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Effects of the Wisconsin Reading Design Comprehension Program on Reading Achievement and Self-Concept of Sixth Grade Students

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EFFECTS OF THE WISCONSIN READING DESIGN COMPREHENSION PROGRAM ON READING ACHIEVEMENT AND SELF-CONCEPT OF SIXTH GRADE STUDENTS

A Dissertation

Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

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ABSTRACT

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Chairperson: Ruth Murdoch

ABSTRACT OF GRADUATE STUDENT RESEARCH

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Title: EFFECTS OF THE WISCONSIN READING DESIGN COMPREHENSION PROGRAM ON READING ACHIEVEMENT AND SELF-CONCEPT OF SIXTH GRADE STUDENTS

Name of researcher: Sandra Negley

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Problem

The teaching of reading in elementary schools of America has long been a subject of intense interest to the American public. The comprehension component of the criterion referenced reading program, Wisconsin Design for Reading Skills Development, is a product being developed to teach reading skills. The main purpose of the study was to determine and describe the effects of the program on reading achievement and self-concept of sixth grade students.

Method

This was a quasi-experimental study using a parametric technique. One-way multi-variate analysis of covariance and two-way univariate analysis of covariance were used to analyze the results of the Stanford Achievement test scores. Univariate analysis of covariance was used to analyze the results of the Coopersmith Self-Esteem Inventory and Michigan Educational Assessment Program. Significance of difference between independent proportions was used to analyze the WDRSD scores for the treatment group.

There were forty-four sixth grade students in the treatment group (nineteen boys and twenty-five girls) and one hundred three in the control group (forty-seven boys and fifty-six girls) who were tested for treatment and sex.

Results

Treatment girls scored significantly higher than non-treatment girls in reading--especially spelling. Treatment boys scored significantly higher in spelling. Both treatment boys and treatment girls met the criterion for WDRSD. Girls scored significantly higher than boys in total reading, MEAP, and WDRSD results. There were no significant differences between any groups on self-esteem.

Conclusions

Although the comprehension component of Wisconsin Design still needs some refinement, it is a useful program worthy of further development and application.

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The study would not have been possible without the cooperation of Niles Community Schools administrators and teachers. A special thanks to Dr. Youssef Yomtoob, Niles Wisconsin Design project evaluator, for his continuous advice and encouragement and to Mrs. Carol Christopher for her patience through many long hours of typing. The funds provided for the project by the Elementary and Secondary Education Act, Title III, of 1965, made the experiment possible in Niles Community Schools.

Most of all, thanks to my dear husband, David, who has patiently endured semi-cooked meals, a half-cleaned house, and his bookworm wife for two years.

CHAPTER I

INTRODUCTION

The teaching of reading in elementary schools of America has long been a subject of intense interest to the American public.

The national Zeitgeist in education appears to have changed from a climate encouraging innovative ideas for change to one of returning to basic curricula of reading, writing, and arithmetic. The Newsweek Magazine article "Back to the Basics in the Schoolhouse," October 21, 1974, brought this attitude into sharp focus. Evidence that this article reflected the educational mood of the nation's public became apparent when Readers Digest condensed the article in February, 1975. Thereafter, many editorials on television, radio, and newspapers discussed American educational practices and trends in 1974-75.

Congress voted to reduce the amount of money available for educational research and innovations for the 1975-76 school year. This meant that funds for the National Institute of Education (NIE) and Elementary and Secondary Education Act, Title III (ESEA Title III)--both known to perform extensive research in innovative educational practices--were greatly reduced. ESEA Title III in Michigan, for example, received $1,142,521 less for 1975 than it did in 1974 (Eddings, 1975, pp. 18-19).

In spite of these setbacks for educational research, experimentation is

continuing. An example of the extended impetus for change is in the area of reading. Many new basal textbook series have been developed by educational book companies within the last three to five years: Harper and Row Design for Reading (1972), Ginn 360 (1973), Scott Foresman Systems (1973), D. C. Heath Upbeat (1975), The Merrill Linguistic Reading Program (1975), and Ginn 720 (1976). These are only a few examples of revised approaches to teaching one of the three basic subjects about which the American public has voiced concern. In addition, several criterion referenced reading programs are available: Prescriptive Reading Inventory (1972), Croft Reading Inservice: Word Attack and Comprehension (1973), Fountain Valley Teacher Support System (1973), Read On (1974), and the Wisconsin Design for Reading Skill Development (1972 through 1976). Elementary and Secondary Education Act Title I (ESEA Title I) funds are still being heavily supported from the Federal level as attempts are made in state and local school districts to increase the reading efficiency of disadvantaged youngsters.

Reading programs are incorporated into school districts, tried, tested, and abandoned as educators search for the magic combination which will meet the learning styles and reading needs of all children. Literature on reading methods more than doubled between 1957 and 1960 (Gray, 1960).

Results have shown some successes and some monumental failures. For example, results of the 1971, 1972, 1973, 1974, and 1975 Michigan Educational Assessment Programs (hereafter referred to as MEAP) show that most of Michigan's six hundred school districts have limited numbers of fourth and seventh graders

achieving at minimal performance levels on the twenty-six minimum reading objectives on the test. More specifically, the average numbers of reading objectives passed on the 1975 test were three in fourth grade and one in seventh grade.

Do results like these indicate that teachers in Michigan do not teach reading? Not necessarily. A close look at the test items reveals that all minimum goals being assessed relate directly either to reading comprehension or to study skills, with the great majority of questions on comprehension on the 1971 through 1974 tests. Using the Wisconsin Reading Design organization for the basis of categorizing skills presented on the MEAP, 1975 tests reveal that objectives relating to interpretive, self-directed, and creative reading skills were added. However, approximately half of the MEAP reading skills tested related to reading comprehension (Ostrowski, Reese, and Negley, 1976). Thus, it appears that even if children are proficient in reading vocabulary, phonetic analysis, and spelling they may still not have gained adequate comprehension skills, according to the objective referenced test items on the MEAP.

This situation appears to be true with children in Niles Community Schools, Niles, Michigan. Lazich (1974) found that children who received intensive reading instruction in the area of Word Attack skills (phonetics) showed significant reading improvement, as measured on the Stanford Achievement Test, compared to children who did not receive the treatment. Still, children taught Word Attack achieved no better on the MEAP of 1974 than did their classmates.

Failure discourages a child's effort. It creates a strong distaste for

what he must attempt to do. Discouragement induced by repeated failure leads to a lowering of effort and hence leads to poorer performance on a later task. Aerman and House (1970) studied the phenomenon of "failure set." Trainable subjects suffering prolonged failure were found to be unable to solve the simplest problem, although they had previously been able to do so. Wheat (1955) felt that failure discourages a child's effort. If a student fails in school, and if he is viewed as a failure by his classmates and teachers, the worst problem is the damage to his self-concept, according to Drew (1963). Kurtz (1959) says that a child who is not regarded as an intelligent student by other people he knows will see himself as a "person who is incapable of high achievement and will keep this concept as he moves into higher grades in school." Negley (1972) studied Niles Community Schools' third grades and found that there was a relationship between children's enjoyment of activities, their self-concept, and achievement in school. Children should experience steady growth in learning material in a systematic manner and feel that they are able to cope with the task at hand.

In order to avoid the "failure set" problem and to insure reading success in the Niles Community Schools the Wisconsin Design for Reading Skill Development (hereafter referred to as WDRSD) is being used. The WDRSD has the element of paced instruction through the two or three week instructional time cycle built into the management system. Henderson, Long, and Iler (1965) indicated that paced instruction is designed to ensure success as a reward for individual effort and should be a prominent characteristic of individualized instruction programs.

Explanation of Wisconsin Design

The WDRSD is a product development approach to teaching reading which is used as an educational tool or device. It produces specified outcomes when used as directed with pre and post tests. Materials are manufactured in a kit form that includes teacher's guides, administrative manuals, pre and post tests, implementation schedules, teacher resource files, inservice films, and other teacher manageable materials to implement individualized instruction. There are six components of the Design--each an element of the total reading program: Word Attack, Study Skills, Comprehension, Self-Directed Reading, Interpretive Reading, and Creative Reading Skills.

It is intended primarily for children in kindergarten and in grades one through six and is founded on the assumption that teachers must consider what they want children to learn. Teachers also need to: know what skills children already understand, determine how skills can be taught to those who need them, and know how to determine when children have learned each skill.

Each of the components, including the Comprehension Component, is formulated with the same management guidelines. In Comprehension there are thirty-four closed objective skills distributed over seven levels of difficulty--labeled levels A through G. The six areas are subskills. Six areas of comprehension skills are: main idea, sequence, reasoning, detail, context clues, and affixes. All objectives are based on convergent thinking skills as opposed to divergent thought in reading comprehension. Each of the criterion referenced pretests and post tests has a reliability coefficient of .80 or better.

Children are pretested on a level of difficulty determined by the teacher. They are taught only those skills (one at a time) which they did not master on the pretests with a score of eighty percent or higher. They are grouped for instruction according to common skill needs. After two or three weeks of instruction (two hours per week) on a particular skill, children are post tested and regrouped for instruction. The cycle is repeated at each level of skill development.

Because several levels of skill development are usually apparent in each classroom, teachers team plan and regroup children for instruction among several classrooms. Team planning and regrouping is done between each skill cycle (approximately every three weeks).

Wisconsin Design is not meant to be the only teaching tool or to be all-inclusive. It is most valuable when it is used for skill reinforcement as part of the total language arts curriculum. Thus, other media and materials are used extensively and effectively with the program.

Explanation of the Non-Wisconsin Design Portion of the Reading Program

In addition to the WDRSD portion of the program used with the experimental group, both treatment and control children were taught with a multi-basal, multi-media approach to reading. They are regrouped between teachers for reading instruction on the bases of reading levels in basic readers and interest or achievement in other supplemental language arts materials. Teachers allow children some freedom of choice in reading, but they also maintain certain minimal

requirements in reading classes.

Purpose of the Study

The purpose of this study was to test the proposition that a reading comprehension skills program which has a built-in instructional management system would help the children achieve higher reading scores and that the success the children experience through criterion referenced instruction would improve their self-esteem.

The program chosen was the Comprehension Component of the Wisconsin Design for Reading Skill Development, which was prepared by the Wisconsin Research and Development Center for Cognitive Learning at the University of Wisconsin, Madison, Wisconsin. It is hypothesized that experiences of success lead to better achievement in reading and to a healthy self-concept. Wisconsin Reading Design is geared to individual success according to each person's reading-skill needs. Therefore, pupils who studied Comprehension Skills should have significantly higher self-esteem as measured on the Coopersmith Self-Esteem Inventory and significantly higher achievement in reading and selected subtests as measured by the Stanford Achievement Test and the Michigan Educational Assessment Program.

It is further hypothesized that sixth graders studying Comprehension will achieve the pre-established criterion that seventy-five percent of the pupils will achieve eighty percent mastery of the prescribed Comprehension Skills as measured on the Wisconsin Tests of Reading Skill Development.

The objectives of this study are:

1. To compare the Word Meaning, Paragraph Meaning, Spelling, and Language achievement of sixth grade pupils given the Wisconsin Design for Reading Skill Development, Comprehension treatment with achievement of pupils in the sixth grades who did not receive WDRSD treatment
2. To compare the total reading achievement scores of sixth grade pupils given the WDRSD treatment with the achievement totals of sixth grade pupils in the group who were not instructed in the Wisconsin Design for Reading Skill Development, Comprehension
3. To compare the reading and comprehension achievement of those sixth grade pupils who entered seventh grade having WDRSD treatment with achievement of the original control group of pupils in seventh grade who did not receive WDRSD treatment
4. To compare the self-esteem scores of sixth grade pupils exposed to Wisconsin Design for Reading Skill Development, Comprehension with the self-esteem scores of sixth graders who did not receive WDRSD treatment
5. To determine whether or not the sixth grade pupils exposed to Wisconsin Design for Reading Skill Development reached the pre-established criterion

The preceding objectives were stated here to clarify the purposes of this study. They will be restated in chapter III as testable hypotheses.

Theoretical Background for the Wisconsin Reading Design

Wisconsin Reading Design skills are organized in small units for inten-

sive study. Historically, there is psychological research which supports the WDRSD approach to learning and reading comprehension; namely, that the teaching methods are psychologically sound and that comprehension can be taught.

Early research which laid the foundation for teaching of reading comprehension occurred in the area of memory retention. Ebbinghaus in Germany in 1879 performed experiments on memory which showed that frequent repetition of nonsense syllables presented in small units of work increased memory retention. James and Titchener in America agreed with Ebbinghaus according to Misiak and Sexton (1966, p. 94). James Mill (1829) also agreed. He wrote, "Our ideas spring up or exist in the order which sensations existed, of which they are copies" (p. 72). Essentially, these psychologists took the position that memory was a mirror which was subject to strengthening with repetition. Understanding or motivation were omitted from the learning process.

Bartlett (1932) disagreed with the "mirror" viewpoint, claiming that it was impossible to eliminate meaning from any stimuli which were capable of arousing human response. Since that time Levin (1972, 1973) has studied the problem of how to teach meaningful comprehension responses to children. He concluded that overt imagery action improves comprehension more than does verbal repetition of words. Levin's theory agreed with Piaget and Inhelder (1971) that comprehension has roots in child's play.

Skinner (1954) believed that the nature of a reward or reinforcement, the frequency of its presentation, and the time lapse between the response and

the reinforcement are major shapers of learning. Reading theorists Gray and Reese (1957) stated that skill teaching "insures continuity and avoids gaps in reading progress, and the children profit from such direct, planned instruction" (p. 157).

Klausmeier (1971) and Otto (1972), major developers of individualized instruction and Wisconsin Reading Design, agreed with Skinner, Gray, and Reese that a systematic approach is needed to acquire basic reading skills. By learning in small concentrations of a topic, mastery of the concept should be more likely than if it were taught over a long period of time without regard for the individual's readiness to learn.

Chester's justification for developing the WDRSD Comprehension Component was supported by Bloom (1968), Bruner (1960), Carroll (1963), and Mayo (1970), as reported by Chester (1974). All are supportive of mastery learning. Chester, Askov, Otto, and Hudson (1974) believed that in addition to the mastery learning aspect of skill teaching, in the area of reading comprehension, there are added considerations. Before comprehension skills can be successfully taught, convergent and divergent thinking skills must be identified.

Concept formation then becomes a part of the teaching of reading comprehension. Gagne (1966) felt that the word conceptual was a change in the symbolic or representational capabilities of the learner. His definition seems to be in agreement with the generative form of knowing described by Eric Fromm (1948) in his theory of knowing.

Generative comprehension involves the active reworking of incoming

impressions which enable the individual to understand relationships which are not obvious, to penetrate the essence of ideas, and to project possibilities for future activity.

Relating the generative comprehension definition to the comprehension component of Wisconsin Reading Design, it appears that the Design has partially implemented a working version of Fromm's theory into its framework.

Thorndike (1949) showed that repetition by itself does not establish learning unless the individual is ready to learn what is presented to be taught. Feelings of success are both products and predictors of learning to read and comprehend adequately. If a child learns when and where he demonstrates readiness, he ought to feel some success. Otto and Smith (1970) thought that emotional and reading problems must be approached together to meet the needs of individuals realistically. Gates (1941) estimated that personality maladjustment is present in about three-fourths of the people who have reading disabilities.

James (1890) believed that people achieve a sense of worth by incorporating common standards of status and success. Since reading is a common subject of virtually all elementary school curricula, it seems logical that a child will experience a sense of self-worth if he succeeds in reading and a sense of failure if he does not comprehend the subject. Much of the "success" or "failure" a child experiences may relate to the outside influence of the teacher saying, "You understand that" or "You don't understand it." In elementary school where reading and related activities are a major portion of the school day, there are many opportunities for a child to have his "success" or "failure"

image reinforced. Coopersmith (1967) believed one of four factors contributing to self-esteem to be the history of success a person has had. For personal as well as for academic reasons it is important that reading comprehension be taught in a way that makes a history of successful experiences more easily available to the student.

