<td>**15/15</td>
<td>4/3</td>
<td>11</td>
</tr>
<tr>
<td>3F05</td>
<td>10/13</td>
<td>4/7</td>
<td>6</td>
</tr>
<tr>
<td>3G06</td>
<td>25/15</td>
<td>8/3</td>
<td>17</td>
</tr>
<tr>
<td>3H07</td>
<td>25/26</td>
<td>8/9</td>
<td>17</td>
</tr>
<tr>
<td>4I08</td>
<td>**10/10</td>
<td>8/9</td>
<td>1</td>
</tr>
<tr>
<td>4J09</td>
<td>8/7</td>
<td>6/5</td>
<td>2</td>
</tr>
<tr>
<td>5K010</td>
<td>14/13</td>
<td>**10/10</td>
<td>4</td>
</tr>
<tr>
<td>6L011</td>
<td>20/17</td>
<td>**5/5</td>
<td>15</td>
</tr>
<tr>
<td>7M012</td>
<td>17/16</td>
<td>**3/3</td>
<td>14</td>
</tr>
<tr>
<td>7N013</td>
<td>8/7</td>
<td>4/3</td>
<td>4</td>
</tr>
<tr>
<td>8P014</td>
<td>9/8</td>
<td>**14/14</td>
<td>5</td>
</tr>
<tr>
<td>8Q015</td>
<td>4/5</td>
<td>2/3</td>
<td>2</td>
</tr>
<tr>
<td>9R016</td>
<td>**19/19</td>
<td>7/8</td>
<td>11</td>
</tr>
<tr>
<td>*9S017</td>
<td>18/18</td>
<td>7/7</td>
<td>9</td>
</tr>
<tr>
<td>9T018</td>
<td>16/15</td>
<td>8/11</td>
<td>5</td>
</tr>
<tr>
<td>*9U019</td>
<td>10/10</td>
<td>3/3</td>
<td>7</td>
</tr>
<tr>
<td>*10V020</td>
<td>7/7</td>
<td>4/4</td>
<td>3</td>
</tr>
<tr>
<td>Average</td>
<td>15</td>
<td>8</td>
<td>7</td>
</tr>
</tbody>
</table>

* No variation in number of students within or between skill level.
** No variation in number of students within skill level.

Fig. 15--Number of students in group by teacher for first/second observations for skilled and less skilled readers.
groups. These teachers, 9S017, 9U019, and 10V020, had the same number of students in attendance for each observation while instructing both skilled and less skilled reading level groups, as indicated with an asterisk (*) on Figure 15.

There were seven teachers, as indicated with a double asterisk (**), who had the same number of students within one skill level reading group for both observations. Teachers 2E04, 4I08, and 9R016 had the same number of students in the skilled reading level for both observations. Teachers 5K010, 6L011, 7M012, and 8P014 had the same number of students in the less skilled reading level for both observations.

The remaining ten teachers, 1A10, 2C02, 2D03, 3F05, 3G06, 3H07, 7N013, 8Q015, and 9T018, did not have the same number of students within the reading skill level for either skilled or less skilled groups. Variation in attendance was considered reflective of the fluctuations which occur in the natural classroom environment due to absenteeism. The teacher with the greatest difference in number of students for the skilled reading level group, 3G06, explained that the ten absent students were dismissed for a talented and gifted program.

Based on the greater number of students in attendance for each reading skill level, the average number of students for the skilled reading level was fifteen and a
range of twenty-seven to five. The average number of students for the less skilled reading level was eight and a range of twenty-five to three.

Calculation of the difference between number of students for each reading skill among all teachers revealed an average difference of seven and a range of seventeen to one. Nine teachers had a difference in number of students in skilled reading level groups as compared to less skilled reading groups equal to or greater than the mean difference. The size of the group, determined by the teacher, appeared to be an influencing variable in the instructional environment as indicated by the positions of students and teacher, and the equipment used during reading instruction.

Position of students within the room. -- Instructional environment of reading instruction was defined as the position of the students within the room. These positions were determined by the teacher with no intervention from the observer. They were recorded after the lesson started. Criteria for classification of position were based on where the students were positioned most of the time during the reading instruction. Evaluation of initial classification was made during the observation period and adjustments made, if necessary.

All students in skilled and less skilled groups were sitting during reading instruction. Three categories
emerged after analysis of the data: sitting in a desk, sitting on a chair, and sitting on the floor. Distribution of students by positions within the room is shown on Table X.

<table>
<thead>
<tr>
<th>Position</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Desk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional rows</td>
<td>.56</td>
<td>.10</td>
<td>.33</td>
</tr>
<tr>
<td>Special arrangements</td>
<td>.13</td>
<td>.33</td>
<td>.23</td>
</tr>
<tr>
<td>Total</td>
<td>.70</td>
<td>.43</td>
<td>.56</td>
</tr>
<tr>
<td>On Chair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional circles</td>
<td>.125</td>
<td>.33</td>
<td>.23</td>
</tr>
<tr>
<td>Around table</td>
<td>.125</td>
<td>.20</td>
<td>.16</td>
</tr>
<tr>
<td>Total</td>
<td>.25</td>
<td>.52</td>
<td>.39</td>
</tr>
<tr>
<td>On Floor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.05</td>
<td>.05</td>
<td>.05</td>
</tr>
<tr>
<td>Total</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Most of the time students were sitting in a desk during reading instruction, 56 per cent of the total observations. The desks were arranged in traditional rows 33 per cent of the observations.
However, in 33 per cent of the total observations, the students were sitting in desks which were arranged in a special configuration for that specific reading lesson. Examples of these arrangements included the formation of a circle with the teacher in the circle, the formation of a short horizontal row placed in front of a blackboard, and the formation of two rows of desks facing each other in columns. It appeared that the special arrangement of the desks was a usual part of the instructional environment because the students moved their desks quickly into place with no comments as to the uniqueness of the event.

Students sitting in desks in traditional rows did occur more frequently with skilled reading groups than with less skilled reading groups. Traditional rows were observed in 56 per cent of the forty skilled groups as compared to only 10 per cent of the forty less skilled groups. The difference was judged to be a result of group size where the average group size for skilled readers was fifteen as compared to the average group size of eight for less skilled readers. It was understandable that a large number of students was more difficult to arrange in special configuration.

In contrast, 33 per cent of the less skilled reading groups were positioned with students sitting in their desks in special arrangements as compared to only 13 per cent of the skilled reading groups.
Students were sitting in a chair during reading instruction in 39 per cent of the total observations. Chairs were arranged in the traditional reading circle or around a table placed away from the remaining students in the classroom. In 23 per cent of the total number of observations for both skilled and less skilled groups, the students were sitting in chairs in the traditional reading circle. The teacher sat with the students in the circle. In 16 per cent of the total number of observations for both skilled and less skilled reading groups, the students were sitting in chairs around a table. The teacher was either sitting with the students or standing at the table.

Students sitting in chairs in traditional circles did occur more frequently with less skilled reading groups than with skilled reading groups. Traditional circles were observed 33 per cent of the forty less skilled groups as compared to approximately 13 per cent of the forty skilled groups.

The smaller group size of the less skilled readers was considered an influential factor in the formation of traditional circles with students in chairs. In addition, group size appeared to influence the position of students in chairs around a table, since 20 per cent of the forty less skilled groups were arranged in this manner as compared to approximately 13 per cent of the forty skilled groups.
However, use of a table during reading instruction could be a result of teacher preference or the availability of a table. This was suggested because out of the four teachers using a table, three of them used a table for both skilled and less skilled reading groups. The common characteristic in all instances was the removal of the reading group from the remaining class members. In one open classroom situation, the table used for less skilled reading group was in an enclosed conference room adjacent to the classroom area. The table used for skilled reading group in the same situation was located at the side of the classroom area rather than in the enclosed area.

Students were sitting on the floor during reading instruction in 5 per cent of the total observations. Occurrence of this position appeared with one of the twenty teachers. Both skilled and less skilled groups arranged themselves on the floor surrounding the teacher who was sitting in a chair.

Based on the students' reactions during the observation period, this arrangement appeared to be typical of the instructional environment for reading instruction. This classroom was in an open school facility. The teacher's positioning of the students appeared to be an attempt to both hear and be heard during instruction since the general noise level in the school was high.
In summary, students were positioned during reading instruction in three ways: sitting in a desk, sitting on a chair, or sitting on the floor. Within the skilled reading level, 70 per cent of the groups were arranged with students sitting in desks positioned in traditional rows or in special arrangements. Twenty-five per cent of the groups were arranged with students sitting in chairs positioned in traditional circles or around a table. Finally, 5 per cent of the groups were arranged with students sitting on the floor around the teacher.

Within the less skilled reading level, 43 per cent of the groups were arranged with students sitting in desks positioned in traditional rows or in special arrangements. Fifty-two per cent of the groups were arranged with students sitting in chairs positioned in traditional circles or around a table. Finally, 5 per cent of the groups were arranged with students sitting on the floor around the teacher.

The students' apparent knowledge of the procedure to be followed for reading instruction led to the conclusion that these positions were the usual arrangement. Determining factors for students' positions were possibly due to size of reading group, availability of tables and/or chairs, preferences of the teacher, and desire to remove reading group from remaining students. These conclusions were based
on observed behaviors and events, without input from teachers or students.

Positions of teacher within the room.—Instructional environment of reading instruction concerned the position of the teacher within the room. All twenty teachers were observed four times each, twice while instructing skilled reading group and twice while instructing less skilled reading group. A total of eighty observations was made. Three categories of positions emerged after analysis of the data: sitting during instruction, standing during instruction, and moving during instruction. Distribution of teachers by positions within the room is shown on Table XI (p. 161).

Teachers sat during reading instruction in 69 per cent of the total observations. Most of the time, 58 per cent, teachers were sitting in a chair with their students in a circle or at a table. Also, teachers were observed sitting in a chair to the side, in front of or in the middle of students who were in desks arranged in short, horizontal rows facing the blackboard or in rows facing each other in two columns. Some teachers were observed sitting on a stool in front of the students. A smaller percentage of observations, 11 per cent, were made of teachers sitting behind their desks during reading instruction. In most instances, the group was larger than average, containing twenty or more
students. In one instance, the teacher called three students to her desk for individual instruction.

<table>
<thead>
<tr>
<th>TABLE XI</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTRUCTIONAL ENVIRONMENT: POSITIONS OF TEACHER</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Position</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In chair, with/in front</td>
<td>.40</td>
<td>.75</td>
<td>.58</td>
</tr>
<tr>
<td>Behind teacher's desk</td>
<td>.15</td>
<td>.08</td>
<td>.11</td>
</tr>
<tr>
<td>Total</td>
<td>.55</td>
<td>.83</td>
<td>.69</td>
</tr>
<tr>
<td>Standing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In front of group</td>
<td>.33</td>
<td>.13</td>
<td>.22</td>
</tr>
<tr>
<td>At middle/side of group</td>
<td>.02</td>
<td>.02</td>
<td>.03</td>
</tr>
<tr>
<td>Total</td>
<td>.35</td>
<td>.15</td>
<td>.25</td>
</tr>
<tr>
<td>Moving</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Around room</td>
<td>.10</td>
<td>.02</td>
<td>.06</td>
</tr>
<tr>
<td>Total</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Teachers were observed sitting with or in front of students more frequently while instructing less skilled readers as compared to skilled readers. In 75 per cent of the forty groups of less skilled readers, the teachers were sitting with or in front of the students as compared to 40
per cent of the forty groups of skilled readers. This difference was judged to be due to the predominance of positions for less skilled groups being traditional circles, around a table, or a special arrangement of desks. In most of these cases the teacher was observed sitting with or in front of the students.

Little difference occurred between skilled and less skilled reading groups concerning the frequency of teachers sitting behind their desks during reading instruction. This position was observed 15 per cent of the time with skilled reading groups as compared to 8 per cent of the time with less skilled reading groups.

With the exception of the teacher who called the three students to her desk for individual instruction, there was insufficient evidence to conclude that sitting behind the desk during reading instruction was a typical behavior for the observed teachers. However, when the teacher called the individual students to her desk for instruction, they indicated by their preparedness to respond, that this event was probably part of the instruction routine.

Teachers were standing during reading instruction in 25 per cent of the total observations. Twenty per cent of the time, teachers were observed standing in front of the students while instructing both skilled and less skilled groups. A small percentage of the time, 3 per cent, teachers were observed standing in the middle of the group
or to the side of the group while instructing both skilled and less skilled readers. The most frequent use of equipment occurred while teachers were observed standing during reading instruction.

Standing during reading instruction occurred more frequently within the skilled reading group as compared to the less skilled reading group. Teachers were standing in front of skilled groups 33 per cent of the time and to the side or in the middle, 2 per cent of the time. This is in comparison to standing in front of less skilled groups 13 per cent of the time and to the side or in the middle, 2 per cent of the time.

The difference in percentage of time teachers were observed standing may be attributed to the larger size of the reading groups. In addition, instruction of large groups more frequently involved use of the blackboard and the overhead projector which most often necessitates a standing position.

Teachers were observed moving around the room during reading instruction in 6 per cent of the total observations. This position of the teacher occurred in 10 per cent of the observations of skilled reading groups as compared to 2 per cent of the observations of less skilled reading groups. Movement around the room appeared to be motivated by the teacher's effort to involve students in discussion as indicated by frequency of eye contact and physical contact.
In addition, movement around the room was necessary as the teacher gave individual assistance to students.

In summary, teachers were positioned during reading instruction in three ways: sitting, standing, or moving. Within the skilled reading level, teachers were observed sitting in a chair with or in front of the students or sitting in a chair behind the teacher's desk, 55 per cent of the time. Thirty-five per cent of the time, teachers were observed standing in front of, in the middle of, or at the side of the group. Finally, teachers were observed moving around the room during reading instruction 10 per cent of the time.

Within the less skilled reading level, teachers were observed sitting in a chair with or in front of the students or sitting in a chair behind the teacher's desk, 83 per cent of the time. Fifteen per cent of the time, teachers were observed standing in front of, in the middle of, or at the side of the group. Finally, teachers were observed moving around the room during reading instruction 2 per cent of the time.

Positions of the teachers observed during reading instruction of both skilled and less skilled readers appeared to be representative of typical behavior of the teachers. This conclusion was based on the evidence that students seemed to know what to expect, as indicated by the
ease with which they responded to preparation for instruction and participation in the reading lesson.

Teachers appeared to position themselves for instruction based on the size of the group, the equipment in use, and the need to involve students by maintaining a high visibility. These judgments were based on observed behaviors of both teachers and students as they interacted with each other within their instructional environment.

**Equipment used by the teacher.**—Instructional environment of reading instruction concerned the equipment used by the teacher during the reading lesson. Types of equipment were recorded during reading instruction. The categories for equipment were determined after analysis of all the data was complete. Three categories of equipment were used: blackboard, posterboard or chart, and overhead projector. Distribution of use of equipment within reading levels is shown on Table XII (p. 166).

Not all teachers used equipment during reading instruction. The thirteen teachers who did use equipment, did not use it with each reading group. Furthermore, some teachers who used equipment, used more than one type in one observation period. For instance, some teachers used the blackboard and posterboard or chart in the same lesson. Due to these variations of equipment use in relationship to the number of observations and number of teachers using
equipment, percentages of occurrence were not calculated. Therefore, only frequency of occurrence is reported.

### TABLE XII

**INSTRUCTIONAL ENVIRONMENT: USE OF EQUIPMENT**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard</td>
<td>12</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>Posterboard, chart</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Overhead projector</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>16</td>
<td>36</td>
</tr>
</tbody>
</table>

Use of equipment during reading instruction of both skilled and less skilled readers occurred a total of thirty-six times. Among the three types of equipment, the blackboard was used most frequently, twenty-two times. Posterboard or chart was used a total of nine times and the overhead projector was used a total of five times.

The blackboard was used by teachers with both skilled and less skilled readers. Generally, the blackboard was used to display pertinent information relating to the lesson. Examples of this would be sentences to be read and discussed or rules of grammar to be read and demonstrated by example. The blackboard was also used to write words or sentences in order to clarify a point and demonstrate an idea. Teachers were observed pointing to,
writing on, and verbally referring to items on the blackboard.

Posterboard and charts were used by teachers with both skilled and less skilled readers. Posterboards differ from charts in that they are made by the teacher as opposed to commercially produced.

Generally, posterboards and charts were used in much the same way as the blackboard. However, posterboards and charts were different from blackboards in the element of spontaneity.

Information on a posterboard or chart tended to be more formal and less likely to be modified by reduction or expansion during the reading instruction. In addition, information displayed on a posterboard or chart tended to be more permanent in nature than information displayed on a blackboard. Consequently, posterboards or charts were more frequently used for review of instruction and for display for individual referral as necessary.

For example, several teachers had posterboards and charts on display in the room and referred to them during instruction. Several students were observed using the information on those posterboards and charts after the specific instruction had ended. In contrast, one teacher used the blackboard for a spontaneous language experience type group composition based on the words used in the previous group reading lesson. This, too, like the
posterboard and chart, was review but use of the blackboard facilitated the spontaneous, creative aspects of the review.

An overhead projector was used by teachers with both skilled and less skilled readers. It was used to display transparencies and as a marking board. Its use was similar to a posterboard or chart for display of information within a large group setting. The teacher seemed to have the students fascinated by the gradual uncovering of information as the lesson progressed. This judgment was based on the high degree of visible attentiveness observed in an open school situation where distractions were numerous. In addition, the overhead was similar to a blackboard within a small group setting. The teacher used it to display sentences for discussion and as a marking board to write original sentences generated by the students. Unlike the teacher in the large group setting who stood in the middle of the group maintaining a high visibility, this teacher sat with the small group of students as the overhead was used.

When comparing skilled reading groups to less skilled reading groups there is little difference in the frequency of use of equipment. The blackboard was used by teachers twelve items with skilled readers as compared to ten times with less skilled readers. Posterboards and charts were used by teachers five times with skilled readers as compared to four times with less skilled readers. Finally, an
overhead projector was used by teachers three times with skilled readers compared to two times with less skilled readers.

However, a notable difference in equipment use was evident within both reading skill level groups. Within both groups teachers used blackboards one and a half times more often than posterboards or charts and overhead projectors. While instructing skilled readers teachers used the blackboard twelve times as compared to using posterboards and charts five times and an overhead projector three times. While instructing less skilled readers teachers used the blackboard ten times as compared to using posterboards and charts four times and an overhead projector two times.

The more frequent use of blackboards as compared to posterboards or charts and overhead projectors was thought to be caused by ready accessibility, familiarity within the instructional environment, and facility in displaying spontaneously generated information for the purpose of clarification and discussion. This conclusion was based on observed events during reading instruction.

Furthermore, the sparsity of equipment use in general, only thirty-six instances in eighty observations, may be due in part to the emphasis on reading materials for both teachers and students. These materials constituted one aspect of instructional context of reading instruction which is discussed in the following section.
Instructional Context

Materials used in reading instruction.—Instructional context of reading instruction concerned the materials used by the teacher and students during the reading lesson. Types of materials used were recorded during the period of observation. However, not all teachers used materials nor had their students use materials. Furthermore, some teachers had their students use several items of materials instead of only one. Since these categories of materials were neither mutually exclusive nor all inclusive, the percentages of occurrences were not calculated. Only frequencies are reported.

Materials used by teachers and students were recorded at the beginning and during the observation period, if necessary. As with other data collected in unstructured notes, specific categories of classification were not formulated until after all the data were analyzed. The following categories of materials emerged: teacher uses manual; student uses basal reader, workbook, worksheet, prepared answers, reference tools, spelling book, and pencil and paper. Distribution of the teacher's use of materials is shown in Table XIII (p. 184).

Teachers used a manual during reading instruction with both skilled and less skilled readers in forty-eight of eighty observations. A manual was used by teachers more
TABLE XIII

INSTRUCTIONAL CONTEXT: TEACHER'S USE OF MATERIALS

<table>
<thead>
<tr>
<th>Materials</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher uses manual</td>
<td>20</td>
<td>28</td>
<td>48</td>
</tr>
</tbody>
</table>

frequently with less skilled readers than with skilled readers. During twenty-eight lessons conducted with less skilled readers as compared to twenty lessons with skilled readers, the teacher used the manual for the basal reader.

Actual use of the manual varied from a continuous reliance on the instructions and guidance procedures to an occasional referral during discussion of the story. However, most teachers did not represent these two extremes. Instead the manual was used in much the same way as the students used their basal reader. Appropriate emphasis on the manual seemed to occur in most instances.

Distribution of the students' use of materials is shown in Table XIV (p. 172). There was little difference in use of materials between the two skill level groups, both using some type of material a total of ninety times. Less skilled readers were observed using materials forty-eight times as compared to forty-two times with skilled readers.

When students did use materials, it was most often the basal reader. A total frequency of forty-eight occurrences was divided evenly between the skilled and less skilled
reading groups. The reading grade level of the basals in use ranged in difficulty from pre-primers to seventh grade levels. The most frequently occurring levels were fifth and sixth grade reading level basals.