Reading comprehension is a complex process, according to DeBoer and Dallman (1965). They agree that comprehension is interrelated with word recognition, retention, rate of reading, and skill in using reference materials. Stauffer (1969) stated,

> There is some danger that, once informational material is introduced in basic readers, the story content is dealt with lightly. The concept of reading must always be that [sic] of as a thought-getting process. . . . Many pupils capable of reading with understanding fail to do so because they have not been trained to analyze situations that confront them (such as story plot), to identify the elements that are relevant, and to channelize their thinking on a convergent basis (pp. 104-105).

Durrell (1940, 1956) thought that comprehension and recall become more difficult in relationship to the difficulty of the reading materials. He advocated systematic instruction through the use of graded study guides and small group instruction to overcome the comprehension problem.

DeChant (1964) said, "The goal of all reading is the comprehension of meaning" (p. 353). With such an important goal for reading, Wisconsin Reading Design Comprehension skills answer needs expressed through the theories of many psychologists and reading teachers.

Organization of the Study

The present chapter has introduced and identified a problem that is

common to many elementary schools--finding an effective method for teaching reading comprehension. An explanation of Wisconsin Design and non-Wisconsin Design groups in reading preceded literature related to theory and an overview of subsequent chapters.

Chapter II contains a selected review of literature relating to reading methods and achievement, criterion referenced reading programs, reading comprehension, and self-concept related to reading comprehension.

Chapter III contains a description of the design of the study and procedures. This chapter also contains a description of the population, sample, instrument, definitions of terms, and limitations of the study. In addition, the hypotheses are stated in testable forms and the types of statistical analyses are described.

In chapter IV the results of the study are presented.

The conclusion, summary, generalizations, and implication of this study are presented in chapter V. Recommendations for future research are also included.

CHAPTER II

REVIEW OF RELATED LITERATURE

As was pointed out in chapter I, reading achievement has been a major concern of educators and the American public. For this reason it is impractical to cite all that has been written on the subject in the past few decades. Consequently, the review of literature is divided into four parts. Part one consists of research about reading achievement and method. Part two reviews literature related to criterion referenced reading systems. Part three discusses literature relating to reading comprehension, and part four is limited to research and literature about reading and self-concept.

Reading Achievement and Method

There appears to be a difference of opinion as to whether reading achievement is dependent on the method of instruction used. This section of the literature review covers certain studies in the area of reading achievement and method.

The University of Minnesota Reading Center, under the leadership of Bond and Dykstra (1967), conducted a multi-district primary grade survey to determine the "best" method of reading instruction. They, together with Chall (1967), appear to agree that there is no best way to teach reading. Teaching

competency seems to be more important than the particular method. The better the teacher, the more quickly the pupils learn to read, no matter which methods are used.

Veatch (1959), Heilman (1967), Otto (1968), and Askov (1969) expressed the opinion that what is needed to achieve success in attaining functional, independent readers is to assure a systematic approach for acquiring the basic skills. Otto developed a hierarchy of basic skills for Word Attack. Chester and Askov (1974) continued this work and developed a hierarchy of basic skills for reading comprehension. Askov (1969) found that on more than ninety percent of objectives, achievement of those children exposed to Wisconsin Design, described in chapter I, was higher than achievement of children who had not experienced this approach. These results were true of all categories of schools--urban inner-city, rural, suburban, traditional, and multi-unit organization elementary--as measured by standardized, normative referenced tests.

No matter how reading comprehension is taught, teachers are concerned that children should comprehend the material. Agin (1975), reporting on recent research in reading, says that most teachers say they are concerned about a lack of reading comprehension. Goodman, Menosky, and Jackson (1971) felt that beginning reading programs should be comprehension-centered, while Schoeller (1967) believed that teachers should be concerned with literal meaning, interpretation, and application of comprehension. On the other hand, Goldfield (1973) suggested the use of semantics. All agreed that reading comprehension material for instruction should be from different areas with various

lengths and levels of difficulty.

The time spent in teaching reading comprehension rather than the appropriateness of techniques or quality of materials for the students has been the target of some research.

Austin and Morrison (1963) report in the Harvard Report on Reading in the Elementary Schools that from seventy-seven to eighty-one percent of 795 teachers surveyed believe that they spend considerable time teaching reading comprehension skills. If teachers do, indeed, spend considerable amounts of time teaching comprehension skills, then quality and method of comprehension instruction may play an important role in student achievement success.

Thorndike (1973), in an international study of how teachers teach reading comprehension, discovered that the amount of time spent on instruction and the methods used vary greatly from country to country. Gusyak (1967) found that the vast majority of teachers' questions in discussions of reading material were the recall type.

Teachers have tried strategies for teaching comprehension which range from rote memorization to entertainment to speed reading. While all may be of some value to children, a variety of techniques do not necessarily mean that all types of comprehension are being taught.

Third and fourth graders in a multi-racial inner-city school were read stories and then asked to illustrate them in cartoons. Control subjects read the same stories but did not draw cartoons. On a recall test the group who drew cartoons recalled the story forty-two percent better than did the control group.

This study suggests that direct instruction in comprehension skills is possible (Lesgold, McCormick, and Golinkoff, 1975).

Listening comprehension of K-3 children during story time was checked using "live," videotape, and audio-cassette stories. Wetstone and Friedlander (1974) found that comprehension was significantly better with a videotape presentation, with "live" and audio-cassette stories facilitating comprehension in second and third places.

Miller (1973) reported that people who teach speed reading have been criticized for emphasizing it without comprehension teaching. Therefore the speed reading teachers have combined the two and called it reading efficiency. At the time the article was written, most of the impact of speed reading was in colleges and universities rather than in secondary or elementary schools.

Stanners, Headly, and Clark (1972) found that instructions to memorize and instructions to paraphrase sentences resulted in different kinds of pupil responses with results similar to Barclay (1973) and Ausubel (1963).

Carroll (1963) suggested that given a high quality of instruction and the time he needs to learn, a student will learn to the degree to which he is willing to persevere. Bloom (1973) found that the time students spend directly on learning a task, excluding elapsed time, is predictive of learning achievement. In addition, classes of students who learned until the task was mastered scored higher on the amount of time spent directly on the task and the achievement of objectives at criterion level or higher.

Bloom's findings were reinforced by Block (1971) who reported that

mastery learning enabled seventy-five percent to ninety-five percent of the students to achieve at the same level as the top twenty-five percent learning under typical group-based instructional methods.

Summary

The literature reviewed suggests that both method of teaching and time devoted to instruction in reading are factors affecting reading achievement and comprehension.

Criterion Referenced Reading Systems

The last decade has seen a great increase in the effort to establish criteria for achievement and then measure success as indicated by reaching the previously established criteria. This has led to the development of many criterion referenced reading programs. This section is divided into two areas: description of some commercially available criterion referenced reading systems and a review of available literature about them.

Description of Criterion Referenced Reading Systems

Several criterion referenced reading systems which provide the mastery learning method are commercially available to school systems. All have been produced since 1969; some are still in development stages and new ones are continually appearing. The following can be cited as examples: the Croft Inservice Reading: Word Attack and Comprehension, the Fountain Valley Teacher Support System, the Prescriptive Reading Inventory, Read On, and the

Wisconsin Design for Reading Skill Development: Word Attack, Study Skills, and Comprehension. In addition, Project Program for Learning in Accordance with Needs (PLAN), Individually Prescribed Instruction (IPI), the Stanford Model of Computer Assisted Instruction (CAI), Southwest Regional Laboratory's Kindergarten Reading and Support System (SWRL-KRSP), Coleman's Educational Engineering and Programmed Tutoring also exist. Since this study is concerned with comprehension, only those programs which contain a reading comprehension component will be described.

Croft Inservice Reading Program: Comprehension. The Croft Inservice Reading Program has been designed as a companion program to the Word Attack element. A series of eight teacher-training workshops explains the program's comprehension model, discusses the system's approach to comprehension skills, and develops teaching strategies. Three major levels of comprehension are Oral Language Readiness, Written Language Readiness, and Pattern Readiness. Pattern Readiness is subdivided into four categories: Classification, Sequence, Comparison, and Causation. Three skills and objectives are in each category for a total of eighteen. Readiness skills are assessed by teacher observation. Higher levels are assessed with paper and pencil tests, ditto format on alternate forms of X and Y. Management is by a classroom wall chart. Teachers are given some instructional suggestions, but are encouraged to develop their own techniques. The program is for grade levels kindergarten through six.

Fountain Valley Teacher Support System. This system presents a series

of 367 skills and objectives including phonics, structural analysis, vocabulary, comprehension, and study skills intended for students in first through sixth grades. The skills are clustered by color-coded levels. Seventy-seven self-scoring tests assess the mastery of the skills. Test directions are prerecorded on cassette tapes. The management tool is the individual pupil folder. Many commercially available materials are keyed to this program.

Read On. Sixty Word Attack and Comprehension skills are arranged in five categories: auditory/visual discrimination, phoneme/grapheme discrimination, structural analysis, word recognition, and comprehension. Mastery of the sixty reading skills is assessed with paper and pencil tests. Test directions are prerecorded on thirty tape cartridges. There is only one form of the test. Management is with a wall chart. Published instructional materials keyed to skills and objectives are available in separate paperback booklets according to the publisher.

The Wisconsin Design for Reading Skill Development. The Word Attack and Study Skills portions of this program are available commercially, but the Comprehension component is available only to those five hundred schools participating in the large scale field test with the Wisconsin Research and Development Center for Cognitive Learning at the University of Wisconsin. There are six strands in the Comprehension Component--Main Idea, Sequence, Reasoning, Detail, Context, and Affixes on seven levels of difficulty. Pre and post tests are available for each skill and objective in either machine scorable

or ditto master form. Management is achieved by individual pupil profile cards. Commercially available materials are keyed with the program. Teachers are encouraged to develop their own teaching techniques.

Individually Prescribed Instruction (IPI). Four hundred behavioral objectives cover thirteen areas of study in reading including vocabulary development and literal comprehension. There are eleven levels of difficulty. Opportunities are provided for different rates of progress through sequenced learning objectives, learning mastery objectives, self-starting, self-motivation, and self-evaluation on the part of the learners.

Southwestern Regional Laboratory, Kindergarten Reading and Support Programs (SWRL-KRSP). Skills which are objective based include ninety words for sight recognition, word attack skills, and comprehension skills. The program spans thirty weeks with a daily rate of twenty minutes per day. Materials include pupil booklets and sixty paperback reading books, planned for use at a rate of two per week.

A Review of Available Research on Criterion Referenced Programs

Reports about criterion referenced reading systems results show variable results. The programs tested in these reports appeared to be in the developmental rather than the final forms of use. Pupil reading test scores improved remarkably in some instances and very little in others. Reading researchers were making revisions in some programs as the need for change

became apparent. Kling (1973) compared and analyzed three management support systems on the bases of sixteen comparable management areas on a rating scale of one through seven. One was equivalent to "very low" and seven was equivalent to "very high" in the rater's judgment. Of the three systems rated--Fountain Valley Teacher Support System in Reading, Prescriptive Reading Inventory, and Wisconsin Design for Reading Skill Development--the WDRSD system rated the highest in all categories except one--"keyed materials." Fountain Valley rated the lowest in all categories except one--"keyed materials," where they rated the highest. Prescriptive Reading Inventory received rating scores between the other two systems.

Using WDRSD for research, Askov (1969) reported that no significant differences were obtained for pupils' reading achievement in two schools with an experimental group of second and third graders. Slight differences in attitudes toward recreational reading were found in the experimental group.

Use of the Word Attack component of WDRSD with educably mentally impaired (EMI) youngsters was reported by Rosenkranz (1973). EMI youngsters were taught the skills along with the rest of the children in the school. At the end of the three-year span they had made average grade equivalent gains of .7 and .8 each year in Reading Recognition and .6 and .7 gains each year in the Comprehension subtests of the Peabody Individual Achievement Test.

Johnson (1971) reported that WDRSD Word Attack skills used for six months with children in a school produced greater growth on the Word Study Skills and Word Meaning Comprehension subtests of the Stanford Achievement

Test than these children had shown the previous year.

Rahmlow (1970), Wright (1970), and Jung (1970) all reported on evaluation and research in project PLAN. Rahmlow (1970) reported on how individualized teaching of learning units based on student performance improved learning. Wright (1970) reported that project PLAN attempts to build teaching-learning units on the basis of learner characteristics. Jung (1970) compared the characteristics of independent learning activities such as starting assignments without reminders, self-direction, and thoroughness of the job. Fifth and sixth grade project PLAN pupils exhibited more independent learning activities than did control pupils.

Lindwall and Cox (1969) reported that the formative evaluation of the IPI prototype models reduced the amount of work assigned by fifty percent in the first fourteen books. This may indicate that more objectives may be in the program than are needed to achieve mastery on subskills.

The SWRL program, after evaluation by Baker (1969), was revised when review of the data revealed that for many of the objectives the criterion level had not been reached.

Summary

Increasing numbers of criterion referenced programs are appearing on the market. The proper selection of a program appropriate for the children who will use it may make a difference in their reading achievement results.

Reading Comprehension

Until recent years, research of consequence in the area of reading comprehension has been scanty. Chief developer of the Wisconsin Design for Reading Skill Development-Comprehension component, Robert D. Chester (1974), reviewed all of the research concerning the psychology of reading, including comprehension, from 1933 to 1973. He found only fourteen studies for those forty years which he considered to be important. Chester explained that early research in reading comprehension was not significant because it was descriptive and based on correlational studies or logical guesses. Researchers developed many sets of subskills but they did not isolate or identify independent variables. In the late "thirties" or early "forties," with the development of factor analysis techniques, some significant developments in the study of comprehension occurred.

Comprehension research found by Chester, as well as other reading comprehension research findings, will be reviewed in this section.

Chester's Review of Comprehension Research

Feder (1938), Pankaski (1940), Langsam (1941), and Davis (1944) conducted factor analysis studies in comprehension. Feder reported that reading for factual information and reading for inference involve different skills. Langsam discovered verbal, perceptual, word, number, and seeing relationships factors. Pankaski found three factors--speed of comprehension, vocabulary, and ability to answer questions. Davis identified nine skills necessary for

reading comprehension. Six of these he established in a later study (1968) as being significant. Memory for word meaning (thirty-two percent of variance) and drawing inferences (twenty percent of variance) were the main skills. The remaining variance was explained by factors related to the following: the structure of a passage; recognizing the writer's attitude, purpose, mood, and tone; and finding answers based on information that was explicit or paraphrased.

O'Donnell (1962), Damell (1963), and Zeman (1969) reported that there were significant relationships between sentence structure and various types of comprehension. Gough (1966) learned that active sentences were verified faster than were passive, and affirmative sentences were verified faster than were negative sentences. Sentence length had nothing to do with the length of time to verify it.

Oakden and Weiner (1971) found that good readers comprehended better when they were taught visually and poor readers comprehended better with auditory instruction.

Other Comprehension Literature

IGE News (Spring 1975) reported the initial results of the comprehension small-scale field test conducted by the Wisconsin Research and Development Center, Madison.

During 1973-74 ten schools, nine in Wisconsin and one in Canada, participated in the small-scale field test of the Comprehension Component of Wisconsin Design for Reading Skill Development. Program effectiveness showed that 70.2% of children mastered skills immediately after they were taught, and

eighty-nine percent retained mastery of those skills eight weeks after they had obtained initial skill mastery. Standardized tests used were the listening and reading subtests of the Cooperative Primary Tests and the reading comprehension subtest of the Comprehensive Tests of Basic Skills (CTBS).

Overall changes for the urban sites in grade equivalents for the CTBS were positive at grade five (.3 gain) and negative at grade six (.3 loss), while no change occurred at grade four. Non-urban sites reported a growth of .1 and .5 at grade levels four and six respectively. Many changes were recommended for the large-scale field test. Final and full report of the small-scale field test scheduled to be published in the autumn of 1975 was still not released at the time this review of literature was written. However, the Wisconsin Research and Development Center did release the information that a final form of the comprehension component would not appear on the market before the autumn of 1976.

Levin and Ghatala have conducted several research projects--alone or with others--that relate to memory and reading comprehension, which seem to provide some good bases for further study of reading comprehension. Levin, Ghatala, DeRose, Wilder, and Norton (1974) concluded that vocalization of words as learning tools is primarily beneficial due to attentional, articulatory, and/or acoustic effects rather than to constructive or interpretive cognitive activity invested by the learner.

Levin and Guttmann (1974) compared the comprehension of children who were presented with pairs of words and pairs of pictures. When word pairs were presented, subjects comprehended very poorly, but when picture pairs were

introduced, performance increased dramatically on comprehension learning.

Ghatala, Levin, and Wilder (1975) found that the pronunciation of words had a significant effect on the ability of sixth graders to know word meaning.

Levin (1974) conducted two experiments with one hundred sixth graders. Pictures and words with high and low meaning and high and low frequency were presented to the children to discover which combinations produced greater comprehension. Children pronounced and then defined the words. They found that pre-experimental or background frequency in materials account for differences in the way children derive meaning. They also upheld the idea of Weber's Law that frequency of presentation and judgment of the person are related to word meaning holds true only when the materials presented have meaning for the subjects.

After they conducted the previous two experiments, Ghatala and Levin (1974) performed a similar series of four experiments to determine the effects of certain stimulus variables on children's discrimination learning. In the first experiment eighty sixth graders were assigned to four combinations of high or low frequency words with high or low frequency meanings based on Lorge-Thorndike norms (1944) with a list of nonsense items. Subjects pronounced the words and defined them. In the second experiment the experimenter pronounced the words. In both of these experiments low frequency, high meaning words produced superior learning. Experiments three and four paralleled experiments one and two except that vocabulary was chosen from children's own reading

material. Experimental line drawings were added to the tests. Students were given discrimination learning and free recall activities. In both phases the pictures were discriminated or recalled better than the words. Ghatala and Levin reaffirmed what they had found in their first two experiments--that background frequency influences the learning of the materials in a manner relating to Weber's Law.

Weber's Law also seemed to hold true in a study conducted by Wittrock, Marks, and Doctorow (1975) when they tested 484 sixth graders. They found that reading a familiar story frequently to high, medium, or slow readers markedly facilitated vocabulary development and retention. In addition, the story read most frequently was comprehended more than was the story read less frequently.

Barclay (1973) found that some inference processes are under "voluntary control" in that instructions to memorize sentences relevant to spatial (left-right) or relational (taller-shorter) arrays suppressed inferential responses, while normal comprehension instructions and instructions to generate a mental image of the array result in prevalence of logically inferrable errors. Similar results were also obtained when recall, rather than recognition, was tested. Apparently different memory representations are constructed depending on the demands of the situation--an effect consistent with Ausubel's (1963) distinction between meaningful and rote learning of the same materials.

In another study relating memory to reading comprehension thirty-two sixth graders were divided into two equal groups of good and poor readers based

on their Science Research Associates reading comprehension scores. The researchers--Mason, Katz, and Wicklund (1975)--had the children read letters on cards at the rate of two per second and then arrange the cards in the order they were read in order to test memory capacity. Results showed that although both groups read the letters equally well, poor readers had greater difficulty sequencing the cards correctly than did good readers.

Aaronson (1976) also conducted a study which related memory and comprehension. In a study of performance theories for sentence coding, she found that memory and comprehension requirements of a task influence both the "coding procedure for stimulus sentences and the linguistic features that are represented in the resultant code" (p. 53). She also found that the more demanding the comprehension task, the faster coding time decreases. There are two levels of skills in reading: (1) coding is used in the memory level for surface structure and (2) comprehension involves deeper structure and semantics.

There are problems with relating comprehension and memory. Bliesmer (1972) cautioned against teaching comprehension as only simple recall of facts. He named types of comprehension skills according to the level of difficulty. Simple recall is the lowest, separating relevant from irrelevant material is more difficult. Reading between the lines, drawing conclusions, and formulating main ideas require higher skills. He advocated having children answer questions in their own words rather than in the words of the text.

Concept attainment is also a part of reading comprehension. Klausmeier and Feldman (1975) worked with 134 fourth graders to determine the

effects of concept attainment at the classification level of presenting several combinations of rational sets and a definition. They found that fourth graders learn about equally well from either a definition or a rational set, slightly more when the two were combined, but significantly more from a combination of a definition and three rational sets. (A "rational set" is a group of examples and non-examples of a concept a teacher is trying to teach. The term was first used by Markle and Tiemann in 1969.)

Some studies have been conducted concerning the race of students and reading comprehension. Meissner (1975) found that concept comprehension was very high with inner-city black children, but that there was a difference in communication skills according to age groups. Second grade children communicated much less effectively with the interviewer than did fourth graders.

Marwit and Neumann (1974) compared the reading comprehension of black and white second graders as measured on the California Reading Test. They found that both black and white children understood standard English better than they did non-standard English and that white children comprehended better than black children in all categories.

Calvert (1973) worked with seventh and tenth grade remedial reading students of Mexican-American descent. Results showed that language experience activities improved writing achievement, reading, and study skills of the students.

Reading syntax, which is the arrangement and relationship of words and phrases in a sentence, is a part of reading comprehension. Several studies

have been conducted on this subject. Hutson and Powers (1974) worked with sentence syntax and reading comprehension with one hundred first graders and one hundred kindergartners. They found that children experience greater difficulty in comprehending when the syntax form and sentence content are not in agreement.

In another study of the relation of syntax to reading, Simons and Johnson (1974) studied the various American dialects. They concluded that there are so many dialects in the United States that one type of reading book or one type of teaching method cannot meet the variety of reading needs.

Vogel (1974) found that dyslexic second graders were significantly deficient in seven of nine measures on oral syntax as measured on two reading comprehension tests. Dyslexic children are poor oral readers. A study conducted by Guthrie (1973) showed that poor oral reading and poor comprehension were related. Conversely, good oral reading was related to good comprehension. It seems logical, then, that dyslexia and comprehension problems are associated.

The problem of combining good oral reading and reading comprehension so that children do understand the written page has been researched by Ruddell (1965) who studied reading comprehension related to language structure. He suggested that language structure in reading materials should be matched closely with the oral speech of children.

Katz and Wickland (1971) found that skilled comprehenders have word skills that are far superior to those who do not comprehend. In another study in 1972 they found that when children were given the task of only scanning

letters, there was no difference in comprehension between reading groups. In another study of the relationship between word decoding and reading comprehension skill by Perfetti and Hogaboam (1975), third and fifth grade boys and girls were assigned to comprehension groups on the basis of Metropolitan achievement scores. Vocalization time and comprehension of words were analyzed. Skilled comprehenders were more rapid at oral word decoding than were slow comprehenders both on real and nonsense words.

Reading comprehension tests, no matter how carefully they are constructed, may or may not be giving the results needed because test writers and test takers are not necessarily motivated to achieve the same goals. Whereas test writers may be interested in how well children comprehend material, the children may be more interested in how quickly they can fill in the answer blanks--even if that means not bothering to read.

Applebee (1971) discovered that although silent reading tests were designed to measure reading comprehension in young children, the tests often do not measure comprehension because the children answer the questions without reading the stories. After presenting reading tests to third, fourth, and sixth graders, Applebee concluded that tests, if they are read by the children, do measure reading comprehension; however, they are not diagnostic in nature.

A May, 1973, Education Commission of the States series of publications on national assessment on reading reports shows results for sex, parent education, age, race, region, and size and type of community. In the report Gleaning Significant Facts from Passages (May, 1973), median effects by group

show that nine, thirteen, seventeen-year-olds, and adults generally comprehended this task better in the central and northeast states than they did in the southwest and west. Females were better than males; whites better than blacks. Children from high school and post high school educated homes were better than those from homes with little or no high school. Children from extreme inner city, extreme rural, or small cities attained lower scores than did children living in other environments. Big city adults received the lowest scores.

Main Ideas and Organization (July, 1973) shows similar results except that children and adults from extreme inner city, extreme rural, small city, medium city, and the rest of the big city all scored much lower than did children from the suburban fringe or the extreme affluent suburbs.

In the reading comprehension report, Drawing Inferences (August, 1973), there was a slight shift in the arrangement of high and low scores. Children in the southeast had the lowest scores; male children had lower scores than did female children, but the ranking of high and low scores according to sex was reversed in adults. Blacks still scored significantly lower than did whites and parent education effects were still the same as in the previous two reports mentioned. Children from extreme inner cities and small cities scored the lowest, while nine-year-old children from extreme rural areas performed satisfactorily on this task even though the older rural children did not. Only adults from the urban fringe could draw inferences very well on the test.

Critical Reading (May, 1973), according to the authors, requires the highest level of behavior analysis and reasoning. Test takers from the southeast

had the lowest scores in all areas, while only nine and thirteen-year-olds in the west had low scores. Males and blacks scored lower than females and whites. Only readers whose parents had post high school education scored consistently high on this area, and those in the suburban fringe and the extreme affluent suburbs had consistently high scores in all age groups. Only those adults who lived in the big city had low scores.

Although these Education Commission of the United States reports are subcategories (Langson, 1931, and Feder, 1938) of reading comprehension, the Commission also tested Reading Rate and Comprehension (December, 1972) as separate categories. Subjects were asked to read two passages and answer five comprehension questions following each passage. Because different stories were given for each age group, no comparison of story levels in relation to age could be made. Children from the northeast comprehended better than did children in the rest of the nation, but young adults in the same region scored in third place on comprehension--behind people from central and western states. Girls and whites comprehended better than boys and blacks. Affluent suburbs did better than inner cities. The pattern changed in thirteen-year-olds. Although girls read the passages much faster than did boys (over one hundred words per minute), a larger percentage of boys than girls answered four out of five of the accompanying comprehension questions correctly.

Summary

Although early research of consequence in reading comprehension has been scanty, there have been many comprehension studies within the last five

years. Most of these studies appear to be applications of techniques or theories discovered in earlier research.

The factor of memory accounts for about one-third of reading comprehension, and several studies relating memory and comprehension are available. The second most prevalent factor in reading comprehension is inference, which seems to be related to the memory factor.

Syntax, or the structure of the passage, has been studied alone or in relation to oral reading skills displayed by youngsters who had ease or difficulty in reading. A relationship between oral reading and comprehension appears to exist. While memory is important, this portion of comprehension is often emphasized to the exclusion of other portions.

Present reading comprehension tests may not necessarily be giving educators all the answers needed to help children comprehend, although a massive study about certain reading comprehension factors related to achievement was conducted by the Education Commission of the United States. Results from that research indicate that affluent, white, female suburban readers from homes containing post high school educated parents located in the northeast or midwestern states were generally superior achievers in reading comprehension, compared to other people in the study.

Reading and Self-Concept

Studies and opinions of the relationship between reading achievement and self-esteem seem to be fairly evenly divided between research which shows that there is a relationship between the two factors and research which shows that

there is no relationship. This section examines studies and opinions which show a relationship between self-concept and reading, research that has produced mixed results, and research which shows that there is no relationship between reading treatment and self-concept.

The opinion of two well-known reading experts, Carter and McGinnis (1967), is that good readers have good self-worth. In their book Reading: A Key to Academic Success, the authors said that difficulty in learning to read threatens the individual's sense of self-worth. McGinnis (1963) found that feelings of not being able to read are not conducive to the development of aspiration and drive which are essential to learning to read.

In agreement with McGinnis and Carter, Steig (1972), Hutchinson (1972), and Hatcher and Felker (1974) found that children's attitude toward reading was positively related to self-esteem, although the perception boys had of themselves in relation to peers and parents was related to general academic self-esteem more than to reading only. Frerichs (1970) also found that self-esteem was related to good performance in school.

In another study, Hatcher and Felker (1974) found that the combination of convergent and divergent thinking and self-concept variables accounted for sixty percent of the variance in reading achievement. The addition of fluency, originality, and self-concept produced complex interactional relationships with sex and grade level.

Although some researchers found a relationship between self-concept and reading achievement, the relationship was not necessarily one which showed

that the well-adjusted child was a better reader. In fact, a little maladjustment actually was a positive factor in producing better readers in two research projects! Grimes and Allinsmith (1961), Scarborough, Hindsman, and Hanna (1961) all reported that students with average or high anxiety were better readers than low anxiety students as long as they were taught in a structured reading approach.

Grouping children into homogeneous reading groups is a common practice in elementary school. This practice was found to negatively affect reading achievement and self-concept in one study. Grouping sixth grade children for reading was found to be detrimental to their self-concepts and attitudes toward reading, according to a study by Levenson (1972). He felt that ability grouping led to stereotyped and stratified roles with parent, teacher, and peer pressures that possibly prevented children from developing healthy social relations and positive self-concepts.

Several studies have produced mixed results concerning reading achievement and self-concept relationships.

Missildine (1946) felt that reading disability was a sign of emotional illness. However, several researchers disagreed with Missildine. Holmes (1954), Siegel (1954), Peck (1966), and Farley and Truog (1970-71) all found that poor readers are no more likely to be overanxious or disturbed than are good readers.

Lawson (1973) studied students in grades one, three, and five from non-graded classrooms. They achieved significantly higher scores in reading than did students in graded classrooms. There were no significant differences

between the two groups in self-concept and there were no significant differences between self-concept and reading achievement between first and third graders, but fifth graders did achieve significantly better reading scores in proportion to self-concept scores.

One hundred thirty-four children in fifth grade participated in a study conducted by August, Rychlak, and Felker (1975). The relationship between the child's self-concept and his learning of affectively assessed verbal material was studied. Both high self-concept boys and high self-concept girls learned better the nouns they said they liked. The effect of learning quickly was diminished for middle self-concept girls. Low concept girls and boys and middle concept boys learned the disliked nouns faster. A chime used as a reinforcement device adversely affected the overall learning of those children who heard the chime. Overall, average or moderately high self-concept children learned more efficiently than did children with low or very high self-concepts.

Steig (1972) found that the method of instruction was not as important to student self-concept as were other factors. Good readers were more congruent with their teachers than were poor readers on questions asked by Steig. Self-perceptions of good and poor readers did not differ as widely as their teachers' perceptions of the students.

Some reading researchers have used the Coopersmith Self-Esteem Inventory to measure the relationship between self-concept and reading. Donaldson (1974), as reported by Coopersmith (1975), found that the regression scales of the Coopersmith Self-Esteem Inventory indicated that the test was a

fair predictor of reading achievement.

As part of an evaluation of an experimental school program which included an individualized reading program, Reid (1972) pretested and post tested one hundred fifth and ninth graders between January and May with the Coopersmith Self-Esteem Inventory. She found no statistically significant differences between their pretest and post test self-esteem scores. The same students received the School Sentiment Index. The scores showed that their attitudes were above average in all areas except "Learning," where they were average. Results of the Metropolitan Achievement Tests, the Gates-Macginitie Reading Tests, and the Beattie Test of Mathematical Fundamentals for grades seven through twelve showed that both the fifth and ninth grade students scored average or higher than the norms on all subtests in all grades except for the language test in eighth grade and the mathematics subtest in tenth grade.

Kohor (1974) studied children in grades five through nine on the Pennsylvania Educational Quality Assessment Self-Concept Scale. This scale was written with many items taken from the Coopersmith Self-Esteem Inventory. Low positive relationships were found between self-concept and achievement with little difference between socio-economic stature or sex.

Summary

A variety of relationships between reading achievement and self-esteem have been found by various researchers. Overall, the survey of literature in this area appears to show that any claims either for or against a relationship between reading achievement and self-concept are inconclusive.