TABLE XIV

INSTRUCTIONAL CONTEXT: STUDENTS' USE OF MATERIALS

<table>
<thead>
<tr>
<th>Materials</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students used:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basal reader</td>
<td>24</td>
<td>24</td>
<td>48</td>
</tr>
<tr>
<td>Workbook</td>
<td>5</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Worksheet</td>
<td>6</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Prepared answers</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Reference tools</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Spelling book</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Paper and pencil</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>42</td>
<td>48</td>
<td>90</td>
</tr>
</tbody>
</table>

Students used workbooks a total of fourteen times during reading instruction. The greater frequency occurred among less skilled readers, a total of nine times, as compared to skilled readers, five times. Generally, the teacher led the students to check their workbooks or introduced the lesson to be completed independently. Student involvement with the workbook took little total time during reading instruction, with the exception of one group which used the entire reading instruction period to check the workbook. Usually, answers were called out by the students
in order to check the work, with little discussion. There was one instance of workbooks being exchanged among group members for checking rather than each student checking his own workbook.

Students used worksheets a total of fifteen times during reading instruction. The use of worksheets was similar to workbooks. Most of the worksheets were commercially prepared but a few were teacher-made. Worksheets were used by less skilled readers during nine lessons as compared to six lessons in which skilled readers used worksheets.

Analysis of the data indicated that teachers who used workbooks or worksheets with skilled groups tended to use worksheets or workbooks with less skilled groups and to use them in a similar way. This may suggest a teacher preference for a particular teaching procedure rather than a response to particular curricular needs of the students in the skill level.

Students used prepared answers a total of four times during reading instruction. Skilled readers used prepared answers three times as compared to less skilled readers who used them only once. The prepared answers were used in the same way by both skilled and less skilled readers.

Apparently the prepared answers were a result of a previous assignment. The students referred to their answers when called on by the teacher during discussion of
the assignment. Most students did not appear to actually read their answers but did answer quickly using complete sentences which gave the appearance that they were restating what they had actually written. In every case, the student used his own work rather than exchanging with another student. The teacher encouraged students to change their answers if they were incorrect.

Students used reference tools a total of two times during reading instruction. Both instances were with the less skilled readers and none with the skilled readers. The reference tools used included an encyclopedia, a dictionary, an atlas, and maps. Students were involved in finding information related to a worksheet in one instance. In the other instance, students used the reference tools to find locations on a map which related to a story read during the lesson. The teacher demonstrated the use of the reference tool in both instances then allowed the students to find the information.

Students used spelling books only once during reading instruction. This occurred with skilled readers rather than less skilled readers. Although the task of spelling words did occur within the context of the learning situation during other reading lessons, this is the only instance in which a formal spelling lesson took the entire reading instruction period. The teacher was informed only that the observer was observing reading instruction with skilled and
less skilled readers. Arrangements were made for the observer to observe the lesson. Given these circumstances, it was probable that the teacher considered a formal spelling lesson as part of the reading curriculum with skilled readers.

Finally, students used paper and pencil a total of six times during reading instruction. Use of paper and pencil occurred equally between skilled and less skilled readers, three times each. When paper and pencil were used by both groups it was in order to copy notes, words, or sentences from the blackboard or overhead projection.

Within the skilled reading level materials were used a total of forty-two times. Most of the time the basal reader was used, followed by worksheets, workbook, prepared answers and paper and pencil, and a spelling book. Reference tools were not used. Within the less skilled reading level materials were used a total of forty-eight times. Most of the time the basal reader was used, followed by workbooks and worksheets, paper and pencil, reference tools, and prepared answers. Spelling books were not used.

In summary, when students used materials during reading instruction it was most often a basal reader, although the reading level of the basal reader did vary between and within skill level groups. Workbooks and worksheets were also used frequently, twenty-nine times between both skill level groups. Use of these materials appeared to suggest
that the basic thrust of reading instruction focused on the basal reading program implemented in each of the schools randomly selected for the study.

The more frequent occurrence of prepared answers and less frequent occurrence of workbook and worksheets among skilled readers as compared to less skilled readers suggested a greater degree of independence as skilled readers approached the reading task. The low or non-occurrence of reference tools and spelling books suggested the idiosyncratic nature of the particular reading instruction as directed by individual teachers. This diversity is also reflected in the stated or implied purpose for the lesson recorded as the second aspect of instructional context.

Purpose of the lesson.—Instructional context of reading instruction concerned the purpose of the lesson. Purpose of the lesson was defined as the stated or implied intention or goal of the teacher for the content of the lesson. Although there were more purposes than observations, percentages as well as frequencies were calculated and reported.

These purposes were determined based on observable behaviors of teachers and students during reading instruction. Purposes were specifically stated by the teacher. For example:

"Let's go back and review yesterday. What's the name of the story?"
"I want you to look at the chart. One way we can get information is by putting it on a graph or table."

"You read the first paragraph for us and we'll decide what these words mean."

"Remember yesterday when I put sentences on the board? You had to use context. What do we mean by context?"

Our purposes were implied by the teacher's and/or the students' behavior and other observable events which occurred during reading instruction. For example:

Students began turning in book to find specific responses to questions asked by teacher.

Students have basal reader and workbook ready before teacher called them individually to desk for instruction.

Teacher writes phonetic spelling on board and students read word without prompting.

After analysis of the data collected during reading instruction with both skilled and less skilled groups, the following categories emerged: directed instruction, oral reading, discussion with reading, review of instruction, independent work, evaluation of understanding, continuation of prior lesson, silent reading, and individual instruction. Distribution of frequencies and percentages for purposes of lesson are shown in Table XV (p. 178). Discussion of each category includes frequency of occurrence, definition of category, and examples from transcription of lesson.

Distribution of these purposes indicated that the major thrust of reading instruction for both skilled and less skilled reading levels centered on presentation of
<table>
<thead>
<tr>
<th>Purpose of the Lesson</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directed instruction</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>a 19</td>
<td>28</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>b 40.0</td>
<td>40.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c 30.0</td>
<td>35.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d 13.0</td>
<td>20.0</td>
<td>33.0</td>
<td></td>
</tr>
<tr>
<td>Oral reading</td>
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<td></td>
</tr>
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<td>16</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>11.0</td>
<td>13.0</td>
<td>25.0</td>
<td></td>
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<tr>
<td>Discussion with reading</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>15</td>
<td>25</td>
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<td>60.0</td>
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<tr>
<td>7.0</td>
<td>11.0</td>
<td>18.0</td>
<td></td>
</tr>
<tr>
<td>Review of instruction</td>
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<td></td>
<td></td>
</tr>
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<td>0.01</td>
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<tr>
<td>Continuation of prior lesson</td>
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<td></td>
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<tr>
<td>50.0</td>
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<td>0.01</td>
<td></td>
</tr>
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<td>3.0</td>
<td>1.0</td>
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<td></td>
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<tr>
<td>2.0</td>
<td>1.0</td>
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<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
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<tr>
<td>Silent reading</td>
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<tr>
<td>0</td>
<td>2</td>
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<tr>
<td>0.0</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.0</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.0</td>
<td>0.01</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Individual instruction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>2</td>
<td></td>
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<tr>
<td>0.0</td>
<td>100.0</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>0.0</td>
<td>0.01</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>80</td>
<td>142</td>
</tr>
<tr>
<td>44.0</td>
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</tbody>
</table>

Key:  
a = observed frequency  
b = row per cent  
c = column per cent  
d = total per cent
content by the teacher, engagement of students in oral reading, involvement of teachers and students in consideration of reading content, and restatement of content for the purpose of reinforcement. However, within each skill there was some difference in the frequency of these purposes. These variations are graphically illustrated in the circle diagrams shown in Figure 16.

**SKILLED READERS**

- A - 30% Directed instruction
- B - 25% Oral reading
- C - 16% Discussion with reading
- D - 18% Review of instruction
- E - 5% Independent work
- F - 3% Evaluation of understanding
- G - 3% Continuation of prior lesson

**LESS SKILLED READERS**

- A - 35% Directed instruction
- B - 23% Oral reading
- C - 19% Discussion with reading
- D - 11% Review of instruction
- E - 4% Independent work
- F - 1% Evaluation of understanding
- G - 1% Continuation of prior lesson
- H - 3% Silent reading
- I - 3% Individual instruction

Fig. 16--Purposes of the lesson by skill level

Directed instruction occurred more frequently than any other purpose for both skilled and less skilled readers. Directed instruction was defined as "a systematic guided series of procedures intended to result in learning" (Harris
& Hodges, 1981, p. 157). This was the observed purpose of the lesson a total of nineteen times when instructing skilled readers and twenty-eight items when instructing less skilled readers. Examples of directed instruction include presentation of content to the group through demonstration, explanation, and illustration.

Teachers indicated that the purpose of the lesson was directed instruction more frequently among less skilled readers, 60 per cent of the total, than among the skilled readers, 40 per cent of the total. An example of directed instruction is shown below.

Teacher: What is a simile?
Student: A simile is comparing things.
Teacher: It's comparing two what kind of things?
Student: Like.
Teacher: What kind of things are being compared? Are they alike or not alike?
Student: They're alike.
Teacher: They're alike, why?
Student: Because people realize they are alike in a certain way.
Teacher: That's good. Why do you know that it's a simile?
Student: Cause they're alike.
Teacher: What three words are used in comparison in similes?
Student: Like, as, or than.
Oral reading was used as a purpose for the lesson sixteen times with skilled readers and nineteen times with less skilled readers. Oral reading was defined as "the process of reading aloud to communicate to another or to an audience" (Harris & Hodges, 1981, p. 221). Students read orally as directed by the teacher who guided the process by calling on students to read, correcting errors in reading, and leading pertinent discussion throughout some oral reading occurrences. Teachers, themselves, were never observed reading orally to their students during the eighty observation times.

Oral reading was used 54 per cent of the observed instances among less skilled readers as compared to 46 per cent among skilled readers. There appeared to be more emphasis on correct oral reading among less skilled readers as compared to skilled readers. When oral reading occurred among skilled readers there appeared to be more emphasis on discussion of the content than with correct oral reading.

There was one instance of instruction concerned with the mechanics of oral reading. The emphasis was on stress as a means of clarifying meaning. Below is an excerpt from that lesson.

Teacher: Cedric, when we were studying an English lesson about four or five weeks ago, we talked about stress. Can you tell me in your own words what we mean when we put stress on a word?

Student: Say it with more pitch.
Teacher: All right, say it with more pitch. You might want to pitch your voice one way or the other. What else would you say, Brian?

Student: Pause.

Teacher: Pause, you could do that. Give me a sentence and stress a word.

Student: I will go with you.

Teacher: I will go with you. What word did he stress?

Student: You.

Teacher: Now let's look at the story.

Student: (Student reads story about Mrs. Balian at the market. She has groceries that she will carry home.) I'll take them with me, she replied.

Teacher: And what word would you stress?

Student: With.

Teacher: Very good. You didn't want to stress "them" because the groceries are going home somehow. She is going to take them, so you stress with.

Discussion with reading was implied as a purpose when most of the oral reading was interjected with verbal exchanges between teacher and students or among students. Discussion occurred when exchanges centered on consideration of the content of the reading material. Examples of discussion included exchanges of opinions for enrichment, expansion for clarification, and application for personalization.
Discussion with reading occurred more frequently among less skilled readers, 60 per cent of the total, as compared to skilled readers, 40 per cent of the total. This difference was probably due to the need for more intervention in dealing with the reading materials among less skilled readers who may have been less able to handle the conceptual load of vocabulary and semantic or syntactic structure of language than skilled readers (Bransford, Vye, & Stein, 1984). In addition, discussion with reading appeared to enhance the students' involvement with print through relating personal experiences to the author's message (Wigfield & Asher, 1984, p. 440).

Review of instruction was observed as a purpose for the lesson as teachers presented "a systematic, guided series of procedures" in order "to study again for better understanding and retention" of the content (Harris & Hodges, 1981, pp. 157 and 280). Review was the purpose of the lesson a total of twenty times, eleven with skilled readers and nine with less skilled readers.

The purpose was determined to be review of instruction when there was a clear indication from the teacher that the content had been presented at another time and the students were studying the content again. Statements by the teacher which indicated review included:

"How many of you remember what we read yesterday?"
"Let's look back over these pages to refresh our memory."

"All right, who remembers the story the five of us read day before yesterday? Who can tell me where the story took place?"

In addition, there were two other indicators which supported the conclusion that the purpose of the lesson was review of instruction. First, as students made reference to prepared, displayed posterboards or charts, the element of review was implied. Secondly, since each of the forty skilled and less skilled groups was observed twice, review of instruction was obvious when the second observation included instruction presented during the first observation.

Teachers had review of instruction as their purpose more frequently among skilled readers, 55 per cent of the total, than among less skilled readers, 45 per cent of the total. Review of instruction, directed instruction, oral reading, and discussion with reading accounted for 90 per cent of the purposes stated or implied by the teacher and observed events during reading instruction with both skilled and less skilled readers.

There were five other categories of purposes observed which accounted for 10 per cent of the purposes stated or implied by the teacher and observed events during reading instruction with both skilled and less skilled readers. The remaining purposes of the lesson included independent work, evaluation, continue prior lesson, silent reading, and individual instruction.
Independent work was the purpose of the lesson when the teacher allowed reading instruction time for students to work without contact of the teacher or other students. Independent work occurred as often with skilled readers as with less skilled readers, three times among both groups. Content of independent work included completing worksheets, using reference tools, and reading silently.

Evaluation was a purpose of the lesson when the teacher appraised the performance of the students' mastery of content through testing during reading instruction (Harris & Hodges, 1981, p. 108). Evaluation occurred a total of three times, twice with skilled readers and once with less skilled readers. Each instance of evaluation involved the use of paper and pencil by the students. There was no occurrence of immediate feedback following evaluation. Instead the testing was one component of the reading instruction period.

Continue prior lesson was a purpose when the content of the lesson which occurred during the first observation was continued during the second observation. This purpose differs from review of instruction in that instruction began in the second observation where it had ended during the first observation with no element of review. Continuation of prior lesson occurred once with skilled readers and once with less skilled readers.
**Silent reading** as a purpose of the lesson occurred when the teacher allowed time during the reading instruction period for students to read silently. There was no occurrence of silent reading when teachers instructed skilled readers and only two occurrences when teachers instructed less skilled readers. In both instances the less skilled readers read silently for only a portion of the reading instruction period instead of the entire time.

The infrequent occurrence of silent reading as a purpose of the lesson may have indicated a reluctance on the part of the teacher to use instruction time for the isolating activity of silent reading. Although "silent reading is now the most common form of reading emphasized in the teaching of reading" (Harris & Hodges, 1981, p. 297), it did not appear to be conducive to group interaction. Therefore, silent reading occurred infrequently as a purpose for reading instruction.

**Individual instruction** as a purpose of the lesson occurred when the teacher allowed time during the reading instruction period to instruct individual students on a one-to-one basis. Individualization reflected the "adjustment of teaching-learning activities to student needs" (Harris & Hodges, 1981, p. 153). Individual instruction occurred twice with less skilled readers. Activities used for instruction included using flashcards for sight word vocabulary, checking prepared comprehension
answers in the workbook, and reading aloud from appropriate basal level books. No occurrence of individual instruction was observed among skilled readers.

In summary, teachers emphasized directed instruction, oral reading, discussion with reading, and review of instruction as primary purposes of the lesson with skilled and less skilled readers.

Within the skilled reading group a total of sixty-two purposes for the lessons were observed. Since there were forty observations the ratio of purpose per lesson was 1.45:1. Silent reading and individual instruction were not observed as purposes among skilled readers. Four purposes represented 90 per cent of the total: directed introduction, 30 per cent; oral reading, 26 per cent; review of instruction, 18 per cent; and discussion with reading, 16 per cent. The remaining 10 per cent of the total included the following: independent work, 5 per cent; evaluation, 3 per cent; and continued prior lesson, 2 per cent.

In contrast, within the less skilled reading group a total of eighty purposes for the lessons were observed. Since there were forty observations the ratio of purpose per lesson was 2:1. As with skilled readers, four purposes represented 90 per cent of the total: directed instruction, 35 per cent; oral reading, 23 per cent; discussion with reading, 19 per cent; and review of instruction, 11 per cent.
The remaining 10 per cent of the total included the following: independent work, 4 per cent; both silent reading and individual instruction, 3 per cent; and both evaluation and continued prior lesson, 1 per cent.

Generally, teachers tended to have more purposes per lesson when instructing less skilled readers, 2:1, as compared to skilled readers, 1.45:1. This difference may be attributed to the greater amount of actual time spent observing instruction of less skilled readers than skilled readers, 1113 minutes and 54 seconds as compared to 962 minutes and 16 seconds. A second factor influencing the number of purposes per lesson could be that less skilled readers frequently required skill oriented instruction, i.e., directed instruction, along with oral reading.

Finally, the addition of silent reading and individual instruction added four purposes to the less skilled reading groups which were not present among skilled reading groups.

In summary, instructional environment and instructional context are two components of patterns of questioning based on data collected through unstructured notes. Data analysis, discussion, and examples have been presented in a manner which compared skilled reading groups to less skilled reading groups. This information provided the setting for the questions and the responses which occurred during reading instruction. The data collected concerning
these questions and responses were gathered through structured notes.

**Structured Notes**

Information which related to each question/response/response loop was recorded during analysis of audiotape recordings and transcriptions of reading instruction. Structured notes related to the content, wait-time, designation, and sequencing of questions; and the appropriateness, type, and length of the students' responses; and the content of the teacher's responses.

Data which were recorded during the observation related to the designation and sequencing of questions. An observation instrument was used to map the exchanges of questions and responses as they occurred in the classroom. The remaining data were recorded after analysis of the transcripts was complete. Results of these structure notes are reported in two parts: questions, then responses.

**Questions**

**Content of questions.**—Each question was analyzed in terms of the content of the question. Content referred to the basic substance or subject matter of the question. The method of determining the content of the questions was to study the audiotape recording and transcription of each question within the context of the observed reading instruction event.
The context, "the set of circumstances that surround a spoken or written message and form a framework for its interpretation" (Harris & Hodges, 1981, p. 67), preserved the integrity of the question within the reading instruction generally and within each question/response/response loop, specifically.

Seven categories of content emerged after analysis of all observations. These are management, comprehension of connected prose, reading skills, reference skills, grammar exercises, spelling exercises, personal experience, and comprehension skills. Every question was classified in one of these categories based on the context in which it occurred. Explicit statements made by the teacher and implicit indicators of the situation were used to determine the content of each question.

The results of analysis of all eighty observations are shown in Table XVI (p. 191). Each category is discussed, results of skilled as compared to less skilled readers are reported, and examples of the particular content are given.

The content categorized as management referred to those questions which were used to regulate, monitor, or control the direction of the class or group as a whole or of an individual student within the class or group. The total number of questions classified as management was 495. Fewer management questions were used with skilled readers, 47.1 per cent, as compared to less skilled readers, 52.9
TABLE XVI

OBSERVED FREQUENCIES OF QUESTION CONTENT FOR SKILLED AND LESS SKILLED READERS

<table>
<thead>
<tr>
<th>Content</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a 233</td>
<td>262</td>
<td>495</td>
</tr>
<tr>
<td>Management</td>
<td>b 47.01</td>
<td>52.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c 10.1</td>
<td>9.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d 4.5</td>
<td>5.1</td>
<td>9.6</td>
</tr>
<tr>
<td>Comprehension of connected prose</td>
<td>681</td>
<td>989</td>
<td>1670</td>
</tr>
<tr>
<td></td>
<td>40.8</td>
<td>59.2</td>
<td></td>
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<tr>
<td></td>
<td>29.6</td>
<td>34.8</td>
<td></td>
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<tr>
<td></td>
<td>13.2</td>
<td>19.2</td>
<td>32.5</td>
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<td>Reading skill</td>
<td>590</td>
<td>887</td>
<td>1467</td>
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<tr>
<td></td>
<td>39.5</td>
<td>60.5</td>
<td></td>
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<tr>
<td></td>
<td>25.2</td>
<td>31.2</td>
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<tr>
<td></td>
<td>11.3</td>
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<td>28.5</td>
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<td>Reference skill</td>
<td>40</td>
<td>1122</td>
<td>162</td>
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<td></td>
<td>24.7</td>
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<td>1.7</td>
<td>4.3</td>
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<td></td>
<td>0.8</td>
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<td>3.1</td>
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<tr>
<td>Grammar exercise</td>
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<td>173</td>
<td>516</td>
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<tr>
<td>Personal experience</td>
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<td>305</td>
<td>437</td>
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<td>30.2</td>
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<td></td>
<td>5.7</td>
<td>10.7</td>
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<td></td>
<td>2.6</td>
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<tr>
<td>Comprehension skill</td>
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<td>2303</td>
<td>2843</td>
<td>5146</td>
</tr>
<tr>
<td></td>
<td>44.8</td>
<td>55.2</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Key:  
- a = observed frequency  
- b = row per cent  
- c = column per cent  
- d = total per cent
per cent. However, the proportion of management questions in relationship to the total questions asked for each group was similar. Based on the total number of questions, 4.5 per cent of the questions were classified management in skilled reading groups and 5.1 per cent in less skilled reading groups.

Management questions were used primarily at the beginning and ending of the reading instruction period when organizationally centered dialogue was most frequently observed. Other instances of management questions appeared to occur more frequently during the lesson when there was a change in activities, the teacher was interrupted, or a student or students were creating a disturbance. Some typical examples of management questions are given below with an explanation of the context.

Example 1: Directed to a student who was talking to his neighbor.

"What did you say, Mike?"

Example 2: Directed to the group at the beginning of the lesson.

"Who would like to read the sentence first?"

Example 3: Directed to a student for the benefit of another student.

"He doesn't ever listen. Would you like to run that by me again?"

Example 4: Directed to a student who was not attending to instruction.