Summary

Reading researchers generally agree that individualized or small group instruction paced for the needs of the learner brings about successful learning. Good oral reading appears to be related to good reading comprehension and poor oral reading appears to be related to poor comprehension. Methods used to teach reading comprehension vary and the results change with the variations in the teaching methods as well as the characteristics displayed by the learner.

Many criterion referenced reading systems are commercially available. Some, but not all, commercial systems contain reading comprehension skills. Research reported to date shows that children taught reading skills with criterion referenced programs scored higher on reading sections of normative referenced tests than those not using criterion referenced programs. However, in spite of the better scores on criterion referenced tests, some scores are not appreciably better. Many of the programs reported were still in the developmental stage, although they were commercially available to schools.

Most important basic research in reading comprehension has been conducted within the last three to five years. Early comprehension research focused mainly on determining which skills were included in instruction. Recent research has applied previously identified skills to a wide variety of classroom situations. Results between similar studies often conflict with each other. However, with the wide variety of research now being conducted in reading comprehension, some trends and implications for instruction are becoming apparent. One of the implications is that although teaching for memory is an important

part of reading comprehension instruction, it is often overtaught or used without corresponding factors of syntax or inference. The importance of the relationship between oral reading and comprehension was emphasized in several studies. A national assessment of who does well in reading comprehension tests shows that affluent, white, female suburban readers from homes which are located in the northeast or central states and contain parents who have education beyond high school generally have good reading comprehension. Thus it appears that home factors may influence comprehension at least as much as any instructional methods used. However, this does not preclude the possibility of teaching comprehension.

Although there is some conflicting evidence about the relationship between pupil self-concept and reading achievement, educators generally acknowledge that the two areas affect students either positively or negatively. Only a few of the studies show no relationship between self-esteem and reading achievement.

The ability of pupils to achieve an "I can" feeling about themselves in reading cognition can lead to an extended expansion of positive self-concept. This is a valuable and needed goal to pursue.

CHAPTER III

DESIGN OF THE STUDY

As stated in chapter I, this research is concerned with the effects of instruction in reading comprehension on sixth grade students. A pilot component of the WDRSD in comprehension was used with Niles, Michigan, elementary school children.

The description and identification of the educational setting, school population, subjects, instruments of measurement, and research procedures used are described in this chapter. General statements of hypotheses made in chapter I are restated in testable form. Research assumptions, limitations, and definitions of terms are also stated in this chapter.

The Educational Setting, Population, and Subjects

The Setting

The study was conducted within the Niles Community School District, Niles, Michigan. The district is located in the southeastern corner of Berrien County, Michigan, and serves parts of a two-county area. It contains approximately ninety square miles and has a population of about 25,000. Fifty-two percent of the people live in an urban area and forty-eight percent live in rural areas. The city of Niles, with a population of approximately 13,500 serves as a

center for the area ("Facts About Niles Community Schools," 1974).

School Population

One high school, two junior high schools, and seven elementary schools are in the district. The per pupil cost for 1974-75 was $1,163.56. The state equalized valuation of the district in 1974-75 was $126,908,340 with a total tax rate of 31.676 mills and a budget of $7,973,559 ("Facts About Niles Community Schools," 1974). Elementary school pupil-teacher ratio was 27.0 to 1 with about 3,134 elementary students enrolled in grades kindergarten through six (Niles Community Schools "Membership," September 27, 1974).

Approximately 9.5 percent of the school population was composed of racial minorities. Depending on the location of the elementary school, the proportion of racial minorities varied within the district. However, racial minorities were present in all of the schools (Niles Community Schools "Membership," September 27, 1974). Five of the seven elementary schools and one junior high school received Elementary and Secondary Act Title I funds for educationally deprived pupils during 1974-75.

Selection of the Subjects

With the knowledge that the Word Attack Component of the WDRSD had produced improved reading skills with Niles Community Schools children during 1972-74 (Lazich, 1974), the school system requested to be a site for the Wisconsin Research and Development large-scale field test in Comprehension during the 1974-75 school year. The Wisconsin Research and Development

Center granted permission for the Niles school district to participate in the Comprehension field test. The Michigan Department of Education, the funding body for disseminating funds for the Niles project under Elementary and Secondary Act Title III funds, also granted permission for Niles to take part in the Comprehension project with a few upper elementary classrooms in Niles.

Control and treatment group students participating in the project were regularly assigned to sixth grade classrooms in three Niles elementary schools. Although each of the pupils was assigned to a homeroom teacher, all of them were taught by every teacher assigned to sixth grade posts within their respective schools.

All of the students in both the control and the treatment groups received comparable instruction in spelling, language, reading, and affective education. Comparable instruction was assured in language arts through the use of common spelling books, reading books, and language materials. However, students studied in different places within those books and materials according to their levels of previous accomplishment. Unified affective educational instruction was assured through the common affective activities developed by a Niles Community Schools project, "How to Be an Effective Human Being" (Forsyth and Gammel, no date). All students engaged in the same set of prescribed affective activities once every two weeks. The only apparent reading curriculum difference between the control and the treatment groups was the introduction of the Comprehension component of the WDRSD into the treatment group. Neither the students nor the teachers knew that they were to be included either as control or

as experimental subjects for the purposes of this research.

The Niles test site was in a school containing an open space classroom. Forty-five students and three teachers were in the original group; however, one student was dropped from the final count because Coopersmith Self-Esteem Inventory test scores were unavailable for him. Consequently, the final treatment group contained forty-four pupils--nineteen boys and twenty-five girls. Twenty-five percent of the test site population was composed of minority students--Black, Oriental, and Spanish--with a pupil-teacher ratio of 30.7 to 1 (Niles Community Schools "Membership," September 27, 1974).

Originally, the control group which was from two other schools contained 105 sixth graders. However, two subjects were lost--one child was omitted from the data count because there were no Coopersmith Self-Esteem Inventory post test scores for him and the other student moved out of the district between sixth and seventh grades. The final size of the control group was 103--forty-seven girls and fifty-six boys. There were two sixth grade teachers in each of the control schools for a total of four teachers. Minority group percentages in the control group sites were 26.5 percent in one school and 3.7 percent in the other school. Pupil-teacher ratio in both control schools was 25.8 to 1 (Niles Community Schools "Membership," September 27, 1974).

There was no reason to believe that the WDRSD and the non-WDRSD populations were not reasonably equivalent. However, to be sure of this, the 1974 Stanford Achievement Test reading scores and the October, 1975, Coopersmith Self-Esteem Inventory scores were used as covariates to make appropriate

adjustments in the statistical analysis of the data.

Instruments

Common measurement instruments with both the control and treatment groups included: The Stanford Achievement Test, Intermediate II Battery, 1964 Edition, Forms W and X; The Coopersmith Self-Esteem Inventory, Form A; and the 1975 Michigan Educational Assessment Program, Tests, Language Subskills. In addition, the treatment group was measured on the Wisconsin Tests of Reading Skill Development, Comprehension pre and post tests. Each instrument is described in this section.

The Stanford Achievement Test, Intermediate II Battery, 1964 Edition

The subtests, forms X and Y, of Word Meaning, Paragraph Meaning, Spelling, and Language were used as measures for this study. In addition, the Total Reading score, which is a combination of the Word Meaning and Paragraph Meaning scores (Kelley, Madden, Gardner, and Rudman, 1966), was also used. The number of items and the reliability of each for grades five and six are:

Subtest	Number of Items	Grade 5 Reliability	Grade 6 Reliability
Word Meaning	48	.89	.90
Paragraph Meaning	64	.93	.93
Spelling	56	.91	.93
Language	134	.93	.95
Total Reading	-	.95	.95

(Kelley, et al., 1966, pp. 17-21)

The Coopersmith Self-Esteem Inventory, Form A

Behaviors associated with poise, assurance, assertiveness, and defensiveness of a person are rated on a five-point scale on the Coopersmith Self-Esteem Inventory (SEI). The long form of the inventory contains fifty-eight items in the categories: General Self, Social Self-Peers, Home-Parents, Lie Scale, and School-Academic. Total raw score possible (excluding the Lie Scale of eight points) is fifty. Coopersmith multiplied the SEI score by two to obtain a scale of one hundred for scoring convenience. On the convenience scale, the means are reported to be 70-80 with standard deviations of approximately 11-13. Norms reported for SEI preadolescents ages nine through fifteen are 70.1 for females and 72.2 for males. Coopersmith reported that the test-retest reliability for a five-week period was .88 and .70 for a three-year period (Coopersmith, "Introduction for Scoring and Interpreting the Self-Esteem Inventory," no date).

The Michigan Educational Assessment Program, Reading Subtests

The MEAP Reading test for seventh grade students has twenty questions which are selected from the Michigan Department of Education Minimal Performance Objectives for Communication Skills Education in Michigan (Porter, no date). The objectives, written by educators and interested citizens of Michigan, include communication skills of "listening, speaking, reading (including literature and study skills), and writing" (Porter, p. iii).

Objectives used on the test are coded according to general instructional level objectives and task level objectives. The criterion level set for the

attainment of each objective is four out of five items correct. Reliability measure is .96 using KR-20 (Fifth Technical Report 1974-75, p. 22).

Wisconsin Tests of Reading Skill Development, Comprehension

The Wisconsin Tests of Reading Skill Development, Comprehension pretests and post tests, forms I and II, 1974 edition, are criterion referenced. The publishers suggest a mastery level of eighty percent. The reliability coefficients on the tests are .80 or better. All of the tests are still in the developmental stage rather than in final form. Seven levels of the test--levels A through G--assess comprehension skills in six subject strands: Main Idea, Sequence, Reasoning, Detail, Context Clues, and Affixes. There are forty-six skills in all levels and areas of the Comprehension component. They can be administered to individuals or groups.

The Research Design

The design used was the Non-Randomized Control-Group Pretest-Post Test Design (Isaacs and Misheal, 1975, p. 43).

Group	Pretest	Treatment	Post Test
Experimental Group	T_1	X	T_2
Control Group	T_1		T_2

The design is fairly satisfactory if groups have similar means and standard deviations on the pretest. The advantages of this design were that it dealt with intact classes and did not disrupt the school program. As was stated previ-

ously, the subjects were not aware that the study was being conducted.

Procedure

In May, 1974, fifth graders in three elementary schools were given the Stanford Achievement Test. In September, 1974, when they were in the sixth grade, all of these children were pretested with the Coopersmith Self-Esteem Inventory. Regular school instruction began without the WDRSD Comprehension program until December, 1974, when Wisconsin Reading Design Comprehension materials arrived. Upon arrival of the materials, three volunteer teachers (two men and a woman) from the experimental school were trained in the use of WDRSD. After the inservice the teachers began to implement the program in their sixth grade reading classes. During the months of December, 1974, and January, 1975, children in the treatment group were pretested in the Comprehension component to determine their placement levels for skill instruction. Beginning second semester, February, 1975, children in the treatment group received instruction in the Comprehension skills which they needed, according to pretest results. Post testing was done at the completion of instruction of each skill taught.

Each skill cycle lasted for a two or three week period of time with approximately two hours per week of instruction on a particular skill. At the end of the two or three week period of time, appropriate post tests were given for the skills taught and the scores were recorded. A few days' time was allowed between each instructional cycle while children were regrouped for instruction in the next skill needed. Five time cycles for skill instruction took place between

February, 1975, and the end of school on June 6, 1975. Not all children in the treatment group received instruction in five skills because not all of them needed to work on that many skills, according to the pretest results. However, students did receive instruction in as many skills as they needed as indicated by the pretest scores.

Children in the control group continued reading classes without the use of WDRSD, Comprehension. In each of the control schools there was one man teacher and one woman teacher. Both the control and the treatment groups received reading instruction through June 6, 1975. In May, 1975, the Stanford Achievement Tests and the Coopersmith Self-Esteem Inventory were given to the treatment group and to the control group. Data gathered to this point in time were compiled during the summer.

In September, 1975, the children in the treatment and control groups entered seventh grade in junior high school where they received no instruction in WDRSD. To determine whether or not the Comprehension skill instruction the treatment group had received in sixth grade had any long-term effect on their reading skill achievement, the results of the MEAP were used.

During October, 1975, the seventh grade teachers administered the Michigan Educational Assessment Program tests to the students. After the results of the MEAP tests were returned in December, 1975, data were compiled for statistical analysis.

Statement of Hypotheses in Null Form

1a. There is no significant difference between the centroids of sixth grade

Wisconsin Design male students and non-Wisconsin Design male students when tested on Word Meaning, Paragraph Meaning, Spelling, and Language scores as measured by the subtests of the Stanford Achievement Tests.

1b. There is no significant difference between the centroids of sixth grade Wisconsin Design female students and non-Wisconsin Design female students when tested on Word Meaning, Paragraph Meaning, Spelling, and Language scores as measured by the subtests of the Stanford Achievement Tests.

2a. There is no significant difference between the means of sixth grade Wisconsin Design students and non-Wisconsin Design students when tested on Total Reading scores as measured by the Total Reading test of the Stanford Achievement Tests.

2b. There is no significant difference between the means of sixth grade boys and girls when tested on Total Reading scores as measured by the Total Reading test of the Stanford Achievement Tests.

3a. There is no significant difference between sixth grade Wisconsin Design students who entered seventh grade and sixth grade non-Wisconsin Design students who entered seventh grade as measured by the reading subtests of the Michigan Educational Assessment Program.

3b. There is no significant difference between the means of sixth grade boys and girls who entered seventh grade as measured by the reading subtests of the Michigan Educational Assessment Program.

4a. There is no significant difference between the means of sixth grade Wisconsin Design students and non-Wisconsin Design students when tested on self-concept as measured on the Coopersmith Self-Esteem Inventory.

4b. There is no significant difference between the means of sixth grade boys and girls when tested on self-concept on the Coopersmith Self-Esteem Inventory.

Null hypotheses 5a and 5b are only for Wisconsin Design students.

5a. Significantly less than seventy-five percent of the pupils in the WDRSD Comprehension treatment group will attain eighty percent mastery on the Comprehension objectives they were taught, as measured on the Wisconsin Tests of Reading Skill Development, Comprehension.

5b. There will be no significant difference between the proportions of WDRSD boys and girls achieving at the established criterion level of eighty percent mastery on the Comprehension objectives they were taught, as measured on the Wisconsin Tests of Reading Skill Development, Comprehension.

The Tests of Hypotheses

This is a quasi-experimental study using a parametric technique. The test for hypotheses 1a and 1b was a one-way multivariate analysis of covariance with reading method as the one dimension as programmed in the Manova and Covar computer programs (Cooley and Lohnes, pp. 238-241 and 295-297). The 1975 Stanford Achievement Test (SAT) subtests for Word Meaning, Paragraph Meaning, Spelling, and Language were used collectively as the criterion and the 1974 SAT subtests for Word Meaning, Paragraph Meaning, Spelling, and

Language were used as the covariate. The test for hypotheses 2a, 2b, 3a, 3b, 4a, and 4b was the two-way univariate analysis of covariance as programmed by the Statistical Package for the Social Sciences (Nie, 1975, pp. 398-433), with sex as one dimension and reading (2a-3b) or self-esteem (4a and 4b) as the other dimension. For hypotheses 2a and 2b the 1975 SAT Total Reading subtest was used as the criterion with the 1974 SAT Total Reading scores as the covariate. The 1975 MEAP was used as the criterion and the 1974 SAT Total Reading was used as the covariate for hypotheses 3a and 3b. For hypotheses 4a and 4b the May, 1975, Coopersmith Self-Esteem Inventory was used as the criterion with the October, 1974, Coopersmith Self-Esteem Inventory as the covariate. The test used for hypotheses 5a and 5b is the significance of difference between independent proportions, which states: If the proportion of students achieving eighty percent (80%) is p, p will be compared to the criterion of .75 on each skill taught by the Z test of a difference between a sample proportion and a hypothesized population proportion:

$$Z = \frac{p - .75}{s_p}$$

While there is no interest in comparing scores of boys and girls, the reason for introducing this second dimension is to check for interaction between method and sex and note whether such interaction might mask the overall effect.

The independent variables in this study are the instructional treatment and sex. The dependent variables are the results on the tests of Wisconsin Design for Reading Skill Development: Comprehension, Stanford Achievement Test,

Coopersmith Self-Esteem Inventory, and the Michigan Educational Assessment Program.

The constant is grade level. The design for this experiment is the non-randomized control group pretest-post test design. This design was used since it dealt with intact classes and did not disrupt the school's program. Conducting an experiment without the subjects being aware of it is easier with intact classes than when subjects are assigned at random to treatment groups. The internal validity is fairly satisfactory if experimental and control group scores have similar means and standard deviations in the pretest.

The level of significance for the hypotheses will be $\alpha = .05$.

Assumptions

The following assumptions are made for analysis of variance and covariance.

1. The sample is a representative sample of the WDRSD and non-WDRSD population in Niles.
2. The score of dependent variables are measured on at least an interval scale.
3. The underlying population distributions are normal.

Definition of Terms

1. Comprehension is operationally defined as reading for understanding using the subskills of main idea, sequence, reasoning, detail, context, and affixes as measurable parts of reading comprehension, as measured on the

WDRSD Comprehension tests (described on p. 48).

2. Self-esteem is operationally defined as being that which is measured on the Coopersmith Self-Esteem Inventory, Form A (described on p. 47).
3. Students who reach criterion level are those students who achieve eighty percent or better mastery on the post tests of the WDRSD Comprehension tests.

Limitations of the Study

There are several limitations to this study. In the first place, this was action research conducted in the Niles Community School District. The population for both the treatment and control groups was selected on the basis of existence of the experimental program in those buildings, was limited to one grade level, and was not randomized. The differences in instructional environment for treatment and control groups could not be controlled. The open space classroom environment was available for the treatment group; whereas, the control group children were in self-contained classrooms. This may have affected how children reacted to learning.

Because the study took place in one school district it is cautioned that results should not be generalized to all school districts that use Wisconsin Reading Design in sixth grade. Only reading aspects as measured on WDRSD, Stanford Achievement Test, and the MEAP were used. It must also be remembered that the Coopersmith Self-Esteem Inventory is only one measure of self-concept.

Another limitation was that in one of the control schools, the minority

ratio differed from that of the treatment group and the other control school. Because the WDRSD Comprehension Component was still being refined, materials did not arrive in time to permit more than one semester of experimentation.

Summary

The main purpose of this study was to determine and describe the effects of the WDRSD Comprehension Component on sixth grade pupils in Niles Community Schools, Niles, Michigan, during the 1974-75 school year.

The study is a quasi-experimental adaptation of the non-randomized control group pretest-post test design.

The analysis covers four main areas. The first compares reading achievement of the experimental group with the reading achievement of the non-experimental group. The second compares the criterion attainment of treatment and non-treatment groups on the MEAP. Self-concept of treatment and control students is measured in the third, and the number of skills attained on the Comprehension Component by the WDRSD group is measured in the last.

CHAPTER IV

RESULTS OF THE STUDY

This chapter reports the results of the analysis of data concerning the effects of using the Comprehension Component of the WDRSD with a sample of sixth grade students in a Niles elementary school. The treatment group was compared with a control group drawn from two other Niles schools. The raw scores of all of the students participating in the research are included in appendix A. The chapter is organized to present the results of analysis of data for each of the hypotheses which were tested. A discussion of these results is presented in chapter V.

This is a quasi-experimental study using a parametric technique. The following three computer programs were used in analysis of the data:

1. Manova - a program for multivariate analysis of variance (Cooley and Lohnes, 1971, pp. 238-241
2. Covar - a program for multivariate analysis of covariance using matrices obtained in the Manova program (Cooley and Lohnes, 1971, pp. 295-297)
3. Univariate Analysis of Variance and Covariance-Oneway Anova-Statistical Package for the Social Sciences (Nie, 1975, pp. 398-433)

Analysis of Data for Hypothesis 1

Table 1 gives the pretest and post test means on each variable for boys and girls separately and students combined for treatment group, control group, and all students.

It is clear from the table that in every case except the girls' spelling scores, the control group began with an advantage. The initial difference between the sexes did not consistently favor either sex. Differences within the sexes seemed to outweigh differences between the sexes.

Analysis of covariance was used to compensate for the initial inequalities between the groups. The original plan was to use a two-way multivariate analysis of covariance with treatment and sex as the two dimensions. However, because of the gross inequality and lack of proportionality of the cell frequencies, it was decided to use one-way analyses for boys and girls separately.

Hypothesis 1 is therefore stated as two sub-hypotheses--one for each sex.

Hypothesis 1a: There is no significant difference between the centroids of sixth grade Wisconsin Design male students and non-Wisconsin Design male students when tested on Word Meaning, Paragraph Meaning, Spelling, and Language scores as measured by the subtests of the Stanford Achievement Test.

Table 2 gives the adjusted means for both the treatment and non-treatment boys. The regression analysis predicts that the post test means would be as indicated if both groups had had common pretest means as in row 8 of

TABLE 1

GROUP MEANS ON STANFORD ACHIEVEMENT SUBTESTS

	Row No.		N	Word Meaning		Paragraph Meaning		Spelling		Language	
				Pre	Post	Pre	Post	Pre	Post	Pre	Post
Treatment Group	1	Girls	25	16.20	23.64	23.88	32.80	26.68	35.64	72.16	76.48
	2	Boys	19	19.32	26.63	25.26	31.11	21.42	29.00	62.58	68.53
	3	All	44	17.55	24.93	24.48	32.07	24.41	32.77	68.02	73.05
Control Group	4	Girls	56	20.63	29.32	31.75	36.91	26.00	32.05	75.80	81.82
	5	Boys	47	21.62	28.81	31.34	34.89	22.74	26.74	71.96	77.13
	6	All	103	21.08	29.09	31.56	35.99	24.51	29.63	74.05	79.68
Whole Group	7	Girls	81	19.26	27.57	29.32	35.64	26.21	33.16	74.68	80.17
	8	Boys	66	20.95	28.18	29.59	33.80	22.36	27.39	69.26	74.65
	9	All	147	20.02	27.84	29.44	34.81	24.48	30.57	72.25	77.69

table 1.

TABLE 2

ADJUSTED MEANS ON STANFORD ACHIEVEMENT SUBTESTS-MALES

Group	Adjusted Means			
	Word Meaning	Paragraph Meaning	Spelling	Language
Treatment	29.8	35.0	30.2	73.8
Non-Treatment	27.5	33.3	26.2	75.0

The multivariate analysis of covariance yields an F-ratio of 2.49. The critical F-ratio with 4 and 57 degrees of freedom at the .05 probability level is 2.53. The difference between the group centroids is therefore not significant at the .05 level, although it is approaching significance. Therefore, the null hypothesis cannot be rejected.

Table 3 gives results of univariate analysis of covariance for the boys, taking each dependent variable separately.

TABLE 3

UNIVARIATE ANALYSIS OF COVARIANCE FOR STANFORD ACHIEVEMENT SUBTESTS-MALES

Variable	Among Mean Square	Within Mean Square	Calculated F-Ratio
Word Meaning	62.29	26.85	2.32
Paragraph Meaning	36.37	43.38	.84
Spelling	190.29	38.13	4.99
Language	17.94	104.91	.17

The critical F-ratio with 1 and 60 degrees of freedom at a probability level of .05 is 4.00. Thus the only significant difference between the groups is for Spelling, in favor of the treatment group.

Hypothesis 1b: There is no significant difference between the centroids of sixth grade Wisconsin Design female students and non-Wisconsin Design female students when tested on Word Meaning, Paragraph Meaning, Spelling, and Language scores as measured by the subtests of the Stanford Achievement Test.

Table 4 gives the adjusted post test means on the Stanford Achievement subtests for the girls. That is, the pretest scores are presented as the regression predicts they would be if both groups had had the common means as in row 7 of table 1.

TABLE 4

ADJUSTED MEANS ON STANFORD ACHIEVEMENT SUBTESTS-FEMALES

	Adjusted Means			
Group	Word Meaning	Paragraph Meaning	Spelling	Language
Treatment	27.6	37.3	36.9	80.0
Non-Treatment	27.6	34.9	31.5	80.3

The multivariate analysis of covariance yields an F-ratio of 3.75. The critical F-ratio with 4 and 72 degrees of freedom at the .05 probability level is 2.50 (the critical value at the probability level of .01 is 3.60). For

the girls, therefore, the difference between the centroids of treatment and control groups is significant.

Table 4 indicates that this difference is, in the main, in favor of the treatment group in respect to Paragraph Meaning and Spelling.

While the multivariate analysis is the more meaningful inasmuch as it accounts for the intercorrelations among the variables, separate univariate analyses of covariance were undertaken for each of the four dependent variables. The summary of these analyses is given in table 5.

TABLE 5

UNIVARIATE ANALYSIS OF COVARIANCE FOR STANFORD ACHIEVEMENT SUBTESTS-FEMALES

Variable	Among Mean Square	Within Mean Square	Calculated F-Ratio
Word Meaning	.00	19.46	.00
Paragraph Meaning	81.18	33.54	2.42
Spelling	417.97	30.03	13.92
Language	1.07	66.07	.02

The critical F-ratio with 1 and 75 degrees of freedom at a probability level of .05 is 2.50. Thus, from a univariate analysis point of view the difference between the groups is significant for Spelling and approaching significance for Paragraph Meaning. In both cases the difference is in favor of the control group.

Analysis of Data for Hypothesis 2

It should be pointed out that Total Reading scores in his hypothesis refers to a combination of only Word Meaning and Paragraph Meaning subtests.

Hypothesis 2a: There is no significant difference between the means of sixth grade Wisconsin Design students and non-Wisconsin Design students when tested on Total Reading scores as measured by the Total Reading test of the Stanford Achievement Test.

Hypothesis 2b: There is no significant difference between the means of sixth grade boys and girls when tested on Total Reading scores as measured by the Total Reading test of the Stanford Achievement Test.

To test these hypotheses a two-way univariate analysis of covariance was used. It is necessary initially to test the null hypothesis that there is no interaction between treatment and sex. The computer program used for this analysis yields only marginal means, not cell means, and gives no covariate means. Tables 6 and 7 provide only the marginal data: that is, overall means for boys and girls and overall means for treatment and non-treatment groups.

Table 6 gives the unadjusted and adjusted post test means on SAT Total Reading scores for treatment and non-treatment groups.

TABLE 6

TREATMENT - NON-TREATMENT GROUP MEANS ON SAT TOTAL READING

Variable and Category	N	Unadjusted Post Test Means	Adjusted Post Test Means
Treatment	44	56.54	64.63
Non-Treatment	103	65.07	61.62

There appears to be difference in favor of the treatment group.

Table 7 gives the unadjusted and adjusted post test means for males and females.

TABLE 7

MEANS ON SAT TOTAL READING SCORES BY SEX

Variable and Category	N	Unadjusted Post Test Means	Adjusted Post Test Means
Male	66	61.98	60.98
Female	81	62.96	63.77

There appears to be a difference in favor of the females.

The analysis of covariance testing the significance of these differences is outlined in table 8.

TABLE 8

ANALYSIS OF COVARIANCE OF TOTAL READING SCORES BY TREATMENT AND SEX

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	Calculated F-Ratio	Significance of F
Treatment	120.590	1	120.590	1.196	0.275
Sex	83.469	1	83.469	0.828	0.999
Interaction	1.559	1	1.559	0.015	0.999
Residual	14315.070	142	100.810		
Total	73720.062	146	504.932		

The critical F-ratio with 1 and 142 degrees of freedom at the probability level of .05 is 3.91. Thus, there is no significant interaction between the sex variables, and overall comparisons may be made. Neither of the main effects F-ratios is significant; therefore, hypotheses 2a and 2b cannot be rejected. There is no significant difference between treatment and non-treatment groups or between sexes on Stanford Total Reading scores.

Analysis of Data for Hypothesis 3

Hypothesis 3a: There is no significant difference between the means of sixth grade Wisconsin Design students who entered seventh grade and sixth grade non-Wisconsin Design students who entered seventh grade as measured by the reading subtests of the Michigan Assessment Program.

Hypothesis 3b: There is no significant difference between the means of sixth grade boys and girls who entered seventh grade as measured by the reading subtests of the Michigan Educational Assessment Program.

Hypothesis 3 was also tested with the two-way univariate analysis of covariance, and again cell means were not yielded by the computer program.

The covariate used to adjust the 1975 MEAP means was the 1974 SAT Total Reading score.

Table 9 gives the unadjusted and adjusted means on the MEAP language test scores.

TABLE 9

TREATMENT - NON-TREATMENT GROUP MEANS ON THE MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM LANGUAGE TEST

Variable	N	Unadjusted Post Test Means	Adjusted Post Test Means
Treatment	14	11.02	11.71
Non-Treatment	103	12.62	12.32

There appears to be a very slight difference in favor of the control group.

Table 10 gives the means on the MEAP language test by sex.

TABLE 10

MEANS ON THE MEAP BY SEX

Variable	N	Unadjusted Post Test Means	Adjusted Post Test Means
Male	66	10.42	9.32
Female	81	13.54	14.43

There appears to be a difference in favor of the girls.

The analysis of covariance testing the significance of these differences is outlined in table 11.

TABLE 11

ANALYSIS OF COVARIANCE: MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM BY TREATMENT AND SEX

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	Calculated F-Ratio	Significance of F
Treatment	4.988	1	4.988	0.158	.999
Sex	280.764	1	280.764	8.898	.004
Interaction	37.285	1	37.285	1.182	.278
Residual	4480.781	142	31.555		
Total	7301.875	146	50.013		

The critical F-ratio with 1 and 142 degrees of freedom at a probability level of .05 is 3.91. Thus there is no significant interaction between treatment and sex.

The F-ratio for treatment is not significant and thus hypothesis 3a cannot be rejected. There is no difference between treatment and non-treatment groups on the MEAP.

The F-ratio for sex main effect is significant. Thus hypothesis 1b is rejected. The girls' mean was significantly greater than the boys' mean on the MEAP language test, as shown in table 10.

Analysis of Data for Hypothesis 4

Hypothesis 4a: There is no significant difference between the means of

sixth grade Wisconsin Design students and non-Wisconsin Design students when tested on self-concept as measured on the Coopersmith Self-Esteem Inventory.

Hypothesis 4b: There is no significant difference between the means of sixth grade boys and girls when tested on self-concept as measured on the Coopersmith Self-Esteem Inventory.

Hypothesis 4 was also tested by two-way univariate analysis of covariance. Again, no cell means or pretest means are available.

Table 12 gives the unadjusted and adjusted means on the Coopersmith Self-Esteem Inventory.

TABLE 12

TREATMENT - NON-TREATMENT GROUP MEANS ON COOPERSMITH SELF-ESTEEM INVENTORY

Variable	N	Unadjusted Post Test Means	Adjusted Post Test Means
Treatment	44	34.27	34.49
Non-Treatment	103	31.44	31.35

The mean for the treatment appears to be higher than it is for the control group.

Table 13 gives the means on the Coopersmith Self-Esteem Inventory by sex.

TABLE 13

MEANS ON COOPERSMITH SELF-ESTEEM INVENTORY BY SEX

Variable	N	Unadjusted Post Test Means	Adjusted Post Test Means
Male	66	33.27	33.37
Female	81	31.49	31.41

The boys' mean appears to be somewhat higher than the girls' mean. The analysis of covariance to test the significance of these differences is outlined in table 14.

TABLE 14

ANALYSIS OF COVARIANCE: COOPERSMITH SELF-ESTEEM SCORES BY TREATMENT AND SEX

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	Calculated F-Ratio	Significance of F
Treatment	132.373	1	132.373	3.167	0.074
Sex	41.484	1	41.484	0.993	0.999
Interaction	4.029	1	4.029	0.096	0.999
Residual	5934.887	142	41.795		
Total	11530.258	146	78.974		

The critical F-ratio with 1 and 142 degrees of freedom at the probability level of .05 is 3.91. Therefore there is no significant interaction between treatment and sex.