"You've got your book sideways. How can you read your book sideways?"
Example 5: Directed to a student who was obviously trying to think of the answer.

"Do you think you know what the answer is?"

Generally, there was little difference in the frequency and use of management questions observed when teachers were instructing skilled readers as compared to less skilled readers.

The content categorized as *comprehension of connected prose* referred to those questions which related to understanding the meaning of written or spoken language that was in sentence or paragraph form. The total number of questions classified as comprehension of connected prose was 1670. More comprehension of connected prose questions was used with less skilled readers, 59.2 per cent, than with skilled readers, 40.8 per cent.

Furthermore, the proportion of comprehension of connected prose questions in relationship to the total questions asked was somewhat greater among less skilled reading groups than among skilled reading groups. Based on the total number of questions, 19.2 per cent of the questions were classified comprehension of connected prose in less skilled groups as compared to 13.2 per cent in skilled groups. However, comprehension of connected prose was the most frequently occurring content for both skilled and less skilled groups. The number of questions classified as comprehension of connected prose, 1670, represented 32.5 per cent of the total number of questions.
The questions classified as comprehension of connected prose generally reflected the most frequently occurring purposes of the lesson, i.e., directed instruction, oral reading, discussion with reading, and review of instruction. In addition, students usually were using a basal reader when questions related to comprehension of connected prose occurred. In all instances, comprehension, "the process of getting the meaning of communication" (Harris & Hodges, 1981, p. 60), was a critical factor. Some typical examples of comprehension of connected prose questions are given below within the context of the reading lesson.

Example 1:

Students were reading a story about Dr. Martin Luther King. The teacher's apparent intention was to direct the students' attention to the connected prose itself for answers as indicated by the frequent referrals to "the book."

Teacher: What three things happened to young Martin Luther King to cause him to learn very early in life what it means to be a Negro? What's one thing the book has already told us, Stephanie?

Student: About when his father was going to buy him some shoes and they told him he had to wait in the back.

Teacher: All right, what was the other thing, Rolando?

Student: When his best friend's mother told him that he couldn't play with him because he was colored.
Teacher: Okay, so that's two of the things. Let's continue reading, Stacy.

Student: (Student reads.)

Teacher: All right, one of the questions asked you what were some of the things that Martin Luther King valued. What were some things that they just named in that paragraph? Eddie.

Student: Better jobs.


Student: Higher salaries.

Teacher: Higher salaries. What else? Read that first sentence and tell me two qualities that he thought were important for people to have.

Student: Brotherhood and justice.

Teacher: Brotherhood and justice. Continue reading Priscilla.

Example 2:

Students have read about a teenager who was a country type person. They are discussing his characteristics.

Teacher: Okay, let's make a list of some of the characteristics of Clarence. We'll do characteristics that are usual (writes USUAL on board). These would be characteristics that some of us would share along with Clarence. And unusual characteristics (writes UNUSUAL on board).

Student: He doesn't talk with proper English.

Teacher: Okay, his speech. (Writes SPEECH under unusual column.)

Student: That's not unusual.

Teacher: Oh, okay. So his speech is improper speech. (Moves SPEECH to usual column.) Tell me, what's unusual about him, Michelle.
Student: He's unusual because of the way he dresses.

Teacher: Okay, the way he dresses. Okay, Meredith.

Student: Unusual because he doesn't act his age.

Teacher: Okay, what is that called when someone who is twenty doesn't act like he's twenty?

Student: Boyish.

Teacher: Boyish, childish. What's another word?

Student: Immature.

Teacher: Immature, that's a good word. Anita.

Student: Even when he was slapped twice still he reacted quite calmly, you know, the coaches were turning red and he was just standing there.

Teacher: Okay, so he was very . . . a . . . what is that word?

Student: Calm.

Teacher: Calm. Okay. Would that be usual or unusual.

Student: Unusual.

There was some difference in the frequency of questions which were classified as comprehension of connected prose. Even though this content category appeared most frequently for both skilled and less skilled readers, teachers tended to use more comprehension of connected prose questions with less skilled readers than skilled readers.

However, for both skilled and less skilled readers teachers appeared to direct comprehension of connected prose questions toward the text. Emphasis was consistently on what the author said, what the author meant, and what do you think the author was saying about you or to you.
The content categorized as reading skills referred to those questions which related to understanding vocabulary meaning, phonics, or structural analysis of individual words or phrases. The total number of questions classified as reading skill was 1467. More reading skill questions were used with less skilled readers, 60.5 per cent, than with skilled readers, 39.5 per cent.

As with comprehension of connected prose, the proportion of reading skill questions in relationship to the total questions asked was greater among less skilled groups than among skilled groups. Based on the total number of questions, 17.2 per cent of the questions were classified reading skill in less skilled groups as compared to 11.3 per cent in skilled groups.

The greater frequency of reading skill questions may be due to the more frequent use of workbooks and worksheets among less skilled readers as compared to skilled readers. In all instances the emphasis in reading skill questions was on the "practice", "an act that is the specified response to a given stimulus situation" (Harris & Hodges, 1981, p. 245), of the particular reading skill.

Teachers typically allowed more time during reading instruction to involve less skilled readers in specific practice of particular reading skills. Since the less skilled groups tended to be smaller in size, there was more opportunity to allow all members of the group to
participate in the practice verbally. This practice involved repeated telling or demonstrating of the correct response, opportunity for the students to repeat the correct response, and application of correct response in an example. In addition, reading skill questions were characterized by a focus of instruction on single phonetic parts, words, or phrases rather than whole sentences or thought units within connected prose. Some typical examples of reading skill questions are given below within the context of the reading lesson.

**Example 1:**

The teacher was standing at the blackboard in front of a small group of students. The focus of instruction was on the recognition of the long u sound.

Teacher: Okay, let's look at something else. What is this letter? (Teacher write a u on the board.)

Student: U

Teacher: Okay, and this. (Teacher writes "you" on the board.)

Students: You.

Teacher: Okay, when you see the letter "u" and the word "you", do you say the same sound?

Students: Yes.

Teacher: Okay, you hear the long, the sound that u has, the name of the letter u, and you also hear the sound of oo, don't you? As in took or like the cow goes moo.

Students: (Students nod their heads in agreement.)
Teacher: Now, when you say this word do you hear the same sound as in the letter u, the vowel u, and the word "you"? (Teacher writes the word "unicorn").

Students: Yes.

Teacher: Can anybody say that half of the word? (Teacher points to "uni"). What is that word?

Student: Un (as in under).

Teacher: Do we pronounce it un? How did we say we pronounce it?

Student: Un (as in you).

Teacher: Okay. Un and then we have . . . (Teacher points to "i").

Student: Uni.

Teacher: Uni. What's that? (Teacher points to "corn").

Student: Corn.

Teacher: Okay, what's the word?

Students: Unicorn.

Teacher: Unicorn. Do you know what a unicorn is?

Students: A horse with a horn in his head.

Example 2:

The students have read a short story about Abraham Lincoln. The lesson focused on the vocabulary words that were underlined in the story.

Teacher: Okay, let's go back a minute. Abraham Lincoln had a reputation for truthfulness and honesty. What does reputation mean? Cody.

Student: To be known, to be honest.
Teacher: Something is known. Some people have a good reputation and some people have a bad reputation. How can you have a bad reputation? Jeff.

Student: Doing bad things.

Teacher: All right, gangsters would have bad reputations. Let's go to the next word that is underlined. He walked several miles one evening to return six cents to an old lady he had overcharged during the day. What does that mean? From reading that, what do you think it means? David.

Student: Overcharged ... it means ... like if something is ten cents and he charged them thirteen cents.

Teacher: Okay, overcharged. Charged them too much. Okay, but Lincoln knew that he needed more than a reputation, he needed an education. He realized his backwoods speech marked him. What does that mean? Nancy?

Student: The way he spoke.

Teacher: All right, the way he spoke. He couldn't really help the way he spoke because he didn't have an education. He knew that he spoke differently from other people. What would backwoods speech be like? Cody.

Student: (Student speaks in a backwoods accent.)

Teacher: How about some of your words--like ain't.

Students: (Commonly mispronounced words and local pronunciations of some words are given.)

Generally, reading skill questions occurred more frequently with less skilled readers than skilled readers. However, reading skill questions were the second most frequently occurring questions for both skilled and less skilled readers. The number of questions classified as this
content, 1467, represented 28.5 per cent of the total number of questions.

The content categorized as **reference skills** referred to those questions which related to understanding alphabetic order, reading maps, graphs, or tables, and using encyclopedias or dictionaries. The total number of questions classified as reference skills was 162. Most of the questions occurred while instructing less skilled readers, 75.3 per cent, as compared to skilled readers, 24.7 per cent. Based on the total number of questions, 2.4 per cent of the questions were classified reference skills in less skilled reading groups as compared to 0.8 per cent in skilled groups.

There were more questions related to reference skills among less skilled readers than skilled readers. However, the relatively few occurrences of reference skills questions suggested the idiosyncratic nature of the lessons. There was no evidence to propose the notion that teachers spend more time using reference oriented content when instructing less skilled readers than skilled readers.

Some typical examples of reference skills questions are given below within the context of the reading lesson.

**Example 1:**

The teacher displayed a chart with a table of information concerning girls' organizations. The apparent purpose of the lesson was to demonstrate how to read the table. The emphasis seemed to be on how quickly the
information can be found using a table as compared to looking it up in a book.

Teacher: Which one had the most members back in 1970? Look at it quickly. Linda. Which number did you pick?

Student: I don't know how to read the number, but it's Girl Scouts.

Teacher: You don't know how to read this number?

Student: No.

Teacher: Look at it carefully, you can read it, two columns.

Student: Three million.

Teacher: That's right, three million. Okay, now looking at it quickly can you see which one is the oldest organization? Douglas.

Student: Y-Teens.

Teacher: Okay, the Y-Teens.

Student: 1897.

Teacher: Are you sure it's Y-Teens?

Student: No.

Teacher: Look at it again carefully. Linda, is there one older than Y-Teens?

Student: 1881.

Teacher: Okay. It's kinda hard to see, I realize that. 1864 is before 1881, so this one actually started before this one. (Teacher points to table.) Now you see how easy it is to read information from a table. Rather than if I said, go to an encyclopedia and look up this particular information, it would take you a lot longer to find it. That's the reason we use tables and charts.
**Example 2:**

Students have a worksheet about Abraham Lincoln with sentences to be completed using reference tools.

Teacher: Okay, here are some reference books. Now, if I wanted to find out something about Abraham Lincoln, could I find it in this book? (Teacher holds up an atlas.)

Student: No.

Teacher: Why not?

Student: It's not in there.

Teacher: What is in here?

Student: Maps.

Teacher: Would there be anything in here about Abraham Lincoln? (Teacher holds up a dictionary.)

Student: No.

Teacher: What's in here?

Student: Words and meanings.

Teacher: Would I find it in here? (Teacher holds up a World Book.)

Student: Yes.

Teacher: I wouldn't find it in this one. Why wouldn't I find it in this one? (Not the L volume.)

Student: It's the wrong one.

Teacher: Right, it would need to be an L.

Generally, reference skills questions were used by teachers while instructing both skilled and less skilled readers when there was a need for reference tools. Teachers did not appear to vary the use of these questions according to the reading skill level of the group.
The content categorized as grammar exercise referred to those questions which related to using correct capitalization, punctuation, or parts of speech. The total number of questions classified as grammar exercise was 516. More grammar exercise questions were used with skilled readers, 66.5 per cent, as compared to less skilled readers, 33.5 per cent. Based on the total number of questions, 6.7 per cent of the questions were classified grammar exercise in skilled groups as compared to 3.4 per cent in less skilled groups.

The greater frequency of questions classified as grammar exercise in the skilled reading level reflected the emphasis of eleven of the twenty teachers who included grammar as part of the reading instruction curriculum. However, only one teacher included grammar instruction in both skill level groups. Examples of grammar exercise questions are given below within the context of the reading lesson.

Example 1:

Students were finding and explaining prepositional phrases in sentences displayed on the blackboard.

Teacher: Now you notice that number 12 has a star by it. That means that there's something that might be tricky in number 12. Okay, Evangelina.

Student: Mother asked me to go to the store.

Teacher: Okay, now look at your clues again, Evangelina. Your prepositional phrase is a little word that ends with a noun. Leave it out of a sentence, and it sometimes tells you where.
Student: (Student marks "to the store.")

Teacher: Good. Read your sentence.

Student: Mother asked me to go.

Teacher: Okay, can anybody figure out why number 12 has a star by it. What do you think is tricky about it? Joe.

Student: Because "to go."

Teacher: Why is "to go" not a prepositional phrase? Look at your clues. Isreal.

Student: It don't got a noun at the end.

Teacher: Right, it doesn't have the noun at the end. "To go" is a verb phrase.

Example 2:

Students were studying a workbook page about commas. The teacher's instruction focused on the voice inflection necessary to express a comma.

Teacher: How do you read a comma? What do you do when you come to a comma? Say, comma?

Student: No.

Teacher: What do you do?

Student: Pause.

Teacher: You pause, good, Darron. You pause. Then you know that's the separation of what's being said.

Generally, grammar exercise questions did not occur frequently during reading instruction of both skilled and less skilled readers, a total of 10 per cent. Those few teachers who did allow a portion of reading instruction time for instruction in grammar, demonstrated a perception that grammar was part of reading instruction. However, most
of the eleven teachers who did use grammar exercise questions, interspersed those questions within the larger context of questions which related to comprehension of connected prose, reading skills, or comprehension skills.

The content categorized as spelling exercise referred to those questions which related to using correct spelling of words in written language. The total number of questions classified as spelling exercise was thirty-one. There was no occurrence of spelling exercise questions with skilled readers. Therefore, all thirty-one questions were observed while the teacher was instructing less skilled readers.

The occurrence of spelling exercise questions indicated the teacher's perception that spelling was part of the reading instruction curriculum. Although only one teacher used spelling exercise questions during the observed reading instruction, there was no evidence to conclude that other teachers did not include spelling in the reading instruction curriculum. It can be assumed, however, that the sparsity of occurrence among all eighty observations did indicate a relatively minimal emphasis on spelling exercise questions during reading instruction periods. An example of spelling exercise questions is given below within the context of the reading lesson.

**Example:**

Students have taken a spelling quiz on contractions. They have exchanged papers and now take turns pronouncing
and spelling each word.

Teacher: Number one, Joy, would you take the word, pronounce it, and spell it?

Student: it's, i-t-'-s

Teacher: If you know the two words that it's stands for, will you raise your hand and tell us. (Teacher checks to see which students have their hands raised.) Shane.

Student: It is.

Teacher: Number two, Gene.

Student: isn't, i-s-n-'-t

Teacher: Okay, and what two words does isn't stand for?

Student: Is not.

Teacher: Number three.

Student: don't, d-o-n-'-t

Teacher: And it stands for . . . , Shane?

Student: Do not.

Teacher: The apostrophe takes the place of what letter?

Student: 0

Teacher: O in not. Number four, Kevin.

Student: you'll, y-o-u-l-l

Teacher: It stands for what two words?

Student: You will.

Teacher: All right, number five, Leo.

Student: I am, I'm.

Teacher: How do you spell I'm?

Student: I-'-m
Teacher: The apostrophe takes the place of what letters?

Student: i

Teacher: In what word? If it stands for I am, I'm takes the place of what letter in "am?"

Student: a

Teacher: Good, number six, Nathan.

Questions related to spelling exercise represented only a portion of the total reading instruction period. The remainder of the lesson focused on the reading and discussion of a story.

The content categorized as personal experience referred to those questions used to elicit information from the student or group of students which were not dependent on the comprehension of connected prose in order to respond.

Instead, the content of the question required information from personal experience, opinion, or knowledge. The total number of questions classified as personal experience was 437. There were more personal experience questions used with less skilled readers, 69.8 per cent, than skilled readers, 30.2 per cent. In addition, the proportion of personal experience questions in relationship to the total questions asked was somewhat greater among less skilled readers than among skilled readers. Based on the total number of questions, 5.9 per cent of the questions were classified personal experience in less skilled groups as compared to 2.6 per cent in skilled groups.
Questions which were classified as personal experience tended to be interspersed among questions classified in other content categories. Most frequently, these categories were comprehension of connected prose, reading skills, and comprehension skill. The general purposes of personal experience questions appeared to be to encourage a student's involvement in the lesson, or to activate the student's awareness of an opinion and knowledge he may possess on the subject of the lesson. Some typical examples of personal experience questions are given below within the context of the reading lesson.

Example 1:

Students were discussing animals that are considered prey by other animals.

Teacher: How would you feel if you had people waiting to eat you or grab you up? How do you think you would feel?

Student: Scared.

Teacher: Would you just walk around out in the open?

Student: No.

Teacher: What do people in war have to do, what do their suits look like?

Student: Like grass and leaves.

Teacher: Why do you think they wear those?

Student: So they can crawl under a bush. So they look like trees.
Example 2:

Students were about to read a story about a little boy on an escalator. The teacher asked them these questions before they started reading.

Teacher: Lindsey, what's an escalator?
Student: One of them things that move.
Student: Electric stairs.
Teacher: Do you like to ride on them?
Student: Yea.
Teacher: Are they dangerous?
Student: No.
Teacher: Can they be dangerous?
Student: Yea.
Teacher: What can happen?
Student: You can fall off, you can trip off and fall.

Example 3:

Teacher was leading the students in a discussion about politics after reading a story about Abraham Lincoln.

Teacher: All right, politics or politicians are centered in the capitals of the states and in the capital of a nation. Where will you find the most politicians in this state?
Student: In Austin.
Teacher: Where would you find most of the politicians in this country?
Student: Washington, D. C.

Generally, the total frequency of personal experience questions was low, 8.5 per cent of the total number of
questions. However, the higher frequency of personal experience questions among less skilled readers may be reflective of an apparent reticence of less skilled readers to express themselves, or to respond openly during discussions. In addition, the brevity of responses from less skilled readers could have resulted in more frequent personal experience questions asked by the teacher in an attempt to draw them into the discussion.

The content categorized as comprehension skills referred to those questions which required an understanding of fact and opinion, figures of speech, outlining, or using context to gain meaning from connected prose. The total number of questions classified as comprehension skill was 368. More comprehension skill questions were used with skilled readers, 79.9 per cent, than with less skilled readers, 20.1 per cent. Furthermore, the proportion of comprehension skill questions in relationship to the total questions asked was greater among skilled groups than among less skilled groups. Based on the total number of questions, 5.7 per cent of the questions were classified comprehension skill in skilled groups as compared to 1.4 per cent in less skilled groups.

Among all eight categories of content, the frequency of comprehension skill questions resulted in the greatest variation in proportion when comparing skilled readers to less skilled readers. This difference was probably caused
by the idiosyncratic nature of the lessons. The teachers appeared to emphasize the process of gaining meaning from connected prose among skilled readers. Some typical examples of comprehension skill questions are given below within the context of the reading lesson.

**Example 1:**

Teacher introduced the idea of using figures of speech to say what you mean without saying it directly. The following discussion occurred without the use of books or a manual. The teacher used only the blackboard.

**Teacher:** What's an idiom?

**Student:** It's comparing something to something else.

**Teacher:** Okay, that's kind of it. All right, Cari.

**Student:** It's something that means about the same but said in a pleasant way.

**Teacher:** Okay, an idiom is a group of words whose meaning is quite different from the meaning of the words used. If you took each one of these words individually, you would have a completely different meaning from the phrase itself. Let's take a look at the first one. "We've got to make a decision, let's talk turkey." (Teacher read sentence from the board.) What does that mean? Jana.

**Student:** If they have different ideas you have to tell what they are.

**Teacher:** What else could it mean?

**Student:** Don't try to hide any of your feelings, just tell how you feel.

**Teacher:** Right. That's good. In other words... (Teacher stops because a student raises her hand.) Anita.

**Student:** Come right out and say what you're thinking.
Teacher: Exactly, get it out in the open and let's see what we have to do.

Example 2:

Students are shown a posterboard with the events of a story numbered but not in the order of occurrence. The apparent purpose of the lesson was to determine the sequence of events. After this story was completed, they were given another similar comprehension exercise.

Teacher: Okay, what do we mean by sequence, before we start?

Student: The way it happened in the story.

Teacher: You're putting something in order, the way it happened. Okay, what is the first thing that happened? Tabitha, what do you think the first thing that happened is?

Student: C

Teacher: Okay, C should be first. How many of you said C?

Students: (Most of the students raised their hands.)

Teacher: What is the second thing that happened?

Students: E

Example 3:

Teacher briefly reviewed the meaning of fact and opinion before leading the students to practice determining whether statements displayed on a chart were fact or opinion.

Teacher: Now, we have learned the difference in fact and opinion. Before we even look at this chart, what are some ways that we've learned to distinguish between fact and opinion?
Student: Fact . . . he says, I am absolutely positive, I am sure . . . likely to be.

Teacher: Okay, you mean to tell me that it's usually a fact?

Student: Oh, no. You see those words. (Student refers to chart.) He says, I think . . . it means an option.

Teacher: All right, because of the . . . what is the key word?

Student: Think.

Teacher: Think. All right, Sam.

Student: A fact is something that can be proven and an opinion can't.

Teacher: Exactly. Read the first sentence, Anthony, and tell us if it is fact or opinion.

Generally, comprehension skill questions were different from comprehension of connected prose questions in that the element of repeated practice with the intent of learning or reinforcing a specific comprehension skill was the purpose of the lesson. Such skills as recognizing fact and opinion, determining sequence of events, finding the main and supporting ideas needed for an outline, and understanding the meanings and uses of figures of speech were examples of the comprehension skills which occurred during reading instruction.

Usually, among skilled readers, the topic or subject of the comprehension skill lesson was unrelated to the reading selection that was read. Instead, a different topic was used in the discussion which focused specifically on the comprehension skill. In contrast, teachers tended to
use the context of the connected prose to provide the practice for comprehension when instructing less skilled readers.

However, the relatively few questions classified as comprehension skill for both skilled and less skilled readers should be noted. Based on the total number of questions, only 7.2 per cent represented comprehension skill questions.

In summary, teachers tended to ask comprehension of connected prose and reading skill questions most frequently among both skilled and less skilled readers. Reference skill, grammar exercise, and spelling exercise questions tended to reflect the idiosyncratic qualities of reading lessons rather than a real difference between skilled and less skilled readers. Management questions tended to be similar in frequency and use for both skill level groups. Finally, personal experience and comprehension skill questions tended to reflect the most variation in content of questions when comparing skilled and less skilled readers.

Further understanding of the differences in the content of questions between skilled readers and less skilled readers can be seen by analyzing the rank order of content of questions within each group. The graph in Figure 17 (p. 216) illustrates the frequency distribution within groups.
Per Cent Responses

Skilled

Less Skilled

Content of Question

Fig. 17—Content of question by skill level
Within the skilled reading group, the rank order of categories related to content of questions based on percentage of occurrence were the following: comprehension of connected prose, 29.8 per cent; reading skill, 25.2 per cent; grammar exercise, 14.9 per cent; comprehension skill, 12.8 per cent; management, 10.1 per cent; personal experience, 5.7 per cent; and reference skill, 1.7 per cent. There was no occurrence of spelling exercise questions within the skilled reading group. The number of questions asked during reading instruction of skilled readers accounted for 44.8 per cent of the total number of questions asked in all eighty observations.

Within the less skilled reading group, the rank order of categories related to content of questions based on percentage of occurrence were the following: comprehension of connected prose, 34.8 per cent; reading skill, 31.2 per cent; personal experience, 10.7 per cent; management, 9.2 per cent; grammar exercise, 6.1 per cent; reference skill, 4.3 per cent; comprehension skill, 2.6 per cent; and spelling exercise, 1.1 per cent. The number of questions asked during reading instruction of less skilled readers accounted for 55.2 per cent of the total number of questions asked in all eighty observations.

In summary, 80 per cent of the questions for both skilled and less skilled readers were classified in four content categories. The two most frequently occurring
categories, comprehension of connected prose and reading skill, were the same for both groups. However, grammar exercise and comprehension skill were included in the 80 per cent for skilled readers, and personal experience and management were included in the 80 per cent for less skilled readers.

This variation in frequency may reflect a real difference in instructional emphases teachers make during reading instruction and the difference in the needs of students in the two groups.

Among skilled readers, more actual instruction concerning comprehension skill was observed than among less skilled readers. The inclusion of grammar exercise among skilled readers is probably a result of the idiosyncratic nature of the particular reading lessons observed rather than any real pattern of emphasis in reading instruction among skilled readers in general.

Among less skilled readers, the focus on personal experience and management may reflect a real need among students to be included in verbal interaction through the questioning process. Questions were used to draw out personal experiences of the students related to the reading selection and as management to help them attend to the reading task.

Wait-time for questions.—Each question was analyzed in terms of the wait-time for questions. Wait-time referred to
the rate at which questions and responses were received and given during reading instruction. Measurement of this rate provided an indicator for the general pace of reading instruction. Measurement of this rate provided an indicator for the general pace of reading instruction observed while teachers instructed skilled readers as compared to less skilled readers.

In conjunction with content of questions, wait-time for questions furnished another contextual facet of the reading instruction as it occurred in the natural environment, the classroom. After all audiotape recordings were transcribed, the wait-time for questions was determined by listening to the audiotape and examining the transcript. The amount of time which occurred from the end of the teacher's question until the beginning of the student's response was recorded in seconds and hundredths of seconds. This data gave an estimate of the wait-time for questions, i.e., "adjustment" of questioning to "the individual differences" of the two skill level groups (Harris & Hodges, 1981, p. 226).

As shown in Table XVII (p. 220), among skilled readers a total of 2303 question/response/response loops which occurred in 962 minutes and 16 seconds of observation were timed. The mean amount of time from the end of the teacher's question until the student began his response was 1.754 seconds. The range of seconds until response was 55.6 seconds to .10 seconds.
TABLE XVII

QUESTION WAIT-TIME WITH SKILLED AND LESS SKILLED READERS

<table>
<thead>
<tr>
<th>Reading Level</th>
<th>Length of Observation</th>
<th>Number of Questions</th>
<th>Mean</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled</td>
<td>962'16&quot;</td>
<td>2303</td>
<td>1.754</td>
<td>55.45-.10</td>
</tr>
<tr>
<td>Less Skilled</td>
<td>1113'54&quot;</td>
<td>2843</td>
<td>2.0039</td>
<td>75.01-.10</td>
</tr>
</tbody>
</table>

In comparison, among less skilled readers a total of 2843 question/response/response loops which occurred in 1113 minutes and 54 seconds of observation were timed. The mean amount of time from the end of the teacher's question until the student began his response was 2.0039 seconds. The range of seconds until response was 75.01 seconds to .10 seconds.

These results indicated that the rate at which questions and responses were received and given during reading instruction were similar for both skilled and less skilled readers. The difference between the mean seconds until response for skilled as compared to less skilled readers was minimal, .2499 seconds.

The similarity in rate of instruction may provide evidence for the impact of the teacher in determining the wait-time for questions. The teacher was observed while instructing both skilled and less skilled readers. Since the teacher remained constant, it could be suggested that the similarity was a result of the teacher's presence in
both settings. Perhaps the teacher sets the wait-time for questioning based on one or several factors: his or her style of teaching, a predetermined agenda for the lesson, a specified amount of time for the lesson, or an awareness of the students' abilities. The difference in seconds until response that did occur, however, did indicate a variation in wait-time for questions among skilled readers as compared to less skilled readers. This variation could be attributed to the difference in the skill level of the students in the group.

Less skilled readers on the average took more time before responding than skilled readers. Furthermore, the range of seconds until response for less skilled readers was broader than for skilled readers, by 19.55 seconds. Longer lengths of time until response for less skilled readers may be a result of teachers allowing more time for response. There were usually fewer students in the less skilled groups, an average of eight. With fewer students seeking to answer a question, there could have been more focus on individuals to respond. Therefore, the teacher might wait longer for the student to respond. In addition, less skilled students may have anticipated more time to answer questions based on past experiences in the reading group. This factor along with fewer students in the group may have relieved some pressure to respond quickly.
In comparison, skilled readers on the average, took less time before responding than less skilled readers. Furthermore, the range of seconds until response for skilled readers was not as broad as for less skilled readers. The maximum time until response for skilled readers was 55.46 seconds as compared to 75.01 seconds for less skilled readers. Shorter lengths of time until response for skilled readers may have been a result of teachers allowing less time for response. There were usually more students in the skilled groups, an average of fifteen. With more students seeking to answer a question, there could have been less focus on individuals for response. Therefore, the teacher might not wait for students to respond. In addition, shorter lengths of time until response for skilled readers might have been a result of the difference in the students. Skilled readers were typically more eager to respond, therefore, volunteers were more numerous. This factor along with more students in the group may have created an environment which was more competitive, therefore, more pressure to respond quickly.

In summary, there was little difference in the time until response when comparing the skilled to less skilled readers. What difference there was could be explained by factors related to the natural environment. Whether the teacher or students or a combination of the two were responsible for the rate of instruction cannot be fully
determined from these data. However, it can be stated that there was contextual evidence from the wait-time for the questions that the rate of instruction was consistently fast for both skilled and less skilled readers.

**Designation of questions.**—Each question was analyzed in terms of designation. Designation of questions referred to which student or students answered which questions during reading instruction.

Each student was assigned an identification code which was recorded on the grid of the observation instrument to represent his or her position in the group. Each time a student responded to a question the number of that question was recorded in the student's space on the grid. One space on the grid was labeled GROUP for those questions answered by more than one student simultaneously.

After the audiotape recording of each lesson was transcribed, the data concerning the designation of question were transferred to the typed transcripts. In this way, each of the 5146 question/response/response loops was labeled as being answered by a student or students. Knowing how many questions were answered by male and female students or by groups of students provided further information regarding reading instruction with skilled as compared to less skilled readers.

Results of the designation of questions were analyzed in relationship to the membership by gender of each skill
level as shown in Table XVIII, the distribution of males and females within skilled and less skilled groups differed even though the total number of males and females was the same between groups.

**TABLE XVIII**

**OBSERVED FREQUENCIES OF GROUP MEMBERSHIP BY GENDER**

<table>
<thead>
<tr>
<th>Skill Level</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled</td>
<td>124</td>
<td>167</td>
<td>291</td>
</tr>
<tr>
<td>Less skilled</td>
<td>102</td>
<td>59</td>
<td>161</td>
</tr>
<tr>
<td>Total</td>
<td>226</td>
<td>226</td>
<td>452</td>
</tr>
</tbody>
</table>

Questions answered by a group of students were not designated as being from either gender. Responses from a group of male students, a group of female students, or a group of both male and female students were all classified as group responses. Designation of questions as distributed among males, females, and groups at skilled reading level as compared to less skilled reading level is shown in Table XIX (p. 225).

A greater percentage of the total number of questions was answered by less skilled readers even though they represented the smaller percentages of students. Out of a total of 5146 questions, 55.2 per cent were answered by less
TABLE XIX
OBSERVED FREQUENCIES OF QUESTION DESIGNATIONS FOR SKILLED AND LESS SKILLED READERS

<table>
<thead>
<tr>
<th>Skill Level</th>
<th>Male</th>
<th>Female</th>
<th>Group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>794</td>
<td>848</td>
<td>661</td>
<td>2303</td>
</tr>
<tr>
<td>Skilled</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>34.5</td>
<td>36.8</td>
<td>28.7</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>33.1</td>
<td>58.5</td>
<td>50.9</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>15.1</td>
<td>16.5</td>
<td>12.8</td>
<td>44.8</td>
</tr>
<tr>
<td></td>
<td>1604</td>
<td>602</td>
<td>637</td>
<td>2843</td>
</tr>
<tr>
<td>Less skilled</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>56.4</td>
<td>21.2</td>
<td>22.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>66.9</td>
<td>41.5</td>
<td>49.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31.2</td>
<td>11.7</td>
<td>12.4</td>
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<td></td>
<td>2398</td>
<td>1450</td>
<td>1298</td>
<td>5146</td>
</tr>
<tr>
<td>Total</td>
<td>46.6</td>
<td>28.2</td>
<td>25.2</td>
<td></td>
</tr>
</tbody>
</table>

Key:  a = observed frequency  
      b = row per cent  
      c = column per cent  
      d = total per cent

skilled readers who represented only 35.6 per cent of the total number of students in the study. In contrast, skilled readers answered 44.8 per cent of the total questions, although they represented the greater number of students in the study, 64.4 per cent.

Furthermore, almost twice as many of the total number of questions were answered by male students as compared to female students or groups of students. Although male and female students were equally represented in the total number of students in the study, male students answered 46.6 per
cent of the total 5146 questions, whereas female students answered 28.2 per cent and groups of students answered 25.2 per cent of the total number of questions.

When considering the total number of questions, the less skilled males answered the greatest number of questions, 31.2 per cent. In rank order, designation of questions were the following: less skilled males, 31.2 per cent; skilled females, 16.5 per cent; skilled males, 15.4 per cent; skilled group, 12.8 per cent; less skilled group, 12.4 per cent; and less skilled females, 11.7 per cent.

Generally, between the skill levels skilled readers answered fewer questions as compared to less skilled readers. It should be noted, however, that length of time for instruction varied in proportion to the number of questions asked in each skill level. Although the skilled readers received fewer questions, they also had less instructional time, 962 minutes and 16 seconds. In comparison, less skilled readers received more questions but had more instructional time, 1113 minutes and 54 seconds.

Specifically, between the reading levels more less skilled males answered more questions than skilled males. Less skilled males answered 66.9 per cent of the questions in comparison to 33.1 per cent of the skilled males. However, more questions were answered by skilled females, 58.5 per cent, as compared to less skilled females, 41.5 per cent. There was little difference in the number of
questions answered by a group of students when comparing the reading levels. Skilled groups of students answered 50.9 per cent of the questions as compared to less skilled groups of students who answered 49.1 per cent of the questions.

Generally, within reading levels was the designation of questions varied proportionally to the membership by gender for both reading levels. There were more females in the skilled reading level and they answered the majority of questions. Likewise, there were more males in the less skilled reading level and they answered the majority of questions.

Specifically, within the skilled reading level the distribution of designation of questions varied slightly among males, females, and groups of students. Females, who represented 57.4 per cent of the group, answered 36.8 per cent of the questions. Males, who represented 42.6 per cent of the group, answered 34.5 per cent of the questions. Finally, groups of students in the skilled reading level answered 28.7 per cent of the questions.

In contrast, within the less skilled reading level the distribution of designation of questions varied greatly between males and females but proportionally to the membership by gender. Males, who represented 63.4 per cent of the group, answered 56.4 per cent of the questions. Females, who represented 36.6 per cent of the group, answered 21.2 per cent of the questions. Finally, groups of students in
the less skilled reading level answered 22.4 per cent of the questions. Unlike the skilled reading level, fewer questions were answered by females than by groups at the less skilled reading level.

In summary, an analysis of the designation of questions indicated that questions were answered generally in proportion to membership by gender. The proportion of questions answered by groups was slightly greater for skilled readers as compared to less skilled readers. This difference may be attributed to the larger group size among skilled readers. A larger group size could result in less focus on individual students; thus, more questions would be answered simultaneously by a group of students.

Furthermore, within the less skilled reading level the greater proportion of total questions in relationship to the number of students might have been attributed to a need to involve more students in the lesson and the longer length of time spent in instruction. Between both skilled and less skilled groups, male students answered almost twice as many questions as did female students. Teachers could have been influenced by the male students' aggressive behavior among skilled readers or attempted to involve less skilled male students in verbal interchange during the lesson. Since information concerning intention was not obtained from the teachers, these questions were speculative based on observations during reading instruction.
Finally, when comparing skilled and less skilled readers, answers given by skilled readers were divided almost equally among males, females, and groups of students, whereas answers given by less skilled readers were most frequently from males, then groups of students, and finally from females. This difference might be the result of three factors: the greater proportion of male students within the less skilled group as compared to the skilled group, the smaller size of the less skilled group allowing more focus on individuals, and the teacher's alertness to including male students in the verbal interchange during reading instruction. Information which could clarify these issues was found in the analysis of the sequencing of questions.

**Sequencing of questions.** Each question was analyzed in terms of the sequence in which it occurred. Sequencing of questions was that part of patterns of questioning which referred to the order in which the teachers asked questions for a particular function during reading instruction. Data concerning sequences of questions were collected during the observation period by audiotaping the lesson and recording the designation of questions in order of occurrence on an observation instrument.

As the teacher asked questions the number of that question was recorded in the space on the grid which represented the student who responded to the question. If more than one student responded to the question, the number of
the question remained the same for each student but a letter subscript was added to the number. Thus, a serial response was recorded as \( l_a, l_b, l_c \), and so on. If a question was responded to by two or more students simultaneously or the teacher directed the question to the whole group and the whole group responded, the question number was recorded in the space marked, GROUP. Through this process of data gathering the contextual integrity of the sequencing of questions was maintained.

After analysis of the cognitive level and function of questions, it was possible to know specifically the order in which particular cognitive levels and functions of questions occurred. Analyzing questions in terms of both cognitive level and function within the context of sequence facilitated an understanding of the effect of questions as used by teachers in reading instruction with skilled and less skilled readers.

Categories of cognitive level and function of questions were mutually exclusive. Therefore, each of the 5146 question/response/response loops was categorized at one cognitive level and for one function. The cognitive level and function were labeled as follows:

- **CM/F** - cognitive-memory for the function of focusing
- **CM/EX** - cognitive-memory for the function of extending
- **CM/CL** - cognitive-memory for the function of clarifying
CM/CON - cognitive-memory for the function of controlling
C/F - convergent for the function of focusing
C/EX - convergent for the function of extending
C/L - convergent for the function of lifting
C/CL - convergent for the function of clarifying
C/CON - convergent for the function of controlling
D/F - divergent for the function of focusing
D/EX - divergent for the function of extending
D/L - divergent for the function of lifting
D/CL - divergent for the function of clarifying
D/CON - divergent for the function of controlling
E/F - evaluative for the function of focusing
E/EX - evaluative for the function of extending
E/L - evaluative for the function of lifting
E/CL - evaluative for the function of clarifying
E/CON - evaluative for the function of controlling
R/F - routine for the function of focusing
R/EX - routine for the function of extending
R/L - routine for the function of lifting
R/CL - routine for the function of clarifying
R/CON - routine for the function of controlling

Table XX (p. 232) displays the frequencies and percentages of cognitive levels and functions for the total 5146 question/response/response loops which occurred as teachers instructed skilled as compared to less skilled
### Table XX

**Questions: Cognitive Level and Function**

<table>
<thead>
<tr>
<th>Question</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
<th>Question</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
<th>Question</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM/F</td>
<td>a 332</td>
<td>480</td>
<td>812</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>b 40.9</td>
<td>59.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>c 14.4</td>
<td>16.9</td>
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<tr>
<td></td>
<td>d 6.5</td>
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<td>15.8</td>
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<td>CM/CL</td>
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<td>9</td>
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<tr>
<td>CM/CON</td>
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<td>35.2</td>
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<td></td>
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<td>1.7</td>
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<td>C/F</td>
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<td>2.3</td>
<td>2.6</td>
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<tr>
<td>C/L</td>
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<td>C/CL</td>
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<td>4.0</td>
<td>3.8</td>
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<td>7.9</td>
</tr>
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<td></td>
<td>0.0</td>
<td>0.0</td>
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</tr>
</tbody>
</table>

**Key:**
- a = observed frequency
- b = row per cent
- c = column per cent
- d = total per cent
readers. A discussion of the frequencies is followed by an analysis of typical paths of sequences which emerged during reading instruction.

In the discussion of frequencies it should be noted that the category of cognitive-memory for the function of lifting (CM/L) did not occur and is not included on the frequency table. The function of lifting occurred only if a cognitive level of question had been established. Cognitive-memory was the first level in the hierarchy of cognitive levels: cognitive-memory, convergent, divergent, and evaluative. Therefore, lifting did not occur at the cognitive-memory level.

Thirteen of the twenty-four cognitive level/function categories represented 96 per cent of the 5146 question/response/response loops. The line graph in Figure 18 (p. 234) illustrates the relative frequency in terms of percentage for both skilled and less skilled reading levels.

These thirteen categories were cognitive-memory/focusing (CM/F), cognitive-memory/extending (CM/EX), cognitive-memory/clarifying (CM/CL), cognitive-memory/controlling (CM/CON), convergent/focusing (C/F), convergent/extending (C/EX), convergent/lifting (C/L), convergent/clarifying (C/CL), convergent/controlling (C/CON), divergent/lifting (D/L), routine/focusing (R/F), routine/extending (R/EX), and routine/controlling (R/CON).
Fig. 18--Cognitive level and function
Generally, within these thirteen categories there was a higher percentage of question/response/response loops per category for less skilled readers as compared to skilled readers.

The five exceptions were convergent/focusing (C/F), convergent/extending (C/EX), convergent/clarifying (C/CL), divergent/lifting (D/L), and routine/controlling (R/CON). In these categories there was a higher percentage for skilled readers as compared to less skilled readers.

The eleven remaining cognitive level/function categories represented only 4 per cent of the total 5146 question/response/response loops. These categories were divergent/focusing (D/F), divergent/extending (D/EX), divergent/clarifying (D/CL), divergent/controlling (D/CON), evaluative/focusing (E/F), evaluative/extending (E/EX), evaluating/lifting (E/L), evaluative/clarifying (E/CL), evaluative/controlling (E/CON), routine/lifting (R/L), and routine/controlling (R/CON).

Generally, within these eleven categories there was a higher percentage of question/response/response loops per category for less skilled readers as compared to skilled readers. There were two exceptions to this general pattern. The categories, evaluative/extending (E/EX) and evaluative/clarifying (E/CL), occurred more frequently among skilled readers than among less skilled readers.
In summary, the relative frequency of cognitive level/function categories indicated that most of the questions teachers asked during reading instruction with skilled and less skilled readers were at the cognitive-memory, convergent, divergent, and routine levels for the functions of focusing, extending, lifting, clarifying, and controlling. An analysis of the sequence of these questions further elaborated the patterns of questioning which emerged as teachers instructed skilled and less skilled readers.

An analysis of the sequence of questions was conducted by first grouping episodes of interactions within the context of reading instruction by content of questions. An episode of interaction occurred when a continuous exchange of communication transpired between teacher and students or among students which was centered on one specific matter of content. After episodes of interactions were identified, frequently occurring sequences in order of cognitive level/function categories of questions were identified. Those frequently occurring sequences had to appear in each of the eighty observations. Through this process, paths of sequences which occurred frequently within episodes of interactions among skilled and less skilled readers emerged from the data.