The F-ratio for treatment is 3.167 with a probability level of .074. While the comparison by treatment is approaching significance, hypothesis 4a

cannot be rejected at an α level of .05.

The F-ratio for the sex main effect is clearly non-significant and hypothesis 4b cannot be rejected.

That is, there is no significant difference between treatment groups or between sexes with respect to scores on the Coopersmith Self-Esteem Inventory.

Analysis of Data for Hypothesis 5

This hypothesis relates only to the treatment group. Hypothesis 5a compares the performance of the children to the criterion established by the WDRSD and hypothesis 5b compares the achievement of boys and girls in this respect.

Hypothesis 5a: Significantly less than seventy-five percent of the pupils in the WDRSD, Comprehension treatment group will attain eighty percent mastery on the Comprehension objectives they were taught, as measured on the Wisconsin Tests of Reading Skill Development, Comprehension.

Hypothesis 5b: There will be no significant difference between the proportion of WDRSD boys and girls achieving the established criterion of eighty percent mastery on the Comprehension objectives they were taught, as measured on the Wisconsin Tests of Reading Skill Development, Comprehension.

Data relevant to these hypotheses appear in table 15.

TABLE 15

STUDENTS REACHING THE CRITERION OF EIGHTY PERCENT MASTERY ON WDRSD

	Boys	Girls	Total
Number of Subjects	19	25	44
Number Passing 80% of Skills	14	22	36
Percent Passing Skills	74	88	82

As eighty-two percent of the total number of students met the criterion, there is no need of a statistical test to test statistically hypothesis 5a that significantly less than seventy-five percent of the students will pass the criterion. This hypothesis is clearly rejected.

Clearly, hypothesis 5a is rejected for the girls separately. Of the boys, seventy-four percent met the criterion. This percentage, however, is not significantly less than seventy-five percent. We have $p = .74$, hence

$$S_p = \sqrt{\frac{.74 \times .26}{19}} = .10$$

$$Z = \frac{.74 - .75}{.10} = \frac{-.01}{.10} = -0.1 \quad (\text{Critical } Z = \pm 1.96)$$

Hence, for the boys separately also, hypothesis 5a is rejected. Both boys and girls reached the program criterion.

To test hypothesis 5b, the Z-test for comparison of two independent proportions was used, as follows.

$$S_{p_1-p_2} = \sqrt{.82 \times .18 \left(\frac{1}{19} + \frac{1}{25} \right)} = .117$$

$$Z = \frac{.88 - .74}{.117} = 1.20 \quad \text{(Critical } Z = \pm 1.96\text{)}$$

Hence hypothesis 5b cannot be rejected. There is no significant difference between the proportions of boys and girls achieving the criterion of eighty percent mastery.

Summary

Five hypotheses were tested in this study. A summary of the results is presented here. A discussion of the results follows in chapter V. The first and second hypotheses dealt with the effects of the WDRSD, Comprehension treatment on the reading scores of students as measured on the Stanford Achievement Test. The results from testing the first hypothesis indicated that the multivariate analysis of Word Meaning, Paragraph Meaning, Spelling, and Language scores showed an overall accumulated significant F-ratio in favor of the girls' treatment group with Spelling and Paragraph Meaning being affected most. For both groups the univariate analysis showed that only the Spelling scores of boys and girls were significantly higher for both treatment groups than for the control groups.

The second basic hypothesis tested only the results of the Total Reading scores on the Stanford Achievement Test. These scores showed that there was no significant difference in test scores between the treatment and

non-treatment groups or between boys and girls on the Total Reading scores. Since Stanford Achievement Test Total Reading scores include combined results from Word Meaning and Paragraph Meaning sections only and do not include Spelling and Language, the results of hypothesis 2 are consistent with the results on hypothesis 1, although there appears to be a gross inconsistency between the results of hypothesis 1 and hypothesis 2 at first glance.

Hypothesis 3 dealt with reading scores' results on the Michigan Educational Assessment Program. The results were divided. While there was no significant difference between the reading scores of treatment and non-treatment students, there was a significant difference between the scores of the boys and the scores of the girls, in favor of the girls.

The results of the Coopersmith Self-Esteem Inventory in hypothesis 4 showed no significant differences between scores of treatment and non-treatment groups or between sexes, although the treatment group and the male student scores were slightly higher than were the non-treatment and female self-esteem scores.

Hypothesis 5 results related only to students who received WDRSD treatment. Overall, the students surpassed the criterion that seventy-five percent of the students should pass the skills they studied. Although a significantly higher number of girls passed WDRSD post-tests (eighty-eight percent), the results show that seventy-four percent of the boys met the criterion, which is not significantly less than seventy-five percent.

CHAPTER V

SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

The summary, conclusions, discussion, and recommendations of the "Effects of the Wisconsin Reading Design Comprehension Program on Reading Achievement and Self-Concept of Sixth Grade Students" are presented in this chapter.

Summary

Literature

Throughout the study, it was pointed out that reading achievement is a topic of general concern to the nation's public. While many reading programs are being tried, tested, and abandoned, one of the newer innovations in the teaching of reading has been the introduction of criterion referenced reading programs which have appeared within the last five years. The Comprehension Component of one of the criterion reading programs, The Wisconsin Design for Reading Skill Development (WDRSD), was used in this research.

There is available a background of initial studies pointing out both strengths and weaknesses in criterion referenced programs. There are also dissenting opinions by investigators about the relationship of reading achievement and self-esteem. Therefore, there were two main purposes for this study.

The chief purpose was to test the proposition that the WDRSD Comprehension Component will help children achieve higher reading scores. A secondary purpose was to test the proposition that the success children experience in criterion referenced instruction will help improve their self-esteem.

Although the criterion referenced reading programs are relatively recent innovations in education, there is theoretical basis for the writing of a criterion referenced reading comprehension program which dates at least as far back as Ebbinghaus (1879) when he performed his experiments on memory. Theory on how people learn better when they are presented with small units of work has been strongly championed by present-day psychologists such as Skinner and Gagne. Work by reading teachers, such as Durrell and DeChant, seems to support psychological theories in the areas of reading comprehension and methods of learning. These theories tend to serve as supportive framework for programs like WDRSD.

In the review of literature it was pointed out that further investigation in the area of reading achievement and theory widens the focus on the reading horizon to include the relationship of reading achievement and method. Instructional methods of presenting reading comprehension materials serve as variables which confound the problem of reading instruction beyond the type of material used. The literature also indicated that the amount of time spent studying did have an effect on the results.

With "time spent" and "method of presentation" as additional factors in successfully instructing students, criterion reading programs which are com-

mercially marketed have built-in management systems for teachers as well as available materials. While these two factors enhance the effectiveness of the programs, they still do not account for the variations in teacher enthusiasm for a program or pupil willingness to learn. Two programs--Fountain Valley Teacher Support System and WDRSD--have tried to cover for this important need. Fountain Valley has all of the instructional program on cassette tapes, which assures for consistency in instruction. Wisconsin Design provides no tapes, but it will not sell the materials until the school system receives thorough initial inservice in the intricacies of using the WDRSD.

Research in the area of reading comprehension alone was very scanty between 1933 and 1972. During this era most research was in the area of trying to determine which skills actually were part of reading comprehension. It was discovered that memory, drawing inferences, structure of a passage; recognizing the writer's attitude, purpose, mood, and tone; and finding answers based on explicit or paraphrased information were the skills necessary for comprehension. Since 1972 most research has been in the area of applying those skills to teaching-learning situations and discovering the outcomes. Results have varied, and the variation again appears to return to the method of presentation of the material and the teacher-learner rapport during the research sessions.

The literature also revealed other factors beside method and teacher-student rapport which affect student success in reading. Ghatala and Levin, who have done extensive research on memory, pointed out an added variable to the learning situation. They found that the previous background (physical,

social, or cultural) of a student before he comes to the instructional setting greatly influences the outcome of instruction. Other research also implies that this influence exists. Research ranged from problems investigators reported in classroom settings to national problems of regional, sexual, socio-economic, and racial imbalance in the degree of reading comprehension. It is apparent that all instruction, all success, and all failure does not begin or end in school.

Studies in the area of reading and self-concept showed a wide variety of results. About half of the studies reviewed found a relationship between reading achievement and pupil self-esteem. However, in some instances it was found that children with "average" self-concept or with high anxiety levels were more successful in reading than were children with very high or very low self-esteem. Other research found a relationship between reading and self-image with children of only certain age levels and some found there was no relationship at all. This seems to imply that a very high self-image may not be as important for reading success as some reading specialists have believed. However, there is enough evidence of a relationship between the two factors to continue study in this area--both from the standpoint of self-concept according to the developmental age of the learner and also from the factors now believed to comprise a positive self-image.

Finally, it can be said that the literature reviewed reveals that psychologists have conducted research projects relating to memory and comprehension which date back for almost one hundred years. However, further identification of specific components of reading comprehension were identified

between 1932 and 1972. Within the past five years application of those identified skills has resulted in development of new criterion referenced comprehension reading programs and specific research in the area of applying identified comprehension skills to instruction.

Sample and Design

In order to accomplish the purposes of the study forty-four sixth grade students with three teachers in one school from the Niles Community Schools, Niles, Michigan, were chosen to receive instruction in the Comprehension Component of WDRSD. One hundred three sixth grade children with four teachers from two other schools in Niles composed the control group. During the second semester of the 1974-75 school year the treatment and control groups continued the regular language arts and affective education programs common to both groups. The only addition was the introduction of the WDRSD to the treatment group. WDRSD instruction and testing continued until the close of the school year in June. Appropriate data were collected before, during, and after the close of the project. Results of the MEAP were collected from these pupils after they entered seventh grade.

The analyses used for this quasi-experimental study were: one-way multivariate analysis of covariance, two-way univariate analysis of covariance, and significance of difference between independent proportions.

The major findings of the study are as follows.

1. There was no significant difference between the centroids of sixth grade Wisconsin Design male students and non-Wisconsin Design male students

when tested on Word Meaning, Paragraph Meaning, and Language scores as measured by the subtests of the Stanford Achievement Test, but there was a significant difference in the Spelling scores.

2. The girls in Wisconsin Design obtained significantly higher centroids on the combination of Word Meaning, Paragraph Meaning, Spelling, and Language than did the non-Wisconsin Design girls. There existed significant differences in favor of the Wisconsin Design girls. This was especially evident in the area of Spelling.
3. There was no significant difference between the means of Wisconsin Design students and non-Wisconsin Design students when tested on Total Reading scores as measured by the Total Reading test of the Stanford Achievement Test.
4. In both experimental and control groups there was no significant difference between the means of sixth grade boys and sixth grade girls when tested on Total Reading scores as measured by the Total Reading test of the Stanford Achievement Test.
5. There was no significant difference between the means of sixth grade Wisconsin Design students and sixth grade non-Wisconsin Design students who entered seventh grade as measured by the reading subtests of the Michigan Educational Assessment Program.
6. In both experimental and control groups significantly more girls than boys attained higher adjusted post test means on the MEAP.
7. There was no significant difference between the means of sixth grade

Wisconsin Design students and non-Wisconsin Design students when tested on self-concept as measured on the Coopersmith Self-Esteem Inventory.

8. In both experimental and control groups there was no significant difference between the means of sixth grade boys and sixth grade girls when tested on self-concept as measured on the Coopersmith Self-Esteem Inventory.
9. Counting boys and girls together, over seventy-five percent of the pupils in the WDRSD Comprehension group attained at least eighty percent mastery on the Comprehension objectives they were taught. This surpassed the criterion level for mastery.
10. There was no significant difference between the proportions of boys and girls achieving the criterion of eighty percent mastery.

Discussion of the Results

The results of each of the hypotheses are discussed separately in this section. The subtitles are indicative of the hypothesis being studied.

Discussion of the Sex Variable

In the areas of Stanford Achievement Test results and MEAP results, the girls attained significantly higher scores than the boys. For the groups studied, the effect of sex appears to have been a significant factor in reading achievement scores. This outcome appears to be in agreement with findings reported in chapter II of this study on the superior reading comprehension test scores of female students over male students in reading comprehension as found by the Education Commission of the United States.

This does not necessarily mean that girls are "smarter" than boys in reading. As was pointed out in the review of literature, the background and interests a student brings with him to school do affect his performance. The same factor of teacher background and interest brought to the learning situation also must play an important part in determining the quality and amount of learning and teaching that takes place in any situation. Since in both the treatment and control groups the students were taught by both men and women teachers, the sex difference of teachers could not be considered a factor in girls' overall higher achievement.

A review of the Wisconsin Reading Design Resource File materials (see appendix B) used for instruction revealed no apparent sexual bias. However, no student survey was conducted on each lesson to see how well the material was received. Perhaps a sexual bias toward the appeal of each lesson would have appeared had such a survey been conducted.

Discussion of Stanford Achievement Test Results

Using multivariate analysis to test the Stanford Achievement Test results, it was found that in both Paragraph Meaning and Spelling the girls in the experimental group showed significantly greater improvement than did the girls in the control group.

Using univariate analysis to further test the scores attained by the treatment group on the Stanford Achievement Test, it was found that both treatment boys and treatment girls earned significantly higher results in only one SAT

subtest--Spelling. An examination of the WDRSD program provides no explanation why such a reading Comprehension program would produce no significant differences in Word Meaning or Paragraph Meaning, but did affect Spelling.

Further checks on the specific areas of instruction the treatment group received within the Comprehension Component showed that each student was pretested and that the group then received instruction at three levels according to individual needs. All skills within those three levels were not taught, because the pretests indicated that the children did not need instruction in all skills. The specific breakdown of skill instruction shows that the only skill taught on all three levels of difficulty was Sequence. Forty of the children received instruction in this skill at their level of understanding. The second most frequently taught skill was Topic Sentences (twenty-one students); third, Context Clues (twelve students); fourth, Clauses (five students) and Cause-Effect (five students); and fifth, Making Deductions (three students).

All WDRSD materials were checked to determine if there was a relationship to Spelling. Sequence materials were inspected very closely since this skill was most frequently taught. Of the basic WDRSD materials checked, the Sequence materials related only in the manner that they encouraged children to think in terms of what happens first, middle, or last in various lengths of passages. Children were encouraged to write original logically sequential passages in several of the activities. There was always a note that the teacher should help the child to spell every word correctly. Perhaps this added practice in practical application of correctly spelled words to a meaningful activity did

more to reinforce good spelling habits than it did to insure increased Word Meaning or Paragraph Meaning.

Although no research was found which directly reinforced this conjecture, some opinions and research in the area of spelling appear to support indirectly the idea that learning takes place only when the lesson is relevant to the learner or that spelling improves only when it is integrated with the total reading program.

Dunkeld and Hatch (1975) state:

> Without a reason and willingness to write, there is no reason for knowing how to spell. Spelling is not an end in itself, although many school programs treat it as such. . . .
>
> Classroom spelling programs should stem from children's immediate needs and have both their long-term needs and their immediate confidence as a goal (p. 225).

Rosier (1975) felt that the greatest gain in spelling achievement will come from programs in which spelling is integrated with the entire language arts program. Durrell (1956) also urged the teaching of reading and spelling as coordinated subjects.

In the relation of correct spelling to Sequence, Hanna (1967) did an in-depth analysis of 17,000 words and showed that the correct spelling pattern can be predicted in ninety percent of the cases when positions of syllables, stress, and internal constraints underlying orthography are taken into consideration. Although sequence for a spelling word has more of a connotation of a phonetic skill, perhaps the practice of thinking of "first, middle, last" in the Sequence component of WDRSD did have some carry-over to the thinking pattern for spelling also.

Finally, there really may be more relation between comprehension and spelling than has been studied. Geedy (1975) says "The more meaning a word has for a child, the more easily he or she learns to spell it" (p. 235).

According to Tumangday (1976), there are four variables in student motivation to learn: student personality, student reactions to praise and blame, student reactions to success and failure, and student differences in learning style. In relation to student learning, teacher personality and instructional styles do have an affect. Successfully putting the individuality of the learner together with the individuality of the teacher so that learning occurs is a double factor that no materials, however excellent, have yet been able to accomplish. Needless to say, these variables were not measured in this study.

Discussion of the Results on the MEAP

Although there was no significant difference between the treatment and non-treatment groups on the MEAP, both groups recorded much higher average scores than were reported by the State of Michigan. In chapter I it was stated that the average number of skills passed by seventh graders on the 1975 test was only five. The mean for all of the children in this study indicated that they passed at least twice as many skills as were reported in the state. This must indicate that there is more adequate teaching-learning interaction in reading instruction happening in Niles reading programs than in many other school districts in Michigan--with or without the WDRSD Comprehension instruction.

Discussion of the Results on the Coopersmith Self-Esteem Inventory

In the area of self-esteem none of the groups showed any significant difference from each other on the Coopersmith Self-Esteem Inventory, although the treatment group did score several points higher than the non-treatment group on the test. It is particularly interesting to note that the boys scored higher in self-esteem than did the girls. In view of the fact that concurrent with the WDRSD program all of the children in the study were involved in a self-improvement project, higher scores in self-esteem might have been expected. This may indicate that not only did the Comprehension Component not help the self-image of the students, but also that the Niles self-esteem project itself may not have helped the groups tested to improve their personal concepts of themselves. Another possibility is that the Coopersmith Self-Esteem Inventory does not measure self-esteem as it was emphasized in Niles.

Discussion of the Results of the Treatment Group on WDRSD

It is satisfying to note that the girls in the Wisconsin Design program surpassed the criterion level on the Comprehension post tests and that the boys were not significantly below. The WDRSD teacher manuals say that if a teacher finds that at least seventy-five percent of the children in a skill group do not pass a skill it is because the teacher used poor instructional judgment in determining the learning needs of the pupils within that group. Apparently the materials and methods used were satisfactory, although perhaps more appropriate for the girls than they were for the boys, if the Wisconsin standards for a measure

of teacher competency are followed.

As it has been stated throughout this chapter, the individual differences of pupils and teachers must be taken into consideration at all times in any instructional situation. When instruction becomes a mechanical activity rather than a personalized, dynamic force, very little learning occurs. The WDRSD has attempted to provide for this factor by structuring the program so that teachers must become dynamically involved in the development of the program into a personalized project for their own classroom. This personalization of the program happens with variable success depending upon the motivation of the teacher. As with children, the motivational needs of the teachers do not always follow the same (or even parallel) paths.

Final Summary

Finally, the results show that the WDRSD treatment was beneficial to reading achievement in some areas but did not affect student achievement in other areas. The sex of the student did have an affect on the outcomes of the project. For girls the centroid of the multivariate analysis showed significant improvement in reading achievement, with spelling and paragraph meaning being most affected. The WDRSD boys were not significantly below the criterion level on the WDRSD. In fact, tables 5, 7, 8, 12, and 13 show a consistent pattern of difference in favor of the experimental group. The boys did show a significant improvement in spelling on the Stanford Achievement Test. The analysis of data showed a significant relationship between the Comprehension treatment and Spelling on the SAT subtests.

There was no significant difference in self-concept in either the experimental or the control groups.

These results suggest that interference from factors other than the treatment played a significant part in the results achieved. These factors may have included both student and teacher motivation, sex bias of the materials, and appropriateness of instruction to intended goals, as well as the sex of the students.

This study indicates that although the Comprehension Component of WDRSD still needs some refinement it is a useful program and worthy of further development and application.

Recommendations

In this section, ideas on topics for further investigation are listed.

Topics for Further Investigation

1. This was a pilot version of the Comprehension Component of WDRSD. While the ability of teachers to teach and of learners to learn are certainly factors in the success of any program, the materials used are also important. Therefore, rather than dropping the program it would be better to revise the approaches recommended to see if they can be improved for future learners.
2. The writer found no study comparing the self-esteem with the child's attitudes toward schoolwork to see if one of these variables has more weight than the other in determining success in school. A series of studies

on this topic may give some answers to the question of whether or not self-attitude or school-attitude has more relationship with academic achievement.

3. The possible relationships between specific instruction in reading comprehension and the ability to spell correctly certainly need to be explored in greater depth.

4. Although the review of literature covered quite a few studies in the area of reading comprehension, few studies were found which evaluated commercially available programs (other than WDRSD) for their effectiveness in teaching comprehension. Several new comprehension products are now available to schools. A comparison of the achievement scores of children who are exposed to instruction in each of these programs should be a most helpful aid to schools who are contemplating purchasing comprehension materials.

5. A study in WDRSD, Comprehension covering more schools and more grade levels over a longer range of time needs to be done to determine whether or not the results of this particular research project are applicable to other school situations.

6. For Niles Community Schools it is recommended that training be continued with teachers not only in the "mechanics" of teaching a subject but also in the implications of the effects of teacher and student motivation on academic achievement.

7. It is suggested that research be done to discover whether the material used

in the WDRSD Resource Files contains sexual bias.

8. Further studies in the area of motivation--both for students and teachers--are needed.

9. As more validation data become available on the WDRSD, studies should be continued to determine the value of the program for reading instruction.

10. It is recommended that teachers include more sequence skills in classroom instruction to determine if these skills actually improve spelling.

11. Curriculum planners and teachers in school districts should carefully review which subskills in WDRSD, Comprehension are being taught and which subskills are receiving little or no attention to insure adequate comprehension skill instruction for students.

12. Psychologists need to further examine the relationship between self-concept, school-attitude, and ability in reading comprehension.

APPENDIX A

STUDENT SCORES

TABLE 16

STANFORD ACHIEVEMENT TEST SCORES - TREATMENT GROUP

Student	Sex	Word Meaning		Paragraph Meaning		Spelling		Language		Total	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	Girl	8	18	14	26	31	30	62	61	22	44
2	Girl	17	11	16	28	12	24	50	56	33	39
3	Boy	18	32	30	35	26	34	57	70	48	67
4	Boy	18	20	22	23	19	33	54	60	40	43
5	Boy	21	29	34	39	29	37	79	86	55	68
6	Girl	12	19	17	29	17	24	68	61	29	48
7	Girl	10	15	14	28	32	40	69	80	24	43
8	Girl	18	32	34	43	39	45	92	89	52	75
9	Boy	29	35	26	35	16	27	65	62	55	70
10	Girl	16	24	25	19	20	23	61	65	41	23
11	Boy	26	36	33	42	26	32	79	83	59	78
12	Boy	16	25	21	31	16	26	55	59	37	56
13	Boy	37	39	49	57	39	35	76	93	86	96
14	Boy	11	11	10	18	11	18	49	44	21	29
15	Girl	17	27	33	39	17	42	56	70	50	66
16	Boy	14	24	22	28	22	25	71	72	36	52
17	Boy	29	36	26	42	41	38	80	97	55	78
18	Girl	26	37	37	46	41	47	81	86	63	83
19	Girl	17	24	25	36	34	46	70	84	42	60
20	Girl	12	23	22	30	18	17	70	74	34	53
21	Boy	17	16	21	19	13	25	42	54	38	35
22	Boy	22	37	33	35	42	45	93	97	55	72

TABLE 16 - Continued

Student	Sex	Word Meaning		Paragraph Meaning		Spelling		Language		Total	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
23	Girl	7	13	22	19	29	32	81	70	29	32
24	Girl	17	20	16	35	43	50	79	84	33	55
25	Girl	17	33	35	50	36	44	94	100	52	83
26	Girl	15	18	15	23	22	32	76	69	30	41
27	Girl	20	27	22	39	19	18	69	77	42	66
28	Girl	18	30	16	27	12	25	59	70	34	57
29	Girl	16	29	32	36	19	25	76	84	48	65
30	Boy	19	30	28	26	7	22	57	67	47	56
31	Girl	22	38	33	41	26	38	81	85	55	79
32	Girl	20	28	32	40	42	51	95	98	52	68
33	Boy	12	12	20	24	12	18	51	54	32	36
34	Girl	19	27	20	22	21	36	73	70	39	49
35	Boy	15	23	20	16	13	25	45	45	35	39
36	Girl	12	20	20	38	29	42	70	70	32	58
37	Girl	11	15	10	20	23	33	50	60	21	35
38	Boy	14	24	11	30	8	13	53	61	25	54
39	Girl	18	20	25	36	32	44	70	76	43	56
40	Boy	20	28	24	23	8	21	38	33	44	51
41	Girl	29	34	40	49	28	45	93	102	69	83
42	Girl	11	9	22	21	25	38	59	71	33	30
43	Boy	11	19	20	31	25	31	69	80	31	50
44	Boy	18	30	30	37	34	46	76	85	48	67

TABLE 17

STANFORD ACHIEVEMENT TEST SCORES - CONTROL GROUP

Student	Sex	Word Meaning		Paragraph Meaning		Spelling		Language		Total	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
45	Boy	7	14	12	12	7	9	55	44	19	26
46	Boy	10	13	19	24	11	28	31	66	29	37
47	Boy	12	26	20	29	12	20	58	61	32	55
48	Girl	9	13	21	21	12	19	51	65	30	34
49	Boy	26	35	39	42	22	33	76	79	65	67
50	Girl	8	13	12	22	7	17	55	41	20	35
51	Boy	20	31	26	39	33	35	86	97	46	70
52	Boy	21	24	16	12	14	15	68	52	37	36
53	Boy	18	34	32	48	21	29	89	84	50	82
54	Boy	16	24	25	25	24	21	70	53	41	49
55	Girl	20	31	29	40	24	41	87	90	49	71
56	Girl	14	25	38	32	43	44	84	90	52	57
57	Girl	7	18	14	21	5	15	55	74	21	39
58	Girl	12	20	12	17	5	14	23	58	24	37
59	Girl	34	40	45	49	31	37	96	97	79	89
60	Boy	12	17	8	16	7	12	31	54	20	33
61	Boy	15	11	16	14	9	12	51	59	31	25
62	Girl	14	6	15	12	20	15	63	49	19	18
63	Girl	15	18	15	23	16	18	47	47	30	41
64	Girl	16	25	19	33	21	31	67	76	35	58
65	Boy	10	8	23	10	13	10	68	54	33	18
66	Boy	14	9	14	11	15	29	52	65	28	20

TABLE 17 – Continued

Student	Sex	Word Meaning		Paragraph Meaning		Spelling		Language		Total	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
67	Boy	42	20	31	20	5	28	66	66	73	40
68	Girl	29	39	44	57	35	44	100	104	73	96
69	Girl	12	31	25	32	11	21	75	79	37	63
70	Girl	28	34	33	42	44	44	82	94	61	76
71	Girl	9	15	19	16	15	16	37	63	28	31
72	Boy	36	41	42	49	48	49	101	103	78	90
73	Boy	16	24	21	35	13	28	58	68	37	59
74	Girl	29	35	42	47	28	31	85	92	71	82
75	Girl	15	8	10	22	16	13	52	56	25	30
76	Girl	12	12	23	22	20	27	57	60	35	34
77	Boy	17	27	40	46	29	36	69	79	57	73
78	Girl	18	28	32	31	27	36	86	96	50	59
79	Boy	22	30	25	42	28	41	70	83	47	72
80	Boy	16	15	23	23	27	10	86	59	39	38
81	Boy	8	15	21	18	22	21	52	52	29	33
82	Girl	13	16	10	13	19	28	60	67	23	29
83	Boy	14	25	27	26	13	15	76	67	41	51
84	Girl	7	18	23	22	19	16	49	69	30	40
85	Girl	30	37	32	44	32	38	82	89	62	81
86	Girl	31	44	47	57	31	36	95	106	78	101
87	Girl	21	32	43	48	42	47	92	99	64	80
88	Boy	17	19	19	23	16	6	49	42	36	42

TABLE 17 - Continued

Student	Sex	Word Meaning		Paragraph Meaning		Spelling		Language		Total	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
89	Boy	12	20	27	26	19	17	58	53	39	46
90	Girl	9	15	29	25	21	29	71	67	38	40
91	Girl	39	39	44	57	43	45	100	106	83	96
92	Girl	27	39	41	48	36	41	79	87	68	87
93	Boy	28	40	35	41	27	24	79	82	63	81
94	Boy	16	11	16	13	14	11	61	40	32	24
95	Girl	19	32	42	52	32	45	87	106	61	84
96	Boy	19	25	32	36	26	28	55	77	51	61
97	Boy	26	32	41	47	29	36	84	92	67	79
98	Girl	27	39	46	58	29	37	87	89	73	97
99	Girl	15	32	36	30	32	23	72	83	51	62
100	Girl	14	24	33	35	12	20	57	60	47	59
101	Boy	17	30	32	31	16	20	82	96	49	61
102	Girl	29	35	35	29	41	47	81	76	64	64
103	Boy	22	43	54	56	29	31	100	101	76	99
104	Girl	20	29	28	35	27	29	77	73	48	64
105	Boy	35	43	49	56	52	51	89	99	84	99
106	Girl	26	35	39	38	24	35	87	92	65	73
107	Boy	29	41	40	50	22	23	79	78	69	91
108	Boy	32	34	19	37	6	14	60	91	51	71
109	Girl	36	45	35	44	29	38	91	91	71	89
110	Boy	32	43	33	37	24	34	87	100	65	80

TABLE 17 - Continued

Student	Sex	Word Meaning		Paragraph Meaning		Spelling		Language		Total	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
111	Girl	20	30	29	33	40	43	79	86	49	63
112	Girl	13	20	12	19	20	22	70	64	25	39
113	Girl	17	26	31	36	20	22	76	90	48	62
114	Boy	15	35	34	40	23	26	68	85	49	75
115	Girl	18	33	23	43	26	35	66	84	41	76
116	Boy	19	19	24	28	19	16	67	70	43	47
117	Boy	25	34	38	41	23	34	92	98	63	75
118	Girl	23	33	46	37	29	38	80	81	69	70
119	Girl	4	11	17	10	6	21	44	58	21	21
120	Girl	21	31	29	38	36	33	79	72	50	69
121	Boy	32	46	53	56	31	33	95	97	85	102
122	Girl	38	44	41	45	42	44	86	103	79	89
123	Boy	28	40	55	55	33	38	87	100	83	95
124	Girl	20	29	41	42	24	38	92	91	61	71
125	Boy	29	36	43	45	35	35	88	106	72	81
126	Boy	32	43	53	52	37	40	75	92	85	95
127	Girl	21	37	47	54	22	32	87	79	68	91
128	Girl	15	29	33	33	14	27	80	78	48	62
129	Girl	30	36	44	43	33	36	82	87	74	79
130	Girl	13	29	29	46	31	25	87	82	42	75
131	Girl	32	39	38	47	4	40	75	52	70	86
132	Boy	25	35	33	43	16	30	80	77	58	78

TABLE 17 - Continued

Student	Sex	Word Meaning		Paragraph Meaning		Spelling		Language		Total	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
133	Girl	35	39	44	46	38	40	99	111	79	85
134	Boy	14	27	37	40	4	15	75	73	51	67
135	Boy	39	47	56	62	55	56	102	122	95	119
136	Girl	35	44	42	56	38	41	79	104	77	100
137	Girl	20	38	38	42	23	32	92	99	58	80
138	Girl	16	23	33	44	34	38	79	97	49	67
139	Girl	14	25	22	29	23	31	67	70	36	54
140	Girl	39	47	59	61	44	48	119	123	98	108
141	Boy	14	16	16	19	14	15	35	52	25	35
142	Girl	21	37	33	38	21	32	66	85	54	75
143	Boy	34	42	48	34	33	24	92	95	82	76
144	Boy	21	36	35	48	22	34	73	79	56	84
145	Girl	26	40	36	51	39	40	92	94	62	91
146	Boy	16	30	20	29	23	32	65	86	36	59
147	Boy	36	44	51	54	48	53	92	97	87	98