The paths of sequences reflected some general trends in cognitive level/function categories for both skilled and less skilled readers. Generally, the most frequently
occurring paths of sequences began with the function of focusing. Typically, focusing questions which were used to initiate a discussion or set a cognitive task (Taba, 1962) were followed by extending questions. Extending questions were used to elicit additional information on the same subject matter at the same cognitive level.

Clarifying questions were used to redefine previously given information. Usually, clarifying questions were followed by extending questions in order to elicit elaboration of subject matter.

The function of controlling was most typically followed by a focusing question. Controlling as a function occurred when the teacher answered for the student in an apparent effort to manipulate the student's thinking or to gain control of the interactions.

The cognitive levels which occurred in concert with functions in these most frequently occurring paths of sequences were cognitive-memory, convergent, and routine. Figure 19 (p. 238) illustrates five typical paths of sequence in the order of frequency of occurrence.

Paths of sequences were similar in terms of functions between skill levels. However, there was a difference in cognitive level of questions in the paths of sequences from the thirteen categories which represented 96 per cent of all questions.
Among less skilled readers was a higher frequency of cognitive-memory questions for the functions of focusing, extending, clarifying, and controlling than among skilled readers. However, there was a higher frequency of convergent questions for the functions of focusing, extending, and clarifying among skilled readers as compared to less skilled readers. Furthermore, among skilled readers there were more routine questions for the function of controlling than among less skilled readers. However, among less skilled readers there were more routine questions for the functions of focusing and extending than among skilled readers.
Finally, although divergent questions for the function of lifting occurred infrequently within these thirteen categories which represented 96 per cent of all questions, there were more questions in this category among skilled readers than among the less skilled readers.

Differences in the cognitive levels used for various functions did appear between killed and less skilled readers. Cognitive-memory questions used to focus, extend, clarify, and control were more frequent among less skilled readers. Convergent questions were used more frequently to focus, extend, and clarify among skilled readers but to lift and control among less skilled readers. Divergent questions were used to lift more frequently among skilled than less skilled readers. Finally, routine questions were used more frequently to control among skilled readers but to focus and extend among less skilled readers.

Responses

The responses of students and teachers were recorded for every question after analysis of the transcription. These responses were classified as to the appropriateness, type, and length of students' responses and content of the teacher's responses. Specific categories of each classification were formulated after all data were analyzed.

The results of this analysis revealed similarities and differences in responses to questions teachers used with skilled as compared to less skilled readers. Knowledge of
the students' and teachers' responses adds another dimension to the patterns of questioning which occurred during reading instruction.

Appropriateness of student's response.—Students' responses were analyzed within the context of the total reading instructional setting. Appropriateness of response referred to the manner in which the students' responses related to the question.

Eleven mutually exclusive categories of appropriateness emerged: no response, correct response, incorrect response, related response, unrelated response, various responses, following teacher's directions response, yes or no response, asking for clarification response, doesn't know response, and apparent confusion response. Frequencies and percentages of these results are shown in Table XXI (p. 241).

No response indicated that no answer was given by a student or a group of students verbally or nonverbally. In addition, there was no apparent confusion which may have resulted in no response. The category, no response, occurred in 439 instances or a total of 8.5 per cent of the questions. Skilled and less skilled readers varied little from the anticipated frequency of no response. Skilled readers had no response 3.4 per cent of the instances as compared to 5.1 per cent for less skilled readers.
## TABLE XXI

OBSERVED FREQUENCIES OF RESPONSE APPROPRIATENESS
FOR SKILLED AND LESS SKILLED READERS

<table>
<thead>
<tr>
<th>Response</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
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<td>a 174</td>
<td>b 39.6</td>
<td>d 3.4</td>
</tr>
<tr>
<td>No response</td>
<td></td>
<td>c 7.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1073</td>
<td>1253</td>
<td>2326</td>
</tr>
<tr>
<td>Correct and on subject</td>
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<td>44.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20.9</td>
<td>24.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>147</td>
<td>247</td>
<td>393</td>
</tr>
<tr>
<td>Incorrect and on subject</td>
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<td>62.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.4</td>
<td>8.7</td>
<td></td>
</tr>
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<td>2.9</td>
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</tr>
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<td></td>
<td>546</td>
<td>626</td>
<td>1172</td>
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<td></td>
</tr>
<tr>
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<td>23.7</td>
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<td>64.7</td>
<td></td>
</tr>
<tr>
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<td>0.5</td>
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<td>0.4</td>
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<tr>
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<td>143</td>
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<td>39.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.7</td>
<td>2.0</td>
<td></td>
</tr>
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<td></td>
<td>49</td>
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<td>118</td>
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<td>Follows teacher's directions</td>
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</tr>
<tr>
<td></td>
<td>2.1</td>
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</tr>
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<td></td>
<td>156</td>
<td>227</td>
<td>383</td>
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<td>Yes or no to cognitive level questions</td>
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<tr>
<td></td>
<td>6.8</td>
<td>8.0</td>
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</tr>
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<td></td>
<td>3.0</td>
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<tr>
<td></td>
<td>15.6</td>
<td>22</td>
<td>42</td>
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<tr>
<td>Asks for clarification</td>
<td>47.6</td>
<td>52.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.9</td>
<td>0.8</td>
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</tr>
<tr>
<td></td>
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<td>11</td>
<td>20</td>
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<td>Says doesn't know</td>
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</tr>
<tr>
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<td>0.4</td>
<td>0.4</td>
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</tr>
<tr>
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<td>0.2</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31</td>
<td>45</td>
<td>76</td>
</tr>
<tr>
<td>Apparent confusion</td>
<td>40.8</td>
<td>59.2</td>
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</tr>
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<td>1.3</td>
<td>1.6</td>
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<td>0.6</td>
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<td></td>
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<td>76</td>
</tr>
<tr>
<td>Total</td>
<td>2303</td>
<td>2843</td>
<td>5146</td>
</tr>
</tbody>
</table>

Key:  
- a = observed frequency  
- b = row per cent  
- c = column per cent  
- d = total per cent
Correct response indicated that the answer to the question was correct and on the subject of the question. A correct response was the most frequently occurring response. A total of 2326 responses, 45.2 per cent, were correct and on subject. Skilled readers responded correctly a total of 20.9 per cent of the instances as compared to 24.3 per cent for less skilled readers. These percentages are proportional to the total number of responses given by each group and to the total number of responses in this category.

Incorrect response indicated that the answer to the question was incorrect but on the subject of the question. An incorrect response occurred in only 393 responses which represented 7.6 per cent of the total number of responses. More incorrect responses occurred among less skilled readers, 4.8 per cent, than among skilled readers, 2.9 per cent. As with the category, correct and on subject, these percentages are proportional to the total number of responses for each group and to the total number of responses in this category.

Related response indicated that the answer to the question was neither correct nor incorrect but it was on the subject of the question. A related response was the second most frequently occurring response. A total of 1172 questions, 22.8 per cent, were answered with a related response that was neither correct nor incorrect but on the
Skilled readers answered with a related response a total of 10.6 per cent of the instances as compared to 1.2 per cent for less skilled readers. These percentages are proportional to the total number of responses for each group and to the total number of responses in this category.

Unrelated response indicated that the answer to the question was neither correct nor incorrect and it was not on the subject of the question. An unrelated response occurred infrequently. A total of thirty-four answers were categorized as unrelated responses which represented .7 per cent of the total responses. Skilled readers answered with an unrelated response a total of .2 per cent of the instances as compared to .4 per cent for less skilled readers.

Various responses indicated that different answers from more than one student were given simultaneously. A total of 143 answers was categorized as various responses which represented 2.8 per cent of the total responses. However, the distribution of various responses between skilled and less skilled readers was not proportional to the total number of responses from each group. Skilled readers answered with various responses a total of 1.7 per cent of the instances as compared to 1.1 per cent for less skilled readers.

As previously reported in designation of questions (p. 223), there were more responses from the group among skilled readers than less skilled readers. The
disproportionate distribution of the responses categorized as various responses could be a result of the larger group size among skilled readers, average of fifteen students, as compared to less skilled readers, average of eight students.

*Follows teacher's directions* response indicated that student or group answered the question by following directions without a verbal response. A total of 118 responses were categorized as following teacher's directions which represented 2.3 per cent of the total responses. Proportional to the total number of responses for each group, skilled readers responded by following teacher's directions a total of 1.0 per cent of the instances as compared to 1.3 per cent for less skilled readers.

*Yes or no* response indicated that the answer to questions classified as cognitive-memory, convergent, divergent, or evaluative was only "yes" or "no" without further comment. A "yes" or "no" response occurred in a total of 383 instances, 7.4 per cent, when the cognitive level was cognitive-memory, convergent, divergent, or evaluative. Fifteen per cent of this total occurred when the question was at the divergent or evaluative level. Skilled readers responded with a "yes" or "no" answer to a total of 3.0 per cent of the instances as compared to 4.4 per cent for less skilled readers.

*Asks for clarification* response indicated that the answer to the question was a request for more information.
for the purpose of clarifying the question itself. This response occurred infrequently. The total number of responses which were categorized as asking for clarification was forty-two which represented .8 per cent of the total responses. Skilled and less skilled readers each responded by asking for clarification, .4 per cent of the total number of responses.

Doesn't know response indicated that the answer to the question was a specific statement, "I don't know." This response occurred only twenty times which represented .4 per cent of the total number of responses. Skilled and less skilled readers each responded with "I don't know" .2 per cent of the total number of responses.

Apparent confusion response indicated that the answer to the question was not given because the student or group appeared to be confused about the question itself. This apparent confusion was evidenced by observable behaviors, such as non-verbal expressions or gestures or verbally commenting to one another in an apparent effort to understand the question. This response was not included in the "no response" category already reported. Apparent confusion as a response occurred a total of seventy-six instances which represented 1.5 per cent of the total number of responses. Skilled and less skilled readers each responded with apparent confusion less than 1 per cent of the total
responses, .6 per cent for skilled readers and .9 per cent for less skilled readers.

Generally, the total number of responses, 5146, was distributed proportionally between skilled and less skilled readers. Only the responses categorized as various responses were distributed in an unexpected proportion with a greater percentage among skilled readers as compared to less skilled readers. Almost 70 per cent of the total number of responses were categorized correct and on the subject or as related and on the subject.

Within both skilled and less skilled reading groups the three most frequently occurring categories were correct and on subject, related and on subject, and no response. The fourth and fifth most frequently occurring categories appeared in reverse order for skilled and less skilled reading groups. For skilled groups yes or no responses occurred more frequently than incorrect but on subject responses. Among the less skilled readers, the reverse was true.

In addition, the sixth and seventh most frequently occurring categories appeared in reverse order for skilled and less skilled reading groups. For skilled groups various responses occurred more frequently than following the teacher's directions response. Among the less skilled readers, the reverse was true. Finally, the least occurring responses in order of frequency within both the skilled and
less skilled groups were apparent confusion, asks for clarification, unrelated, and says "I don't know."

In summary, there was little difference in the appropriateness of response among skilled readers as compared to less skilled readers. Analysis of this general pattern of questioning revealed that responses were primarily correct and related to the subject matter of the question. There were few instances of students expressing a need for clarification, or a student's answer being unrelated to the question, or a student saying, "I don't know" in response to a question. In addition to the appropriateness of a student's response, further understanding of students' responses was gained through analysis of the type of response made by each student.

**Type of student's response.**--Students' responses were analyzed within the context of the total reading instructional setting. Type of response referred to the source of information used in answering the question.

Six mutually exclusive categories of type of response emerged from analysis of the responses made by students. These categories were no response, self, oral reading of connected prose, oral reading of words or phrases, oral reading of student prepared answers, and marking of answers. Frequencies and percentages of these results are shown in Table XXII (p. 247). For each of the types of responses the
TABLE XXII

OBSERVED FREQUENCIES OF STUDENT RESPONSE TYPES
FOR SKILLED AND LESS SKILLED READERS

<table>
<thead>
<tr>
<th>Response</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a 194</td>
<td>296</td>
<td>490</td>
</tr>
<tr>
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<td>60.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c 8.3</td>
<td>10.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d 3.7</td>
<td>5.7</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
<td>1625</td>
<td>1836</td>
<td>3461</td>
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<tr>
<td>Self</td>
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<td>53.0</td>
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</tr>
<tr>
<td></td>
<td>70.6</td>
<td>64.6</td>
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</tr>
<tr>
<td></td>
<td>31.6</td>
<td>35.7</td>
<td>67.3</td>
</tr>
<tr>
<td>Oral reading of connected prose</td>
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<td>50.3</td>
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<tr>
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<td>3.2</td>
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</tr>
<tr>
<td></td>
<td>1.4</td>
<td>1.4</td>
<td>2.9</td>
</tr>
<tr>
<td>Oral reading of words and phrases</td>
<td>377</td>
<td>583</td>
<td>960</td>
</tr>
<tr>
<td></td>
<td>39.3</td>
<td>60.7</td>
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<tr>
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<td>16.4</td>
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</tr>
<tr>
<td></td>
<td>7.3</td>
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<td>16.7</td>
</tr>
<tr>
<td>Oral reading of prepared answers</td>
<td>32</td>
<td>52</td>
<td>84</td>
</tr>
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<td>38.1</td>
<td>61.9</td>
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<td></td>
<td>1.4</td>
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<td>75.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>2303</td>
<td>2843</td>
<td>5146</td>
</tr>
<tr>
<td></td>
<td>44.8</td>
<td>55.2</td>
<td></td>
</tr>
</tbody>
</table>

Key:  a = observed frequency
      b = row per cents
      c = column per cents
      d = total per cents
distribution of percentages was proportional to the total number of responses given by each group and to the total number of responses in each category.

No response indicated that no response to the question was given. This type of response occurred a total of 490 instances which represented 9.5 per cent of the total number of responses. Skilled readers made no response to 3.7 per cent of the instances as compared to 5.7 per cent for less skilled readers.

Response from self indicated that the source of the information used to answer the question was the student or group of students without the use of reading material. The response was considered to be from self when there was an observable absence of reading the response from a book, workbook, worksheet, or prepared answer. In addition, the response did not involve the non-verbal action or marking an answer on the board. Response from self was the most frequently occurring type of response. A total of 3461 responses were from the student or group of students themselves. This represented 67.3 per cent of the total number of responses given. Skilled readers responded from self a total of 31.6 per cent of the total number of responses as compared to 35.7 per cent for less skilled readers.

Response from oral reading of connected prose indicated that the source of information used to answer the question was connected prose read from a basal reader or a duplicated
reading worksheet. The response was considered to be from this category when the student or group of students were observed reading connected prose in answering the question. Oral reading of connected prose occurred in a total of 147 responses which represented 2.9 per cent of the total number of responses. Skilled and less skilled readers each answered the question by oral reading of connected prose a total of 1.4 per cent of the responses.

Response from oral reading of words or phrases indicated that the source of information used to answer the question was from oral reading of words or phrases read from a basal reader, workbook, worksheet, chalkboard, or posterboard. As with responses from oral reading of connected prose, this category of response was based on observable occurrences. This response was the second most frequently occurring type of response. A total of 960 responses was from oral reading of words or phrases which represented 18.7 per cent of the total responses to questions. Skilled readers used oral reading of words or phrases a total of 7.3 per cent of the responses as compared to 11.3 per cent for less skilled readers.

Response from oral reading of prepared answers indicated that the source of information used to answer the question was from answers prepared by the student prior to the reading instruction lesson. The responses were considered oral reading of prepared answers when the student
or students were observed reading from a prepared answer written on notebook paper. In most instances, the teacher referred to prepared answers. However, the questions were paraphrased or reworded versions of the written questions. This conclusion could be drawn because the observer was given a copy of the questions prior to the reading lesson. The number of responses of this type was eighty-four which represented 1.6 per cent of the total number of responses to questions. Less skilled readers used oral reading of prepared answers a total of 1.0 per cent of the responses as compared to 0.6 per cent for skilled readers.

Marking of answers indicated that the source of information used in answering the question was from words, phrases, or sentences read from the chalkboard or overhead projection. The students marked the correct response with chalk or pen rather than responding verbally. This type of response occurred infrequently. A total of four responses was marking answers, representing 0.1 per cent of the total responses. Three responses by marking answers occurred among less skilled readers as compared to only one response among skilled readers. All responses occurred while observing one teacher. Therefore, the occurrence of this type of response was considered reflective of the idiosyncratic nature of one particular teacher's method of instruction at the time of observation.
Generally, the total number of responses, 5146, was distributed proportionally between skilled and less skilled readers. Only the responses categorized as oral reading of connected prose were distributed in unexpected proportion with a greater percentage among the skilled readers as compared to less skilled readers. Most of the responses, over 67 per cent, were categorized as coming from self.

Within both skilled and less skilled reading groups the most frequently occurring type of response was the response from self and response from oral reading of words or phrases. These two categories accounted for 86 per cent of all responses. The remaining 14 per cent of responses in order of frequency for both skilled and less skilled readers were no response, oral reading of connected prose, oral reading of prepared answers, and marks response.

In summary, there was little difference in the type of response among skilled readers as compared to less skilled readers. Analysis of the general pattern of types of responses revealed that responses were primarily from the students themselves without observable dependence on a book or other material as a source of information used in responding to the question. Deviations from this pattern probably reflected the idiosyncratic nature of the lesson being observed rather than any real difference in the students or questions being asked. Further analysis of responses from students included the length of response.
**Length of student's response.**—Students' responses were analyzed within the context of the total reading instructional setting. Length of response referred to the number of words or sentences the student or group of students used to answer the question.

Seven mutually exclusive categories of length of response emerged from analysis of the responses made by students. These categories were no response, one word, two or more words, one sentence, two or more sentences, nonverbal only, and spells word or words. Frequencies and percentages of these results are shown in Table XXIII (p. 254). Almost all distribution of percentages was disproportional to the total distribution of responses for both skilled and less skilled readers. This result indicated that there was a difference in the length of response among skilled readers as compared to less skilled readers.

**No response** indicated that no response was given to the question. This category of response occurred a total of 487 instances which represented 9.5 per cent of the responses. Skilled readers made no response to 3.8 per cent of the questions as compared to 5.7 per cent for less skilled readers.

**One word response** indicated that one word was used to answer the question. A one word response was the most frequently occurring length of response among the total 5146 responses. There were 1914 total responses that were
### TABLE XXIII

**OBSERVED FREQUENCIES OF STUDENT RESPONSE LENGTHS FOR SKILLED AND LESS SKILLED READERS**

<table>
<thead>
<tr>
<th>Response</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No response</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>193</td>
<td>294</td>
<td>487</td>
</tr>
<tr>
<td>b</td>
<td>39.6</td>
<td>60.4</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>8.4</td>
<td>10.3</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>3.8</td>
<td>5.7</td>
<td>9.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>1914</td>
</tr>
<tr>
<td><strong>One word</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>745</td>
<td>1169</td>
<td>1914</td>
</tr>
<tr>
<td></td>
<td>38.9</td>
<td>61.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>32.3</td>
<td>41.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14.5</td>
<td>22.7</td>
<td>37.2</td>
</tr>
<tr>
<td><strong>Two or more words</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>546</td>
<td>612</td>
<td>1158</td>
</tr>
<tr>
<td></td>
<td>47.2</td>
<td>52.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>23.7</td>
<td>21.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10.6</td>
<td>11.9</td>
<td>22.5</td>
</tr>
<tr>
<td><strong>One complete sentence</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>607</td>
<td>552</td>
<td>1159</td>
</tr>
<tr>
<td></td>
<td>52.4</td>
<td>47.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>26.4</td>
<td>19.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.8</td>
<td>10.7</td>
<td>22.5</td>
</tr>
<tr>
<td><strong>Two or more complete sentences</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>77</td>
<td>38</td>
<td>115</td>
</tr>
<tr>
<td></td>
<td>67.0</td>
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<td>3.3</td>
<td>1.3</td>
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<tr>
<td></td>
<td>1.5</td>
<td>0.7</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Nonverbal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>134</td>
<td>165</td>
<td>299</td>
</tr>
<tr>
<td></td>
<td>44.8</td>
<td>55.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.8</td>
<td>5.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.6</td>
<td>3.2</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>Spells words or words</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>7.1</td>
<td>92.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>5146</td>
</tr>
<tr>
<td></td>
<td>2303</td>
<td>2843</td>
<td></td>
</tr>
<tr>
<td></td>
<td>44.8</td>
<td>55.2</td>
<td></td>
</tr>
</tbody>
</table>

**Key:**
- a = observed frequency
- b = row per cents
- c = column per cents
- d = total per cents
one word, representing 36.7 per cent of the total. Less skilled readers responded with one word 22.7 per cent of the total responses as compared to 14.5 per cent of the total responses for skilled readers. The distribution of one word responses between skilled and less skilled readers was not proportional to the total number of responses for each group. This indicated there was a difference between skilled and less skilled readers in terms of their one word responses to questions.

Two or more words response indicated that two or more words were used to answer the question. This response was the second most frequently occurring responses to questions. There were 1158 responses that were two or more words in length, representing 22.5 per cent of the total responses. Skilled readers responded with two or more words 10.6 per cent of the total responses as compared to 11.9 per cent of the responses for less skilled readers. This distribution of responses between skilled and less skilled readers was proportional to the total number of responses for each group. Therefore, there was probably no difference in the frequency of two or more word responses among skilled readers as compared to less skilled readers.

One complete sentence response indicated that one complete sentence was used to answer the question. A sentence was defined as "the largest linguistic unit, composed of at least one subject and its predicate" (Harris
& Hodges, 1981, p. 291). There was a total of 1159 responses that were one complete sentence, representing 22.5 per cent of the total responses. Skilled readers responded with one complete sentence 11.8 per cent of the total responses as compared to 10.7 per cent of the total responses for less skilled readers. A disproportional relationship occurred between skilled and less skilled readers when the two groups are compared to the total number of responses for each group. This indicated that there was a difference in the frequency of one sentence responses when comparing skilled and less skilled readers.

Two or more complete sentences response indicated that two or more complete sentences were used to answer the question. There was a total of 115 responses that were two or more complete sentences in length, representing 2.2 per cent of the total responses. Skilled readers responded with two or more complete sentences 1.5 per cent of the total as compared to .7 per cent of the total responses for less skilled readers. A disproportional relationship occurred between skilled and less skilled readers when the two groups were compared to the total number of responses for each group. This indicated a difference in the frequency of two or more complete sentences as responses when comparing skilled readers and less skilled readers.

Nonverbal responses indicated that gestures without verbal communication were used to answer the question.
There was a total of 299 responses that were nonverbal, representing 5.8 per cent of the total responses. Skilled readers responded nonverbally 2.6 per cent of the total responses as compared to 3.2 per cent of the total responses for less skilled readers. This distribution of nonverbal responses between skilled and less skilled readers was proportional to the total number of responses for each group. Therefore, there was probably no difference in the frequency of nonverbal responses among skilled readers as compared to less skilled readers.

Spells word or words response indicated that the letter by letter spelling of a word or words occurred to answer the question. There was a total of fourteen responses that were of this type, representing .3 per cent of the total responses. Skilled readers responded by spelling the word or words only one time as compared to thirteen times for less skilled readers. The disproportional distribution of this response between skilled and less skilled readers was a result of the idiosyncratic nature of the reading lesson observed rather than any real difference in the two skill level groups.

Generally, the total number of responses, 5146, was distributed disproportionally between skilled and less skilled readers which indicated a difference in the length of response between skilled and less skilled readers. Only the responses that were two or more words and nonverbal were
distributed in an expected proportion between the two groups. The other responses—no response, one word, one complete sentence, two or more complete sentences, and spells word or words—were distributed disproportionally between the groups. However, spells word or words was not considered representative of responses due to infrequent occurrence overall and the particular content of the lesson which was observed among the less skilled group only.

Within both skilled and less skilled reading groups the one word response was the most frequently occurring category of response. Within the skilled reading group one sentence responses occurred more frequently than two or more words, whereas within the less skilled reading group, two or more words responses occurred more often than one sentence responses. Within both skilled and less skilled reading groups no response, nonverbal response, and spells word or words response were the least frequently occurring responses.

In summary, there appeared to be differences in the length of response among skilled readers as compared to less skilled readers. Analysis of the general pattern of length of responses revealed that the most frequently occurring response for both skilled and less skilled readers was one word response. However, skilled readers responded with one complete sentence, two or more words, and two or more sentences more often than less skilled readers.
The disproportional distribution of percentages between the skilled and less skilled readers indicated that the difference was probably due to the differences in the two skill level groups.

**Content of teacher's response.**—Teacher's responses were analyzed with the context of the total reading instructional setting. The teacher's response marked the end of the question/response/response loop. From the 5146 question/response/response loops, thirteen mutually exclusive categories of teacher's responses emerged from analysis of the data.

These categories of content of teacher's response were no response, accepts with comment, accepts without comment, rejects with comment, rejects without comment, answers question for the student, responds to request for clarification, apparent confusion, interrupts student's answer, ignores student's answer, directs same question to another student, directs same question to same student, and slices same question for clarification. Frequencies and percentages of these results are shown in Table XIV (p. 260). The disproportional distribution of responses tend to indicate a difference in the way the teacher responded to skilled readers as compared to less skilled readers.

*No response* indicated that no response was given to the student's answer. This category of response occurred
TABLE XXIV

OBSERVED FREQUENCIES OF TEACHERS' RESPONSE CONTENTS
FOR SKILLED AND LESS SKILLED READERS

<table>
<thead>
<tr>
<th>Response</th>
<th>Skilled</th>
<th>Less Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No response</td>
<td>a 14</td>
<td>19</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>b 42.4</td>
<td>57.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c 0.6</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d 0.3</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>817</td>
<td>1082</td>
<td>1899</td>
</tr>
<tr>
<td>Accepts with comment</td>
<td>43.0</td>
<td>57.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>35.5</td>
<td>36.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15.9</td>
<td>21.0</td>
<td>36.9</td>
</tr>
<tr>
<td></td>
<td>839</td>
<td>915</td>
<td>1754</td>
</tr>
<tr>
<td>Accepts without comment</td>
<td>47.8</td>
<td>52.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>36.4</td>
<td>32.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16.3</td>
<td>17.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>95</td>
<td>164</td>
<td>279</td>
</tr>
<tr>
<td>Rejects with comment</td>
<td>34.1</td>
<td>65.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.1</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.8</td>
<td>3.6</td>
<td>5.4</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>46</td>
<td>82</td>
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<tr>
<td>Rejects without comment</td>
<td>43.9</td>
<td>56.1</td>
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<td>1.6</td>
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<td>0.7</td>
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</tr>
<tr>
<td></td>
<td>114</td>
<td>201</td>
<td>315</td>
</tr>
<tr>
<td>Answers question for student</td>
<td>36.2</td>
<td>61.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.0</td>
<td>7.1</td>
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</tr>
<tr>
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<td>2.2</td>
<td>3.9</td>
<td>6.1</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>16</td>
<td>38</td>
</tr>
<tr>
<td>Responds to request for clarification</td>
<td>57.9</td>
<td>42.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.4</td>
<td>0.3</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>38</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Apparent confusion</td>
<td>52.1</td>
<td>47.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.7</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.7</td>
<td>0.7</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>27</td>
<td>48</td>
</tr>
<tr>
<td>Interrupts with comment</td>
<td>43.8</td>
<td>56.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.9</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.4</td>
<td>0.5</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>31</td>
<td>21</td>
<td>52</td>
</tr>
<tr>
<td>Ignores response</td>
<td>59.6</td>
<td>40.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.3</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.6</td>
<td>0.4</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>155</td>
<td>117</td>
<td>272</td>
</tr>
<tr>
<td>Directs same question to another student</td>
<td>57.0</td>
<td>43.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.7</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.0</td>
<td>2.3</td>
<td>5.3</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>23</td>
<td>44</td>
</tr>
<tr>
<td>Directs same question to same student</td>
<td>47.7</td>
<td>52.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.9</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.4</td>
<td>0.4</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>157</td>
<td>257</td>
</tr>
<tr>
<td>Slices same question for clarification</td>
<td>38.7</td>
<td>61.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.3</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.9</td>
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<td>5146</td>
</tr>
<tr>
<td></td>
<td>14.8</td>
<td>55.2</td>
<td></td>
</tr>
</tbody>
</table>

Key:  
- \(a\) = observed frequency  
- \(b\) = row per cents  
- \(c\) = column per cents  
- \(d\) = total per cents
a total of thirty-three instances which represented .6 per cent of the responses. Teachers made no response to skilled readers' answers, a total of .3 per cent of the responses as compared to .4 per cent among less skilled readers.

Accepts with comment indicated that the teacher acknowledged as correct or appropriate a student's answer. This response was an affirmation of more than one word and a comment that was related to the student's answer or a restatement of the student's answer. This category of response occurred a total of 1899 instances which represented 36.9 per cent of the responses. Teachers accepted with comment among skilled readers a total of 15.9 per cent as compared to 21 per cent among less skilled readers. The proportional distribution of this response between skilled and less skilled readers indicated no difference in the teacher's acceptance with comment when instructing skilled readers as compared to less skilled readers.

Accepts without comment indicated that the teacher acknowledged as correct or appropriate a student's answer. This response was an affirmation of only one word or a nonverbal gesture indicating acceptance with no other comment. This category of response occurred a total of 1754 instances which represented 34.1 per cent of the responses. Teachers accepted without comment among skilled readers a total of 16.3 per cent of the responses as compared to 17.8 per cent among less skilled readers. The
proportional distribution of this response between skilled and less skilled readers indicated no difference in the teacher's acceptance without comment when instructing skilled readers as compared to less skilled readers.

Rejects with comment indicated that the teacher did not acknowledge as correct or appropriate a student's answer but rejected it instead. This response was a rejection using more than one word and a comment that was related to the student's answer. It included a correction of the student's answer, or a restatement of the student's answer in a manner that communicated that answer was incorrect or inappropriate. This category of response occurred a total of 279 instances which represented 5.4 per cent of the responses. Teachers rejected with comment among skilled readers a total of 1.8 per cent of the responses as compared to 3.6 per cent among less skilled readers. The disproportional distribution of this response between skilled and less skilled readers indicated a difference in the occurrence of rejection with comment among skilled readers as compared to less skilled readers.

Rejects without comment indicated that the teacher did not acknowledge as correct or appropriate a student's answer but rejected it. This response was a rejection using only one word or a nonverbal gesture indicating rejection with no other comment. This category of response occurred a total of eighty-two instances which represented
1.6 per cent of the responses. Teachers rejected without comment among skilled readers a total of .7 per cent of the responses as compared to .9 per cent among less skilled readers. The proportional distribution of this response between skilled and less skilled readers indicated no difference in the teacher's rejection without comment when instructing skilled readers as compared to less skilled readers.

Answers question for the student indicated that the teacher answered the question instead of the student answering the question. This category of response occurred a total of 315 instances which represented 6.1 per cent of the responses. Teachers answered the question for the student among skilled readers a total of 2.2 per cent of the responses as compared to 3.9 per cent among less skilled readers. The disproportional distribution of this response between skilled and less skilled readers indicated a difference in the occurrence of teachers answering the question for the student when instructing skilled readers as compared to less skilled readers.

Responds to request for clarification indicated that the teacher responded to the student's request for clarification of information pertaining to the question. This category of response occurred a total of thirty-eight instances which represented .7 per cent of the responses. Teachers responded to the student's request for clarification
when instructing skilled readers a total of .4 per cent as compared to .3 per cent among less skilled readers. The disproportional distribution of this response between skilled and less skilled readers indicated a difference in the occurrence of teachers responding to request for clarification when instructing skilled readers as compared to less skilled readers.

Apparent confusion indicated that the teacher appeared to be confused about the answer to the question as evidenced by observable behaviors, such as non-verbal expression and gestures or verbally commenting to oneself or others in an apparent effort to understand the student's answer. This category of response occurred a total of seventy-three instances which represented 1.4 per cent of the responses. Teachers exhibited apparent confusion among skilled readers a total of .7 per cent as compared to .7 per cent among less skilled readers. Although the percentage is the same the disproportional distribution of the response indicates a difference in the occurrence of teachers responding in apparent confusion when instructing skilled readers as compared to less skilled readers.

Interrupts with a comment indicated that the teacher interrupted the student's answer to the question with a comment, inhibiting the student from completing the answer. This category of response occurred a total of forty-eight instances which represented .9 per cent of the responses.
Teachers interrupted with a comment among skilled readers a total of .4 per cent as compared to .5 per cent among less skilled readers. The proportional distribution of this response between skilled and less skilled readers indicated no difference in the occurrence of interrupting with comment when instructing skilled readers as compared to less skilled readers.

Ignores response indicated that the teacher ignored the student's answer to the question by not acknowledging the response verbally or non-verbally. This category of response occurred a total of fifty-two instances which represented 1.0 per cent of the responses. Teachers ignored the student's answer among skilled readers a total of .6 per cent as compared to .4 per cent among less skilled readers. The disproportional distribution of the response indicates a difference in the occurrence of teachers ignoring responses when instructing skilled readers as compared to less skilled readers.

Directs same question to another student indicated that the teacher directed the same question to another student by repeating the question or by implying the repetition of the question using non-verbal gestures or verbal cues of one or two words. This category of response occurred a total of 272 instances which represented 5.3 per cent of the responses. Teachers directed the same question to another student among skilled readers a total of 3.0
per cent as compared to 2.3 per cent among less skilled readers. The disproportional distribution of the response indicated a difference in the occurrence of teachers directing the same question to another student when instructing skilled readers as compared to less skilled readers.

Directs same question to the same student indicated that the teacher directed the same question to the same student by repeating the question or by implying the repetition of the question using nonverbal gestures or verbal cues of one or two words. This category of response occurred a total of forty-four instances which represented .9 per cent of the responses. Teachers directed the same question to the same student among skilled readers a total of .4 per cent as compared to .4 per cent among less skilled readers. The proportional distribution of this response between skilled and less skilled readers indicated no difference in the occurrence of directing the same question to the same student when instructing skilled readers as compared to less skilled readers.

Slices same question for clarification indicated that the teacher reduced the complexity of the question by slicing the question in order to clarify the question or to encourage the student to respond. Slicing (Pearson & Johnson, 1972, p. 185) is accomplished by recasting the question, asking for a smaller part, or changing the task
from a recall to a recognition mode by offering alternatives from which to select. This category of response occurred a total of 257 instances which represented 5.0 per cent of the responses. Teachers sliced the same question for clarification among skilled readers a total of 1.9 per cent as compared to 3.1 per cent among less skilled readers. The disproportional distribution of the response indicated a difference in the occurrence of teachers slicing the same question for clarification when instructing skilled readers as compared to less skilled readers.

Generally, the total number of responses, 5146, was disproportionally distributed between skilled and less skilled readers since seven of the thirteen categories resulted in unexpected proportion of responses which indicated a difference in the content of the teacher's response to the student's answer when instructing skilled readers as compared to less skilled readers.

However, acceptance of the answers with or without comment represented over 70 per cent of the responses from teachers when instructing both skilled and less skilled readers. Over 20 per cent of the responses from teachers among both reading groups were the responses: answers question for student, rejects with comment, directs same question to another student, and slices same question for clarification.
While instructing less skilled readers teachers rejected with comment, answered question for student, directed same question to same student, and sliced for clarification more often than would be expected based on a frequency distribution of total responses. While instructing skilled readers teachers responded to requests for clarification, displayed apparent confusion, ignored responses, and directed same question to another student more often than would be expected based on a frequency distribution of total responses.

Within both skilled and less skilled reading groups acceptance of answers with or without comment were the most frequently occurring categories of responses from teachers. However, within the skilled reading group acceptance without comment occurred slightly more often than acceptance with comment, whereas within the less skilled reading group acceptance with comment occurred slightly more often acceptance without comment.

Within both reading groups the same four categories represented over 20 per cent of the total responses differing only in the ranking of categories by frequency. Within the skilled reading group these four categories in order of frequency were directs same question to another student, answers question for student, slices for clarification, and rejects with comment. Within the less skilled reading group these four categories in order of frequency
were answers question for student, rejects with comment, slices for clarification, and directs same question to another student.

The remaining seven categories of responses represented less than 10 per cent of the responses from teachers. These were no response, rejects without comment, responds to request for clarification, apparent confusion, interrupts with comment, ignores response, and directs same question to the same student.

In summary, there appeared to be no difference in the teacher's most frequent response to students' answers. In more than 70 per cent of the instances, teachers accepted the student's answers with or without comment. It would appear that the teacher generally used the response to the student's answer as a means of encouraging student participation in the discussion.

Notable absence of the category, responds to student's request for clarification, was an indicator of how infrequently a student asked questions of the teacher or one another. This was a general pattern noted throughout the data.

However, the disproportional distribution of responses based on what would be expected did indicate that teachers appeared to respond differently when instructing skilled readers as compared to less skilled readers. Teachers were more likely to respond to request for clarification when
instructing skilled readers. Perhaps this was because skilled readers were more likely to initiate a question or understand the question asked at a level which created further interest or insight than would less skilled readers.

Also, teachers were more likely to ignore responses and display apparent confusion when instructing skilled readers. Perhaps this indicated a higher level of student involvement in verbal interchange as compared to less skilled readers. Furthermore, when teachers were instructing less skilled readers they were more likely to reject with comment than without comment. This result could be a reflection of a higher incidence of incorrect responses and a need to encourage students to respond even if the answer was incorrect. Teachers were also more likely to answer the question for the student when instructing less skilled readers than when instructing skilled readers. Perhaps the longer wait-times for less skilled readers resulted in the teacher wanting to increase the pace of verbal interaction during the reading lesson. In addition, teachers were more likely to direct the question to the same student when instructing less skilled readers. This may be evidence of another attempt to fill in time until response from the student begins.

Overall, it appeared that teachers used their responses to students' answers as a means to manage the verbal interchange in terms of direction and pacing. The primary
purpose, however, was to express acceptance of the answer given by the student. Differences in the teachers' responses when comparing skilled and less skilled reading groups appeared to be the result of student initiative in discussion and the teachers' efforts to maintain control of the direction and pacing of verbal interchange.

Observations from Field Notes

At the end of each observation period subjective reflections of the event were recorded as summary notes. In addition, observations which could not be stated objectively during the observation were recorded as anecdotal records. Four noteworthy items related to students, materials, scheduling, and instruction.

Throughout the observations it was noted that less skilled students tended to be less mature than their skilled classmates. They seemed to be smaller in stature, less developed physically, and more immature in their behavior among one another. There was only one notable exception. In one less skilled group, one male student appeared to be older than the other students in both his group and the class as a whole.

There appeared to be a wide disparity between skilled and less skilled readers in terms of the content of their reading materials. For example, in one group the skilled readers were reading and discussing the background, contributions, and impact of Dr. Martin Luther King, Jr. on
society, while the less skilled readers were talking about a frog jumping around a classroom in the story they were reading. Similar differences were observed in several other classes where the reading levels of skilled and less skilled groups differed greatly.

The discrepancy in intellectual challenge between skilled and less skilled readers as a result of appropriate grade level basal readers may have an effect on the interest level of students and the quality of verbal responses from the students in the group.

Furthermore, the differences in scheduling for reading instruction appeared to affect instruction. For example, two teachers who taught reading only and no other subject had longer instructional time for each group, an average of sixty minutes. Seven teachers grouped their classes in two ability groups, thus having thirty or forty minutes per group. Finally, two teachers who divided their classes into three ability levels spent only twenty minutes with each group.

The structuring of time for reading instruction appeared to have an influence on what kind of activities were planned, how much time was allowed for questions and responses, how many individuals received attention and feedback, and how thoroughly a concept was discussed or a skill practiced.
Finally, the last subjective comment related to an event that was noticeable by its absence. The teaching technique of brainstorming, "to search for many ideas and/or solutions through group discussion" (Harris & Hodges, 1981, p. 39), was observed one time out of all eighty observations. Absence of this widely known strategy reflected the relative infrequency of divergent and evaluative level questions which represented less than 6 per cent of the total number of questions asked of both skilled and less skilled readers.
CHAPTER REFERENCES


CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Introduction

The problem of this study was to analyze how teachers use questions while instructing skilled and less skilled readers. The way teachers use questions during reading instruction has been well-documented in the research (Aschner, 1961; Gall, 1970, 1978; Guilford, 1960; Sanders, 1966; Taba, 1964). Research findings have indicated that most questions posed by teachers have been at the lower cognitive levels (Gall, 1970, 1978; Guszak, 1966; Hare & Pulliam, 1981; Hunkins, 1966). The practice of using lower cognitive level questions has continued even though there have been recommendations to use higher cognitive level questions (Davis & Tinsley, 1967; Gallagher, 1965; Hunsks, 1972; Sanders, 1966; Redfield & Rousseau, 1981).

However, research findings concerning the effect of higher level questions on student achievement have led to contradictory conclusions (Bedwell, 1974; Ladd, 1969; Redfield & Rousseau, Rosenshine, 1971; Winne, 1979). Furthermore, results indicated that the effectiveness of
certain levels of questions varies with the ability of the students involved in the instruction (Brophy & Evertson, 1974; Peterson & Walberg, 1979; Soar, 1973; Smith, 1977; Stallings & Kaskowitz, 1976). A general conclusion has been that the use of questions at both lower and higher cognitive levels should be studied among various ability groups.

Direct observation has been recommended as an effective method of studying instruction as it occurs in the classroom (Boehm & Weinberg, 1977; Brophy, 1979; Clark, 1979; Doyle, 1979; Medley & Mitzel, 1963; Wolf & Tymitz, 1976-1977). In this way the context of questions was studied noting influencing factors, such as wait-time, sequencing, and frequency of questioning (Brophy, 1979; Dillon, 1981; Honea, 1982; Hyman, 1979; Rowe, 1974; Ruddell, 1974; Sanders, 1966). These studies made significant contributions to our knowledge of levels of questions used in the classroom (Dillon, 1984; Gall, 1984; Rosenshine & Stevens, 1982; Singer & Donlan, 1985), to proposed strategies of questioning to be used in instruction (Christenberry & Kelly, 1983; Dillon, 1983; Pearson & Johnson, 1978; Sanders, 1966; Wilen, 1982), and to the current emphasis on instruction in thinking skills (ASCD, 1984, 1985; Costa, 1985; Sadler & Whimbey, 1985). However, an unexplored area of study has been one that combines the analysis of questions in terms of cognitive level of questions and
functions of questions while also investigating patterns of questioning within the context of reading instruction.

Therefore, this study focused on the analysis of questions used by teachers during reading instruction with skilled and less skilled readers within the natural environment of the classroom through direct observation. In this manner, the context of the questions used by teachers was analyzed not just in terms of cognitive level of questions but also in terms of the way questions were used in instruction, i.e., their functions. In addition, by maintaining the contextual integrity of the instructional interaction, the pattern of questioning which included wait-time and sequencing of questions was observed and analyzed.

Since the teachers were observed in both skill level situations, any differences in the cognitive levels, functions, and patterns of questioning were considered the result of differences in the skill level of the two reading groups.

**Purpose of the Study**

The purpose of this study was to determine the extent to which teachers use different questioning procedures for skilled and less skilled readers during reading instruction. Specifically, this study identified observable differences in the cognitive levels of questions, the functions of
questions, and the patterns of questioning teachers used while instructing skilled readers as compared to less skilled readers.

Research Questions

The following questions were researched in order to carry out the purpose of this study.

1. Is there a significant difference in the cognitive level of questions teachers use while instructing skilled readers as compared to less skilled readers?

2. Is there a significant difference in the functions of questions teachers use while instructing skilled readers as compared to less skilled readers?

3. Is there a significant difference in the interaction between cognitive level of questions and function of questions teachers use while instructing skilled readers as compared to less skilled readers?

4. Are there patterns of questioning teachers use while instructing skilled and less skilled readers? If so, what are those patterns of questioning?

Procedures for Collection of Data

The Methodology

Direct observation was used as the method of research in this study. This was a non-participatory observational method which required no input from the teacher. Therefore,
the questions teachers used during reading instruction with skilled and less skilled readers were analyzed on the basis of observable effects within the context of instruction in the natural classroom environment.

Subjects

Twenty sixth grade reading teachers were randomly selected from among eighty-five elementary schools in a metropolitan school district. These teachers were selected from a population of 255 teachers who taught reading in the sixth grade. Permission to observe each teacher was obtained prior to the study without revealing the focus of the observations.

Research Instruments

Instruments used in this study were in two categories: those used during the observation time and those used after the observation time.

During the observation time, a low-inference observational instrument with a mapping grid was used to record structured and unstructured notes. In addition, audiotape recordings were made of each observation for further analysis after the observation.

After the observation time, two systems for classifying questions were used: the Aschner-Gallagher System for classifying questions by cognitive level and categories of function by Taba and Ruddell for classifying questions
according to function. In addition, a coding system was devised by the observer as an outcome of the patterns of questioning which emerged from the data. The coding system was used to code all data for computer analysis.

Collection of Data

Each of the twenty teachers was observed four times, twice while instructing skilled readers and twice while instructing less skilled readers. The length of observation ranged from ten minutes and thirty-one seconds to fifty-eight minutes and fourteen seconds.

Names of each student in the two skill level groups were obtained from the teacher prior to the first observation time. The ITBS reading comprehension score for each student was recorded by the observer from official school records and used to compare the reading performance level of the two groups.

Structured notes and unstructured notes were taken by the observer using the observation instrument during the observation time. An audiotape recording was made of the entire observation and transcribed by the observer after the observation time. Immediately after the observation, summary notes were written by the observer as a subjective reflection of the observation.

Finally, information concerning the years of experience and educational level of the teacher was obtained from each teacher after all observations were complete.
Analysis of Data

Data collected concerning the teachers, the students, and the question/response/response loops were analyzed in the following manner.

Teachers

Data related to the number of years of experience and educational level for each of the twenty teachers were analyzed using descriptive statistics. Specifically, the mean, median, and mode were calculated and reported.

Students

The reading comprehension percentile scores from the ITBS standardized test were transformed to Normal Equivalence Curve scores. Data were recorded on keypunch worksheets, transferred to computer cards, and the SPSS computer program was employed to conduct a t-test for independent samples.

Question/Response/Response Loops

The following analysis of data was completed for each individual teacher. After this analysis was complete, all data from teachers were treated as a unit rather than as data from twenty individual teachers.

Analysis of questions began with transcribing the audiotape recordings made during each observation period. This was done by listening to the tape and typing all
verbal interaction verbatim. In addition, pertinent descriptive information needed to record the entire observation was included in the transcription marked by parentheses. The goal of the transcribing process was to record an accurate and complete account of the observation period.

All questions were identified by listening to the audiotape recording and following along on the transcription. Questions asked by teachers were underlined and numbered in sequential order.

Timing each observation involved two steps: the entire length of the observation and the wait-time for questions within the observation. A digital stop watch was used for all timings to the hundredths of a second. First, the entire length of the observation was timed by listening to the audiotape recording. Then, the wait-time for questions was determined by calculating the amount of time from the end of the teacher's question to the beginning of the student's response. This time was recorded to the left of the question on the transcription. Descriptive statistics were used to report the results of all timing.

Next, the designation of response for each question was determined by examination of the mapped grid on the observation instrument, listening to the audiotape recording, and following along on the transcription. The code for the responding student or group of students was recorded just
above the timing to the left of the numbered question on the transcription.

The cognitive level and function for each question was determined by reading the transcription and listening again to the audiotape recording. The predetermined systems for classifying all questions, Aschner-Gallagher System and functions proposed by Taba and Ruddell, were used to categorize all questions within the context of the reading instruction lesson. The code for cognitive level and function was written on the transcription to the left of the timing and designation previously recorded.

The entire question/response/response loop was recorded on keypunch worksheets for computer analysis. All information on the transcription—numerical sequence, designation, wait-time, cognitive level, and function of questions—were recorded on the keypunch worksheet using the transcription and listening to the audiotape recording. All other information concerning the responses from students and teachers was recorded directly on the keypunch worksheet according to the Coding System devised by the observer. That information included content, appropriateness, type, length of student responses, and the content of teacher responses.

Coded information from the keypunch worksheets was transferred to computer cards in order to put all data into the computer on a floppy disk. The programs SPSS and BMDP were used to conduct statistical analyses of Research
Questions 1, 2, and 3. Data related to patterns of questioning, Research Question 4, were reported using descriptive statistics only. Tallies of frequently occurring observations recorded as structured and unstructured notes were calculated and categorized. Observations recorded in anecdotal records and summary notes were summarized in subjective narrative.

Summary of Findings

Data concerning teachers, students, and question/response loops are reported in the summary of findings.

Teachers

All twenty teachers taught reading instruction to skilled and less skilled readers in the sixth grade. Years of experience ranged from one to thirty years. The mean number of years of experience was 13.8 and median number of years were ten and twelve years. Educational background ranged from a bachelor's degree to eighteen hours beyond a master's degree. Fifty-five per cent of the teachers had earned a master's degree.

Students

The students who were observed during reading instruction were evenly divided between male and female, 226 each. However, within skill level groups there were
consistently more students in the skilled groups, a mean of fifteen, as compared to the less skilled groups, a mean of eight. In addition, there were proportionally more males in the less skilled reading level as compared to the skilled level. The t-test for independent samples revealed a significant difference in the reading comprehension scores from the ITBS standardized test for the two skill level groups.

**Question/Response/Response Loops**

Findings related to the question/response/response loops are reported below in sections: the questions, the student's responses, and the teacher's responses. Finally, findings related to the subjective reflections on general observations from field notes are presented.

**Questions.**—The questions were analyzed as to their cognitive level, function, interaction, instructional environment, instructional context, and content of question.

**Cognitive levels.** There was a statistically significant difference at the .05 level in the cognitive level of questions teachers used among skilled readers as compared to less skilled readers. For both skill level groups cognitive-memory and convergent level questions represented 80.7 per cent of all questions. Routine level questions represented 13.5 per cent of all questions. The remaining 5.8 per cent included divergent and evaluative level questions.
Within the skilled reading groups, teachers asked significantly more convergent level questions than cognitive-memory level questions, whereas within the less skilled reading groups, teachers asked significantly more cognitive-memory level questions than convergent level questions. There was no significant difference between the two skill level groups in the frequency of divergent, evaluative, and routine level questions.

Therefore, it was observed that when teachers were instructing less skilled readers, they tended to ask a significantly higher percentage of questions requesting simple reproduction of facts, formulas, and other items of remembered content through recognition, rote memory, or selective recall. In addition, when teachers were instructing skilled readers, they tended to ask a significantly higher percentage of questions requesting integration of given or remembered content through comprehension, application, and analysis. For both skilled and less skilled groups, teachers tended to ask more questions requesting procedural information than questions requesting ideas and conclusions through synthesis or questions requesting judgments through evaluation based on personal values or given values.

Functions. There was no statistically significant difference in the functions of questions teachers used among skilled readers as compared to less skilled readers. For
both skill level groups the frequency rank order of functions was the same: extending, focusing, controlling, clarifying, and lifting.

A visual examination of the $X^2$ distribution indicated that the clarifying function used with the two skill level groups accounted for seven of the eight $X^2$ values. It is suggested, therefore, that when teachers were instructing less skilled readers they tended to use more questions to redefine previously given information than when they were instructing skilled readers.

For both groups, teachers tended to use questions primarily to elicit additional information or elaboration on the same subject matter at the same cognitive level of question; or to center the discussion on a topic, initiate a discussion, or set a cognitive task. In addition, for both groups, teachers tended to use questions the fewest number of times to raise the cognitive level of thought to a higher cognitive level than was previously established.

Interaction of reading skill level, cognitive level of questions, and functions of questions. There was a significant interaction among the variables: reading skill level, cognitive level of questions, and function of question. Significance of interaction was based on the log-linear analysis of the data. It was revealed that only the saturated model which included all parameters of the variables could accurately represent the data. Therefore,
how the particular cognitive level of questions was used by the teacher did vary significantly with the reading skill level of the group. Since the teacher variable was held constant in both skill level groups, it was found that the variation in the use of particular cognitive level questions was due to the reading skill level of the groups.

**Instructional environment.** Questions were used by teachers within an instructional environment which included three specific elements: number of students in the group, position of the students and teacher in the classroom, and equipment used by the teacher during the reading instruction period.

The number of students in the group was determined by the teacher prior to the observation times. Skilled groups were consistently larger than less skilled groups. Attendance of students within groups during the four observations per teacher varied among all but three teachers. Fluctuations in attendance seemed to reflect the typical classroom attendance patterns. Only one teacher had students absent from the group due to their involvement in a talented and gifted program.

The positions of students within the room during reading instruction tended to be influenced primarily by the size of the group. All students in both groups were observed sitting during instruction: in a desk, on a chair, or on the floor. Students were most frequently sitting in
desks. Skilled readers were usually sitting in desks arranged in traditional rows, whereas less skilled readers were sitting in desks arranged in special arrangements. When students were sitting in chairs during reading instruction it was usually in the traditional reading circle or around a table. If the teacher had the skilled students sitting at the table, typically the less skilled students would also sit at the table for instruction. Only one teacher had students from both groups sit on the floor for instruction. This was in an open space school building where the classroom was open to all surrounding classrooms. It appeared that this arrangement was made because of the noise level in the building.

Overall, the students in the groups seemed to have an expectation for certain arrangements of positions during reading instruction. They moved quickly and quietly to their assigned area without any indication that it was anything unusual or different.

The position of the teacher within the room was primarily sitting on a chair in front of the students. Teachers also stood in front of students and moved around the room during instruction. The major difference in the position of the teacher between the two skill level groups was that teachers tended to stand more with skilled groups and sit more with less skilled groups. This difference was probably due to the size of the two groups.
Only one teacher was observed sitting at the teacher's desk during instruction. Instruction was given to three individual students who sat in a chair beside the teacher's desk. Their preparedness when called on for instruction indicated that sitting beside the teacher's desk was a normal procedure.

Generally, teachers tended to follow the same pattern of instruction as to their position in the room whether they were instructing skilled or less skilled readers. Only when the size of the two groups varied a great deal, as in fifteen and five or seventeen and three, did their position in the room during reading instruction change noticeably.

The equipment used by the teacher included the blackboard, posterboards or charts, and the overhead projector. Thirteen of the twenty teachers were observed using equipment during reading instruction. Blackboards were used most frequently probably because of the accessibility, familiarity within the instructional environment, and ease of displaying spontaneously generated information for the purpose of clarification and discussion.

However, most notable was the sparsity of equipment used by teachers during reading instruction. There were only thirty-one instances of equipment use out of all eighty observations. Perhaps this was due to the emphasis on reading materials available to individual students during the instruction period.
Instructional context. Questions were used by teachers within an instructional context which included two specific elements: materials used in reading instruction and the stated or implied purpose of the lesson.

The materials used in reading instruction included those used by the teacher and those used by the students. Teachers used manuals during reading instruction but not all teachers. Manuals were used more frequently while instructing less skilled readers than skilled readers, twenty-eight lessons as compared to twenty lessons.

Furthermore, actual use of the manual varied from a continuous reliance on the instructions and guidance procedures to an occasional referral during discussion of the story. Instead, the manual was used primarily as a text for reading just as the students used the basal reader. In only three observations it was obvious that the comprehension questions were being read from the manual.

When students used materials it was most often a basal reader. Other materials were workbooks, worksheets, prepared answers, reference tools, spelling books, and paper and pencil.

The level of basal readers varied from pre-primer to seventh grade level. However, most often the reading levels of the basal readers were fifth or sixth grade. Workbooks and worksheets were used more often among less skilled readers and prepared answers more often among skilled
readers. The minimal use of spelling books and reference tools seemed to reflect the idiosyncratic nature of the observed reading lesson.

Generally, teachers seemed to use the same strategies for material use among skilled readers as with less skilled readers by using the basal reader at the appropriate levels. Differences that occurred seemed to be the result of the size of the group and the purpose of that particular lesson.

The purpose of the lesson was the stated or implied intention or goal of the teacher for the content of the lesson as determined by observable behaviors of the teacher and students. Ninety per cent of the observed purposes were in four categories: directed instruction, oral reading, discussion with reading, and review of instruction. The remaining categories were independent work, evaluation of understanding, continuation of prior lesson, silent reading, and individual instruction.

It was found that teachers tended to interpret meaning for students through discussion during oral reading when instructing less skilled readers. Also, they spent more time assisting oral reading procedures, such as pronunciation and proper stress, among less skilled readers. There was no occurrence of a teacher reading orally to the students during the observation periods.

Content of the questions. The content referred to the basic substance or subject matter of the question. Sixty-
one per cent of the questions were comprehension of connected prose and reading skill in terms of content. In most cases the basal reader was the material used during this instruction. However, teachers tended to use a workbook or worksheet as well when instructing less skilled readers.

The use of management questions tended to be similar for both groups. They were used at the beginning and ending of the instruction period. More frequent use of management questions was observed if there were several changes in activities during the observation period.

Reference skill, grammar exercise, and spelling exercise questions tended to reflect the idiosyncratic qualities of reading lessons rather than any real differences in the two groups. However, it was noted that eleven of the twenty teachers included grammar instruction among skilled readers and only one of those teachers also included grammar instruction while instructing the less skilled group.

Personal experience and comprehension skill questions tended to reflect the most variation in content of questions when comparing skilled and less skilled readers. Among skilled readers teachers tended to emphasize the skills related to comprehension, whereas among less skilled readers teachers seemed to focus more attention on drawing personal experiences from the students as they related to the written text. Perhaps a greater reticence on the part of less
skilled readers to contribute their thoughts and ideas concerning the text led teachers to use questions to help students express themselves. In contrast, skilled readers were more expressive, leaving more opportunity for the teacher to focus on the skills related to comprehension, such as recognizing fact and opinion, determining sequence of events, finding the main and supporting ideas needed for an outline, and understanding the meanings and uses of figures of speech.

**Wait-time for questions.** Wait-time referred to the rate at which questions and responses were received and given. Wait-time was determined on the basis of the amount of time from the end of the teacher's question until the beginning of the student's response was begun. It was found that average time until response for skilled readers was 1.754 and for less skilled readers was 2.0039. Wait-time varied among skilled readers from 55.46 seconds to .10 seconds and for less skilled readers from 75.01 seconds to .10 seconds.

These results indicated that the difference in wait-time between the two groups was minimal, only .2499 seconds. The similarity in wait-time may provide evidence for the impact of the teacher in determining the rate at which questions were given and answered. There appeared to be a sense of the routine during all observations. The students seemed to know what to expect from the teacher in terms of
responses: the quality of response and how long the teacher would wait for a response.

There was a greater variation among less skilled readers in the time until response than among skilled readers. These longer lengths of time may have been a result of teachers allowing more time for response because of the skill level of the group. However, fewer students in the group may have resulted in less competition in answering the question and more focus on the individual students. In contrast, the more competitive, more able, more verbal skilled groups usually responded more quickly than less skilled groups.

Nevertheless, it was found that among both skilled and less skilled readers the wait-time for questions was consistently short. The average time until response was from one to two seconds.

**Designation of questions.** Questions were answered generally in proportion to membership by gender. The less skilled readers answered more questions even though there were fewer students in the group. This was probably due to the fewer number of questions answered by a group of students, therefore, focusing more on individual answers; and to the longer length of time spent in the instruction period, allowing more time for more questions.

In addition, it was found that between both skill level groups male students answered almost twice as many questions
as female students. Perhaps teachers were influenced by the male students' aggressive behavior among skilled readers or attempted to involve less skilled male students in verbal interchange.

**Sequences of questions.** Sequencing of questions referred to the order in which the teachers asked questions for a particular function during reading instruction. It was found that 96 per cent of all questions asked while instructing both skilled and less skilled readers was at the cognitive-memory level for the functions of focusing, extending, clarifying, and controlling; at the convergent level for the functions of focusing, extending, lifting, clarifying, and controlling; at the divergent level for the function of lifting; and at the routine level for the functions of focusing, extending, and controlling.

General trends in cognitive level/function categories revealed paths of sequences of questions for both skilled and less skilled readers within episodes of interaction. An episode consisted of a continuous exchange of communication among the teacher and students centered on one specific matter of content. From a close analysis it was found that most paths of sequences began with the function of focusing, to set a cognitive task, followed by extending in order to elicit additional information from the students.

Clarifying questions used to redefine previously given information were followed by extending questions to elicit
elaboration of the subject matter. Controlling questions used to manage a classroom or manipulate a student's thinking were most typically followed by focusing questions in an apparent effort to regain control of the class or a particular student's verbal exchange.

The marked infrequency of evaluative level questions for any of the five functions and divergent level questions for the functions of focusing, extending, or clarifying, indicated that teachers apparently have continued to use relatively few higher cognitive level questions during reading instruction with both skilled and less skilled readers.

Student responses.—The responses from students were analyzed as to their appropriateness, type, and length. The findings in each of these areas are discussed below.

 Appropriateness of response. The appropriateness of the student's responses, that is, the manner in which the responses related to the questions, was categorized as no response, correct, incorrect, related, unrelated, various, follows teacher's directions, yes or no, asks for clarification, doesn't know, and apparent confusion.

Seventy per cent of the responses were either correct and on the subject or related to the subject. The general distribution of all responses between the two skill level groups was proportional to the number of responses from
each group. However, one exception, various responses, indicated that skilled readers responded more frequently with various responses than less skilled readers. This probably was due to the size of the groups and the fact that one-third of the responses from skilled readers were categorized as Group responses. There were few instances of students expressing a need for clarification, giving an unrelated response, or saying "I don't know" in response to a question.

Type of response. The type of student response, that is, the source of information used in answering the question, was categorized as no response, self, oral reading of connected prose, oral reading of words or phrases, oral reading of student prepared answers, and marking of answers. It was found that 67 per cent of the responses were categorized as being from self. These responses from both skilled and less skilled readers came from the students themselves without observable dependence on information from books, workbooks, worksheets, or prepared answers. Responses from self along with responses from oral reading of words and phrases represented 87 per cent of the total number of responses from both groups.

One distinction between the two skill level groups was that more questions were answered by reading orally from connected prose among skilled readers than among less skilled readers. This finding reflected the emphasis made
by the teacher in terms of content of the lesson and materials used in the lesson. Students in skilled groups were observed reading and reacting to connected prose more frequently than less skilled readers who were more frequently reading words and phrases.

**Length of response.** The length of student responses, that is, the number of words or sentences the student or group of students used to answer the question, was categorized as no response, one word, two or more words, one sentence, two or more sentences, nonverbal only, and spells word or words. Both skilled and less skilled readers responded with a one word response more often than any other length of response. Skilled readers responded more often with one complete sentence, two or more words, and two or more sentences than less skilled readers. This difference was reflective of the more verbal characteristic of the skilled reading groups. In addition, the general content of the lessons which focused more on comprehension of connected prose appeared to create more opportunity for longer responses than the fill in the blank type materials found in workbooks used by less skilled readers.

**Teacher responses.**—The teacher's responses to the answers given by students were analyzed in terms of their content. These categories of content were no response, accepts with comment, accepts without comment, rejects with
comment, rejects without comment, answers question for the student, responds to request for clarification, apparent confusion, interrupts student's answer, ignores student's answer, directs same question to another student, directs same question to same student, and slices for clarification.

It was found that teachers did respond differently when teaching skilled readers as compared to less skilled readers. However, in both groups, the primary content of response, 70 per cent, was accepts with or without comment. Teachers accepted with comment more often with less skilled readers than with skilled readers, 57 per cent as compared to 43 per cent of the total number of questions. However, in both groups, teachers appeared to use their responses as a means of encouraging student participation.

When a teacher rejected a student's answer it was usually with a comment rather than without a comment. Teachers tended to reject with comment, answer for student, and sliced for clarification more often among less skilled readers than skilled readers. These responses reflected the general trend for incomplete or incorrect responses from less skilled readers. Thus, teachers responded in a way that would encourage the student to continue, or to begin again.

Furthermore, when instructing skilled readers the teacher responded to requests for clarification, displayed apparent confusion, ignored responses, and directed the same
question to another student more often than when instructing less skilled readers. Their responses were indicators of the much more verbal characteristics of skilled readers and probably the larger size of the group. Competition between students for the teacher's attention and peer influence among students to respond were probable factors in the students' responses; thus, affecting the teacher's responses.

Observations from Field Notes

Subjective comments were based on observations recorded during the observation period as anecdotal records and after the observation period as summary notes. Four primary observations were noteworthy.

It was suggested that less skilled readers appeared less mature than their skilled classmates in terms of their stature, physical development, and behavior.

There seemed to be a discrepancy in terms of the intellectual challenge derived from the reading materials when comparing the two skill level groups due to the content of the appropriate basal readers.

Variation in the amount of time allowed for reading instruction resulted in differences in the kind of activities that were used, the amount of time for questions and responses, how much attention individual students received, and how thoroughly a lesson was taught.
Finally, the absence of activities which promote the search for many ideas and solutions through group discussion appeared to reflect the relative infrequency of divergent and evaluative level questions among both skilled and less skilled readers.

Conclusions

This study focused on the analysis of questions used by teachers during reading instruction with skilled and less skilled readers within the context of the natural environment of the classroom through direct observation. Within the limitations of this study the following conclusions were made.

1. Identifying both the cognitive level of questions and the function of questions did effectively differentiate the skill level of the group. As others have suggested (Allington, 1980; Brophy & Evertson, 1974; Soar, 1973; Stallings & Kaskowitz, 1974), it can be concluded that teachers do use different levels of questions for various functions as dictated by the specific needs and characteristics of the students in the skill level. Consistent with previous findings (Gall, 1970, 1978; Guszak, 1967; Hare & Pulliam, 1981; Hunkins, 1966) teachers in this study asked the majority of their questions at the cognitive-memory and convergent levels in spite of the skill level of the group. The primary function of the questions was for
extending. However, among skilled readers teachers tended to use convergent level questions for the purposes of focusing, extending, and clarifying; divergent level questions for the purpose of lifting; and routine level questions for the purpose of controlling. In contrast, among less skilled readers, teachers tended to use cognitive-memory level questions for the purposes of focusing, extending, clarifying, and controlling; convergent level questions for the purposes of lifting and controlling; and routine level questions for the purposes of focusing and extending. The relative absence of evaluative and divergent levels of questions was apparent among both skilled and less skilled groups.

2. Grouping of students in two skill levels as predetermined by the teacher did result in two significantly different groups of students in terms of reading performance ability. Generally, there were twice as many students in the skilled level groups as there were in the less skilled groups. Skilled level groups tended to be more verbal, answering more questions with a group response, and using sentences more often than less skilled groups. However, the two groups were similar in that both groups tended to give the majority of their answers to questions from themselves, rather than relying on any written material as a source of response. They both tended to answer questions with a one word response and typically it was the male student who
answered more frequently. Perhaps these findings indicated that students could respond to questions from within themselves rather than relying on text because questions were experientially centered rather than text based. There might be some indication that the lower levels of cognitive-memory and convergent questions were close-ended in nature rather than open-ended since the majority of the questions were answered with one word rather than whole ideas expressed in sentences. Finally, the male students in this study appeared to dominate discussion through aggressive behavior and other attention getting devices. In addition, male students outnumbered female students in the less skilled groups almost three to one.

3. The primary purposes of reading instruction appeared to be direct instruction of a concept or skill, oral reading of words or connected prose, discussion of concepts, and review of instruction. Most of the questions related to comprehension of connected prose and reading skill. Teachers seemed to ask more questions related to the strategies for learning how to read text among less skilled readers and more questions related to strategies for reading in order to learn from text among skilled readers. Research conducted by Allington (1980) concerning the number of words read by poor readers as compared to good readers during a basal reading lesson supports this same conclusion.
4. The basal reading program was the most predominant material used in reading instruction. The manual was used by teachers primarily as a text for the teacher rather than a guide for questions and procedures, as also noted by Shake and Allington (1985). Reading levels for basal materials ranged from pre-primer to seventh grade for the two skill level groups. Consequently, the content of reading and discussion tended to be more centered on age appropriate experiences and real life experiences for skilled readers than for less skilled readers.

5. As found by other researchers (Gambrell, 1983; Rowe, 1974), teachers tend to practice a fast paced approach to questioning no matter what the skill level of the group. Generally, the time from the end of the question until the beginning of the student's response was one to two seconds for both skilled and less skilled readers. It appeared that the students knew what to expect from their teacher in terms of how long he or she would wait for a response.

6. General paths of sequences for question/response/response loops emerged as being similar among students from both skill level groups. Focusing questions were typically followed by extending questions to encourage as many students as possible to participate in the discussion. Clarifying questions were followed by extending questions to insure that students were understanding. Controlling
questions were most frequently followed by focusing questions in an apparent effort to regain control of the class or a particular student's attention. Furthermore, it appeared that teachers commented with their responses to a student's answer in an attempt to encourage that student's participation in discussion.

7. The question/response/response loops did reflect a recitation method of instruction (Dillon, 1984) which appeared to promote a communication process which was not conducive to the free flow of interaction among students advocated by Manzo (1969), Dillon (1984) and others. The characteristic interaction which occurred in this study was the teacher questions, the student responds, then the teacher responds. Direct observation in the natural classroom environment with no intervention on the part of the observer enabled the recording of this process as an actual occurrence typical of reading instruction among both skilled and less skilled readers.

Implications and Recommendations

Teachers used patterns of questioning for particular functions with different skill level groups. Teachers asked the majority of the questions used in reading instruction at lower levels rather than higher levels. Teachers seemed to use questions to reinforce and encourage participation in discussion. Students and teachers appeared to have a common
frame of reference for how classroom instruction would occur. In light of these conclusions, the following implications and recommendations for reading instruction are presented for consideration.

1. Direct observation of instruction within the natural setting of the classroom enabled the researcher to study effectively the impact of instruction on learning and the intricate details of real life teaching situations which might be lost in carefully controlled experimental situations. The methodology employed in this study could be modified and used by the classroom teacher to monitor the question level and function of the questions used as they occur in the classroom instruction. As suggested by other researchers (Christenberry & Kelly, 1983; Dillon, 1983; Manson & Clegg, 1970; Napell, 1977; Sanders, 1966; Wilen, 1982), such information could help the teachers focus on improving their strategies of questioning by becoming aware of how they are using questions, teaching students the process of active questioning, and avoiding certain types of questioning practices which could be detrimental to the open discussion process.

2. Teachers used higher level, i.e., divergent and evaluative, questions infrequently as compared to the lower level, i.e., cognitive-memory and convergent, questions. Therefore, further investigation of why this occurred is recommended. Furthermore, teachers could actively teach
students the process involved in answering higher level questions (Manzo, 1977; Rosenshine & Stevens, 1984). This modeling procedure which would include thinking aloud would create an atmosphere conducive to the exchange of ideas expressed in whole sentences rather than the predominant one word response. This process could promote the use of higher level questions both among students and between teacher and students.

3. Teachers and students seemed to share a common frame of reference which affected the time until response, length and type of student responses, and type of comments from the teacher. Altering that frame of reference might be accomplished by (a) extending the time until response by giving verbal and nonverbal cues that the teacher would wait for a response, (b) using reading material which includes age appropriate situations for less skilled readers, (c) adopting questioning procedures which encourage students to ask questions as well as carefully respond to questioning using ideas expressed in complete sentences, and (d) varying modes of communication with students to include alternative strategies to questioning.

4. It is recommended that this study be replicated with teachers in similar situations in order to clarify further the impact of questioning practices on classroom reading instruction. In addition, it is recommended that the methodology used in this study be replicated using
teachers from primary levels to determine any differences due to the grade level of the students being observed.

5. Further research is needed to investigate the impact of controlling questioning procedures based on the findings of this study. This experimental step in research could then lead to a correlational study where particular features of questioning patterns could be investigated leading to more definitive conclusions regarding effective questioning strategies.
CHAPTER REFERENCES

Allington, R. L. (1980). Poor readers don't get to read much in reading groups. Language Arts, 57(8), 872-876.


APPENDICES
APPENDIX A

I, __________________________, grant Ruth M. Loring permission to observe in my classroom during reading instruction. I understand that Mrs. Loring is a doctoral candidate at North Texas State University and that she is conducting this research for a dissertation study. I understand that all data gathered in my classroom will remain confidential.

______________________________
Signature of Classroom Teacher

______________________________
Date
APPENDIX B

OBSERVATION INSTRUMENT

SCHOOL 1,11  TEACHER  IV  OBS 3  TAPE 11  GROUP S  DATE April 9, 1981

Instructional environment: 7 students sat in their desks.  Teacher stood; used blackboard; did not use manual.

Instructional context: Discussion of idioms using sentences on board. Introduction of story, Five Yard Fuller; in Serendipity. Students were assigned the story to read silently.

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Anecdotal records:
Teacher frequently "summed up" after student responded. Students were selected for response after raising hand. Teacher seemed to know story well; did not use manual.
Noisy group in room seemed a distraction to teacher but not to the students in the group.
APPENDIX C

SAMPLE TRANSCRIPTION

1IV088          #2                page 1

(Teacher gives instructions to other group. A teacher's aide is told what to do with those students.)

T Okay, I want the Serendipity people to put your pencils down. Now I can't have any noise in here today. (Directed toward other group.)
Turn your seats around please to face this way. (Teacher is referring to blackboard where sentences are written.)
Okay, let's look up at the board. As you see there are some sentences up here with something underlined. Anybody know what those

1 C/F         1.74 underlined words are called?

OES a Metaphors?

T1.53 No, that's close. What else might it be?

1AS b (Response inaudible)

T1.29 Nope, Anita

OAS c Figures of speech

2 C/Ex       T3.17 Figures of speech. What kind of figures of speech?

OAS Slang

3 CM/Con.93 All right, they're a kind of slang. (Teacher write idioms on the board.) Okay, what did I spell?

OCS Idioms

4 C/F         T8.03 Idioms. What's an idiom?

OES a It's comparing something to something else.

T .91 Okay, that's kind of it. All right, Cari.

ODS b It's something that means about the same but said in pleasant way.
Okay. And you mean (Teacher stops to correct other group.) Okay, an idiom is a group of words whose meaning is quite different from the meaning of the words used. If you took each one of these words individually you would have a completely different meaning from the phrase itself. Let's take a look at the first one. "We've got to make a decision, let's talk turkey." What does that mean? Jana

If they have different ideas you have to tell what they are.

What else could it mean?

Don't try to hide any of your feelings, just tell how you feel.

Right, that's good. In other words...(Teacher stops because a student raises her hand.) Anita

Come right out and say what you're thinking.

Exactly, get it out in the open and let's see what we have to do. All right, number two, "He can't hold a candle to his older brother who is quicker and smarter than he is." What does 'can't hold a candle to' mean? Nicole

His brother can do things better than he can.

Right. Cari

Like if they're in a contest of something, his brother will win.

Right. Can't hold a candle to, kinda means, like, well, one person is really good and one person is not so good. And if there was a contest to see who could hold a candle...or to see who could have a contest, if you had a contest between the two of them, then the older brother would win. The younger brother couldn't even hold a candle to the older brother, couldn't even do that. How about the third sentence? This is one of my mother's favorite sayings. "If you burn your candle at both ends you'll be too tired to join us." Michelle. Michelle what does that mean?

'Burn your candle at both ends.'
Well, if you burn your candle, and you burn the other end then you're wasting your time.

Okay, Jana

If you do something else that's not really worth doing and then you never do turn that out you'll get real tired.

All right, Anita.

If you do too many things at once then you won't do anything worthwhile.

Right. Okay, that's a good meaning of it. All right, here's a candle laying on its side (Teacher draws a picture on board.) We're going to light this side, and we're going to light this side. Now, if you're into too many things at the same time then sooner or later the candle is going to burn out and you're not going to have any time to yourself. Of if you get up early in the morning and you start working right then you work until late at night also, pretty soon you're going to be too tired to do anything else. Okay.

Let's look at the next one. "With your reputation you can write your own ticket as far as your salary is concerned." Linus Wright told me that last week. He said you're such an excellent teacher, you can write your own ticket. And if you believe that I have some swamp land in Alaska I'd be more than happy to sell you. What does that mean, you 'can write your own ticket'? Nicole

You can name your own price.

Right

You can write you pink slip yourself?

That means you're fired.

A...no....no....Just the opposite. Anita

You're so good you can name your own salary.

Right, okay. For instance, with your reputation as being the best employee in the company, hardest
working and the most productive, you can go to another company and say, "Hey, this is what has happened to me. I am the best employee, and the hardest working person. Offer me a job starting at $70,000 a year." Or you go up to your boss and you say, "If you want to lose me that's okay, but I don't think you do. So you're going to have to pay me $70,000 a year." That would be nice wouldn't it.

S  Is that true?

T  Depends on the company.

S  (Student gives illustration of someone doing that.)

T  Okay, you look at...like Barbara Streisand. And she is a singer and an actress. Barbara Streisand, says if you want me for this movie you're going to have to pay me a million dollars. And of course...if the movie company wants her, they'll say yes here it is, do you want anything else, want a private dressing room, what else can we get you. Okay. Number five, "The coach felt he had been put on the shelf when the younger man was hired to replace him." We all know that I couldn't fit on the shelf. Michelle, what does that mean?

OF  S  Left out, like no one cares.

T  Right. Okay (Teacher corrects student in other group.) All right, the a...older man, the coach is being left out. Is that right...

OD  S  Like you know, they didn't want him anymore. The younger man came and took over.

T  Right. How many of you have a shelf in your homes?

G  G  (All students raise hands.)

T  And how many of you have something on that shelf that if you pulled it off the shelf it would be covered with dust because you haven't looked at it in years?

G  G  (Students nod heads in agreement.)
Okay. That's what that means. Get put on the shelf and forgotten about. All right, "He's low man on the totem pole, merely a buck private."

He's only a manager.

He's the youngest in the group, like green.

He's green.

He has the lowest rank.

Lowest rank. Cari

That's like what Miss Harper was saying, The kindergarteners is low man on the totem pole, and the sixth graders are high.

Right. Have you ever seen a totem pole?

Yes

(Teacher draws a totem pole on board.) Usually a totem pole has faces. Low man on the totem pole is the one that gets all the crummy jobs, or the crummiest consideration or anything. All right. He's low man on the totem pole...is the worst position to be because he has to carry the burden of everybody else on top of him. All right, ... we put another head on top of him...(Teacher points to illustration on board.) Okay, We were on pins and needles waiting to hear if we will pass to the seventh grade."

We're excited to hear.

Okay. Nicole.

It's a...can't wait until you hear.

Right, Brent.

You're thinking that you can't wait to hear.

All right, Anita.

You're real worried about passing.

All right, usually if you're on pins and needles means that you are worried. The last one, "I'm at the end of my rope, I can't stand it anymore." (Teacher says with great feeling.) Jana.
It's the way you feel right now because everybody is being loud.

Hum-hum. Lelie sit down (student from other group). Anita

Taking a toll on you.

Right, okay. Where do you think that these idioms evolved from? (Pause) Where do we get idioms from? Nicole

How people feel about their life. Like feeling like pins and needles. If you were on pins and needles you'd be jumping up and down.

Exactly. Anita

I think that when kids hear them when they're little, then they may change them around a little bit when they get older, they keep saying it then it becomes a saying.

True. Any other possibilities? Jana

Like when you talk turkey, you sound like turkeys.

Okay. Michelle

It's when you're doing something it's like something else.

Right. It's comparing one thing to another. Anita

I noticed one thing. Those idioms up there are sorta like something that's...like turkeys. Turkeys will really fight and they'll start talking like that so that what they're saying up there. And then when you're at the end of your rope...you're going to fall off.

Okay. A lot of these come from life situations. All right, when you are in the auditorium before an assembly starts some of you have something to say...don't you start talking kind of fast?

It's the same like turkeys, isn't it?

Gobble

Gobble back and forth. Maybe they're saying something and maybe they're not. When you're in an assembly you might be talking turkey, also. Nothing is understood but you talk
anyway. A...like we explained putting something on the shelf so that it is forgotten about. That's how this coach feels. An being on pins and needles. Well, if these pins and needles were all standing straight up and you had to walk across them would you be going like this? (Teacher stomps feet across floor.)

No, you'd be kind of upset, wouldn't you. And you'd be going as gently as possible (Teacher tip toes across room) and like Anita said, at the end of my rope, perhaps at one point there was somebody who was pulling a rope for one reason or another he was pulling a rope and the rope was coming out of his hands, maybe he was hanging from a cliff and he said I'm at the end of my rope, I can't hold on anymore and he let go.

Where did they come from?

They could have come from any various reasons. Do you have any questions about idioms? (Pause)

None at all? Brent

Talking past something is kinda like beating around the bush.

All right, that would be another one. What does beating around the bush mean?

Don't get right to the point. Put a lot of words in it.

Get right to the point, I don't have time to beat around the bush. And of course you don't stand outside with a stick and hit a bush. Okay. A...Anita.

Does anyone just sit down and start thinking these crazy things up?

Could be. A...What are some other idioms that you might have heard? (Pause) What are some.

Hit the sack.
All right, hit the sack would be one. (Pause)

What other ones? What does hit the sack mean?

Nicole

Go to bed.

Brent

Hold your horses.

All right, hold your horses would be one. What does hold your horses mean?

Michelle

Remember that one about a cat.

All right, what is that?

Don't let the cat out of the bag.

Great, means keep it a what?

Secret

Cari

Cat got your tongue.

Cat got your tongue. What does that mean?

You're trying to say something and you can't get it out.

Okay. Nicole

Spill the beans.

Spill the beans. Okay, means what?

Don't tell something.

Okay. Jana

My momma always says when we're getting out of the car, fall out like dead lice.

What does that mean?

Get out fast.
Okay. Anita

There's more than one fish in the sea.

All right, what does that mean?

That means that if you lose one job, you can go out and get other jobs.

Okay. I've got something up my sleeve. What does that mean? Laura what does that mean?

You have a secret.

A secret or... some kind of...

Trick

Trick up there. Brent

Foot in your mouth.

Okay. Do people actually walk around with their foot in their mouth?

(Student shake heads no)

What does that mean? Brent

It means that they're crazy and they say something wrong.

A... how about flying off the handle. What does that mean? Nicole.

Getting real mad.

Right.

Go wild

Right, starting to go wild. How 'bout if I'm tickled pink? Would I turn pink or what? Anita.

It's real funny.

Real funny. Okay, Laura

Green with envy.

Green with envy is another one. Okay. Laura
Playing without a full deck.

T Playing without a full deck. Meaning what?

You're crazy.

T Crazy. Okay, Anita

Walking all over people.

T Walking all over people. Meaning what?

Taking advantage of them.

T All right, taking advantage. One more. Brent.

Lost your marbles

T What

She lost all her marbles.

Lost her marbles, again means kinda like not playing with a whole deck. Good. Okay. So you see an idiom is just a group of words, phrase, that have been put together to mean something completely different from what the words actually mean. Okay. Let's take a look at the story we're going to be reading today. It's called "Five Yard Fuller." All right, Five Yard Fuller, if you have read the story don't answer. What do you think five yard fuller is about? Anita

A football player (Student's response is longer but most of what is said is inaudible.)

Okay. How much is a yard?

Three feet

Three feet. Okay. A...Five Yard Fuller is about a young man a...his name is Clarence.

A... (Student starts to tell something about Clarence)

Okay, tell us about him.

(Student hesitates)
Brent (Brent raised his hand)

He's a country boy.

Five Yard Fuller is about a young man who learned how to play football.

All right, five yards usually refers to football, right? And at a...(Teacher draws on board) here's five yards. NFL (Teacher writes NFL)

What's NFL stand for?

National Football League.

Okay, National Football League. Five yard penalty, five yard... How many yards are in a football field? Brent

120 counting the end zones.

All right, not counting the end zones there are...

(Student hesitates)

It's 100 yards from one end of the field to the other, it's 100 yards. Okay. This story is about Clarence Fuller. And it starts on page 84 in your book. Clarence Fuller has a very strong desire to be a football player. As a matter of fact, this desire was so strong that he walks 90 miles in hopes of a...getting this job as a football player. Just getting to tryout with this team. Okay. What do you think is...what do you think this story is going to be about? Other than a football player. What kind of events will happen? Nicole

Funny things

What else? Michelle

How he tried to get on the team

Okay. Do you think that Clarence is going to make the team?

Yes

How many of you say yes?
(All students raise their hands.)

T No?

(No one raise their hand.)

T No, all right, so we are in agreement that he's going to make the football team. Why? Why do you think we are all in agreement of that? Anita.

Well, when I watch a program and I think is that man going to make a team or whatever, I think he will because if he didn't it wouldn't be a story. Well, usually they just try to make, you know, the unexpected happen. You might not think he would ever make a football player and then he really does.

Okay. Nicole

(Student points out persistence of the man - that's why he will make the team. Exact words are inaudible due to position of student.)

Okay, good. One last thing, Michelle.

(Student makes comment similar to other ones already made.)

Okay, so let's find out as we read the story whether Clarence is going to make this team and what kind of events, whether they are humorous or dramatic, there are in the story. What I want you to do today is to read this story and to begin answering the questions, as a matter of fact, I want you to finish them as homework tonight and turn them in tomorrow.

TIME: 22'09"
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Articles


Reports


Unpublished Materials