TABLE 18

MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM SCORES - TREATMENT GROUP

Student	Sex	Score	Student	Sex	Score
1	Girl	13	23	Girl	18
2	Girl	13	24	Girl	6
3	Boy	20	25	Girl	18
4	Boy	3	26	Girl	15
5	Boy	18	27	Girl	14
6	Girl	7	28	Girl	10
7	Girl	16	29	Girl	15
8	Girl	18	30	Boy	1
9	Boy	8	31	Girl	19
10	Girl	14	32	Girl	15
11	Boy	18	33	Boy	5
12	Boy	0	34	Girl	4
13	Boy	20	35	Boy	1
14	Boy	1	36	Girl	11
15	Girl	20	37	Girl	4
16	Boy	1	38	Boy	13
17	Boy	16	39	Girl	17
18	Girl	15	40	Boy	1
19	Girl	13	41	Girl	17
20	Girl	6	42	Girl	2
21	Boy	13	43	Boy	8
22	Boy	4	44	Boy	14

TABLE 19

MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM SCORES - CONTROL GROUP

Student	Sex	Score	Student	Sex	Score
45	Boy	4	67	Boy	5
46	Boy	4	68	Girl	20
47	Boy	1	69	Girl	14
48	Girl	9	70	Girl	19
49	Boy	19	71	Girl	4
50	Girl	15	72	Boy	18
51	Boy	10	73	Boy	17
52	Boy	6	74	Girl	19
53	Boy	18	75	Girl	4
54	Boy	1	76	Girl	2
55	Girl	17	77	Boy	8
56	Girl	17	78	Girl	19
57	Girl	6	79	Boy	20
58	Girl	2	80	Boy	0
59	Girl	20	81	Boy	6
60	Boy	17	82	Girl	9
61	Boy	0	83	Boy	19
62	Girl	1	84	Girl	1
63	Girl	1	85	Girl	19
64	Girl	15	86	Girl	20
65	Boy	0	87	Girl	19
66	Boy	1	88	Boy	1

TABLE 19 - Continued

Student	Sex	Score	Student	Sex	Score
89	Boy	6	111	Girl	15
90	Girl	5	112	Girl	7
91	Girl	19	113	Girl	17
92	Girl	18	114	Boy	19
93	Boy	5	115	Girl	20
94	Boy	0	116	Boy	9
95	Girl	20	117	Boy	20
96	Boy	15	118	Girl	20
97	Boy	19	119	Girl	0
98	Girl	19	120	Girl	12
99	Girl	16	121	Boy	20
100	Girl	10	122	Girl	19
101	Boy	12	123	Boy	4
102	Girl	6	124	Girl	19
103	Boy	20	125	Boy	10
104	Girl	10	126	Boy	5
105	Boy	20	127	Girl	20
106	Girl	16	128	Girl	12
107	Boy	18	129	Girl	13
108	Boy	20	130	Girl	3
109	Girl	19	131	Girl	17
110	Boy	18	132	Boy	19

TABLE 19 - Continued

Student	Sex	Score	Student	Sex	Score
133	Girl	20	141	Boy	0
134	Boy	13	142	Girl	19
135	Boy	20	143	Boy	2
136	Girl	19	144	Boy	19
137	Girl	20	145	Girl	20
138	Girl	18	146	Boy	15
139	Girl	17	147	Boy	20
140	Girl	20			

TABLE 20

COOPERSMITH SELF-ESTEEM INVENTORY SCORES - TREATMENT GROUP

Student	Sex	Pretest	Post Test	Student	Sex	Pretest	Post Test
1	Girl	24	20	23	Girl	22	23
2	Girl	26	24	24	Girl	37	36
3	Boy	30	40	25	Girl	43	48
4	Boy	24	48	26	Girl	32	33
5	Boy	36	33	27	Girl	30	31
6	Girl	29	34	28	Girl	21	31
7	Girl	33	24	29	Girl	52	46
8	Girl	52	42	30	Boy	42	43
9	Boy	39	43	31	Girl	42	36
10	Girl	24	29	32	Girl	24	24
11	Boy	36	42	33	Boy	20	23
12	Boy	28	28	34	Girl	24	25
13	Boy	47	47	35	Boy	29	41
14	Boy	36	32	36	Girl	28	33
15	Girl	33	33	37	Girl	30	30
16	Boy	36	32	38	Boy	35	24
17	Boy	48	43	39	Girl	35	31
18	Girl	38	50	40	Boy	26	36
19	Girl	20	29	41	Girl	31	45
20	Girl	34	39	42	Girl	38	21
21	Boy	30	28	43	Boy	42	29
22	Boy	36	42	44	Boy	35	37

TABLE 21

COOPERSMITH SELF-ESTEEM INVENTORY SCORES - CONTROL GROUP

Student	Sex	Pretest	Post Test	Student	Sex	Pretest	Post Test
45	Boy	28	31	67	Boy	22	21
46	Boy	28	26	68	Girl	45	35
47	Boy	42	40	69	Girl	40	20
48	Girl	34	25	70	Girl	43	31
49	Boy	47	43	71	Girl	21	14
50	Girl	33	24	72	Boy	38	32
51	Boy	27	31	73	Boy	31	26
52	Boy	25	21	74	Girl	37	29
53	Boy	40	39	75	Girl	27	21
54	Boy	28	33	76	Girl	37	38
55	Girl	27	25	77	Boy	19	25
56	Girl	31	38	78	Girl	47	38
57	Girl	27	19	79	Boy	26	20
58	Girl	31	32	80	Boy	31	29
59	Girl	38	52	81	Boy	33	28
60	Boy	28	29	82	Girl	24	16
61	Boy	33	33	83	Boy	36	28
62	Girl	35	27	84	Girl	12	9
63	Girl	34	31	85	Girl	40	44
64	Girl	45	47	86	Girl	45	44
65	Boy	27	31	87	Girl	44	38
66	Boy	26	22	88	Boy	23	26

TABLE 21 - Continued

Student	Sex	Pretest	Post Test	Student	Sex	Pretest	Post Test
89	Boy	29	26	111	Girl	23	27
90	Girl	36	33	112	Girl	27	38
91	Girl	42	43	113	Girl	28	32
92	Girl	24	26	114	Boy	32	34
93	Boy	41	39	115	Girl	18	17
94	Boy	23	10	116	Boy	31	39
95	Girl	17	21	117	Boy	42	48
96	Boy	24	19	118	Girl	15	23
97	Boy	44	42	119	Girl	25	24
98	Girl	37	42	120	Girl	32	27
99	Girl	38	38	121	Boy	36	27
100	Girl	28	27	122	Girl	26	45
101	Boy	39	24	123	Boy	45	48
102	Girl	31	29	124	Girl	37	32
103	Boy	46	42	125	Boy	39	44
104	Girl	21	23	126	Boy	37	37
105	Boy	49	40	127	Girl	39	36
106	Girl	46	29	128	Girl	30	28
107	Boy	42	48	129	Girl	38	31
108	Boy	42	36	130	Girl	38	34
109	Girl	36	39	131	Girl	29	20
110	Boy	30	34	132	Boy	44	39

TABLE 21 - Continued

Student	Sex	Pretest	Post Test	Student	Sex	Pretest	Post Test
133	Girl	44	47	141	Boy	18	24
134	Boy	32	30	142	Girl	34	36
135	Boy	30	36	143	Boy	13	22
136	Girl	46	44	144	Boy	30	34
137	Girl	40	43	145	Girl	31	31
138	Girl	28	17	146	Boy	38	39
139	Girl	35	21	147	Boy	27	30
140	Girl	34	34				

TABLE 22

INDIVIDUAL WISCONSIN READING DESIGN COMPREHENSION SCORES - TREATMENT GROUP

Student	Sex	Skills Taught	Skills Passed	Percent Passed	Student	Sex	Skills Taught	Skills Passed	Percent Passed
1	Girl	2	2	100	23	Girl	1	1	100
2	Girl	3	2	67	24	Girl	1	1	100
3	Boy	1	1	100	25	Girl	1	1	100
4	Boy	4	4	100	26	Girl	2	2	100
5	Boy	1	1	100	27	Girl	1	1	100
6	Girl	1	1	100	28	Girl	1	1	100
7	Girl	1	1	100	29	Girl	2	2	100
8	Girl	1	1	100	30	Boy	2	2	100
9	Boy	1	1	100	31	Girl	1	1	100
10	Girl	3	2	67	32	Girl	1	1	100
11	Boy	1	1	100	33	Boy	3	3	100
12	Boy	3	3	100	34	Girl	2	0	0
13	Boy	1	1	100	35	Boy	2	1	50
14	Boy	5	1	20	36	Girl	3	3	100
15	Girl	1	1	100	37	Girl	2	2	100
16	Boy	1	1	100	38	Boy	1	1	100
17	Boy	1	1	100	39	Girl	3	3	100
18	Girl	1	1	100	40	Boy	3	3	100
19	Girl	3	3	100	41	Girl	1	1	100
20	Girl	1	1	100	42	Girl	3	3	100
21	Boy	3	1	33	43	Boy	2	0	0
22	Boy	4	4	100	44	Boy	2	1	50

TABLE 23

WISCONSIN READING DESIGN COMPREHENSION SCORES BY SKILL LEVEL - TREATMENT GROUP

Skill	Number in Skill Group	Number Passing Skill	Percent Passed
Level C Skills Taught			
Before or After	23	18	78%
Cause-Effect	5	5	100%
Level D Skills Taught			
Topic Sentences	21	19	90%
Explicit Sequence	12	9	75%
Making Deductions	3	2	67%
Clauses	5	4	80%
Level E Skills Taught			
Implicit Sequence	4	3	75%
Context Clues	12	11	92%

APPENDIX B

SELECTED WISCONSIN READING DESIGN RESOURCE FILES

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SKILL 2

Determines Sequence: Event Before or After

NOTE: A concept that is requisite to mastery of this sequencing skill is identified on this page. Concept Development Activities 1-3 familiarize the child with *before* and *after* terminology. The number of activities selected for instruction from the concept development activities will vary according to class and/or individual needs.

The skill development activities (Activities 4-11) teach the skill as defined by the behavioral objective. The number of activities selected for instruction from the skill development activities will vary, too, according to class and/or individual needs. An attempt should be made to incorporate all aspects of the sequencing skill into the two- to three-week instructional period.

CONCEPT DEVELOPMENT ACTIVITIES

Concept: The child understands the concepts before *and* after.

1 Materials: None.

Procedure: The teacher tells the child to do three things—e.g., first stand up, then whistle, and finally close his eyes. The teacher watches the child perform the actions and then asks what the child did before he closed his eyes, after he stood up, etc.

2 Materials: Chalkboard, chalk.

Procedure:
a. The teacher writes three or four words on the board (e.g., three, four, five, six) and asks the child to identify the word(s) that come before and/or after specific words on the board.
b. The child may generate his own list of words by indicating to the teacher words that should be written just before or after specific words on the board.

3 Materials: Chalkboard, chalk.

Procedure:

a. The teacher draws three or four figures on the board —e.g.,  . He asks the child to identify the figure that comes just before and/or after specific figures.
b. The teacher then writes three or four sentences describing events beside each figure (e.g., John got up. He got dressed. He ate breakfast. John went to school). The teacher asks the child to identify the sentence that comes just before and/or after specific sentences.

SKILL DEVELOPMENT ACTIVITIES

***Rationale:** The child learns to identify events that occur before or after specific events in a selection.*

4 Materials: Stories, gameboard 1, events recorded on colored cardboard strips. (The events for each story can be written on cardboard of different colors.)

Procedure:

a. The teacher reads the first story to the child. The child arranges the color-coded event strips for that story on the gameboard, placing the first event to the left of the middle event and the last event to the right. The teacher then asks the child to identify the events that happen right before and/or after specific events.
b. The teacher reads the remaining stories following the same procedure. The child's answers should be discussed.

Correct sequential orders: 1. the crowd yelled wildly, the band played, the lights went out; 2. the clock struck one, the church bells rang, Mary pulled up the covers and slept; 3. watched the monkeys play, listened to angry growls, saw a bear with a caught paw; 4. Jack saw the cattle run through the pass, lightning flashed, Jack rode into the canyon; 5. Joe cleaned the fish, two friends came by, Joe went back to the lake.

Stories:	Events:
1. The crowd yelled wildly. Then the band began to play. Next, the team lined up. Suddenly the lights went out and the game had to be played later.	the crowd yelled wildly the lights went out

2. The clock struck one. Mary heard the bells in the church steeple begin to chime. She pulled up the covers and went to sleep.	the clock struck one Mary pulled up the covers and slept
3. At the zoo Marvin watched the monkeys play hide-and-seek in their tunnels. All of a sudden he heard some angry growls in the distance. He ran toward the noise and saw that a bear had caught her paw in the bars of the cage.	watched the monkeys play saw a bear with a caught paw
4. Jack saw the cattle run through the narrow pass to get to the water. Suddenly a bolt of lightning flashed across the sky and thunder roared. Jack rode down into the canyon to stop the cattle before they began to stampede.	Jack saw the cattle run through the pass Jack rode into the canyon
5. Joe sat in his back yard cleaning the fish he had caught. Then two of his friends came by and said that the fish were biting again at the lake. So Joe jumped on his bike and hurried back to the lake.	Joe cleaned the fish Joe went back to the lake

5 Materials: Story, chalkboard, chalk.

Procedure: The teacher reads a story to the class. The children identify three or four events that happen in the story. The teacher writes the events in order on the chalkboard. He then selects one event from the story and asks the children to tell what happened just before and just after the event.

6 Materials: Story, envelope, events, paper.

Procedure:

a. The teacher writes the story on the front of an envelope. Each of the events from the story is written on a separate strip of paper, and the strips are placed in the envelope.
b. The child reads the story on the envelope, then turns the envelope over and takes out the event strips. He orders the event strips to reflect their order in the story. The teacher names an event and the child identifies the event strip that occurs immediately before or after it. He checks his answer with the story on the envelope.

Story and events in correct order:

Mother took a cake from the box. She put eight candles on the cake. She lit the candles. The boys and girls sang the "Happy Birthday" song.	took cake out of the box put candles on the cake lit the candles boys and girls sang "Happy Birthday"

7 Materials: Story, chalkboard, chalk.

Procedure: The teacher reads a story to the children. He then lists the events from the story on the board. He selects one of the events and asks the children to identify the event which happened just before or just after the selected event.

8 Materials: Mimeographed copies of worksheet 1, stories, stimulus sentences, red and blue crayons.

Procedure: The teacher reads the first story to the children. He then reads the stimulus sentence for the story. The children put a red X on the event which happened just before the event read by the teacher. The children put a blue X on the event which happened just after the event read by the teacher. The remaining stories are read following the same procedure.

Stories:	Stimulus sentences:
1. Billy picked up his books and started out the door. On the sidewalk he slipped and fell on the ice. Billy's books and papers went flying. Billy picked himself up and went on to school.	Billy slipped and fell on the ice.

2. Jane pressed her nose against the glass counter of the ice-cream shop. Then she handed the man a dime. Her dime fell into the mint ice cream. The man got the dime and washed it off.	A dime fell into the ice cream
3. The bull pawed the ground with his feet. Then he rushed toward the cowboy. Up and over the fence went the cowboy, just in time to escape the charging animal. The bull walked away mad.	The bull ran at the cowboy.

Answers: red—1. a; 2. b; 3. a.
blue—1. b; 2. c; 3. b.

☆ 9 Materials: Stories written on one side of 5" x 7" colored cardboard strips, questions and answer choices written on other side (laminate strips with plastic), felt tip marker.

Procedure:
a. The child reads a story card. He turns the card over and reads the question and answer choices. The child circles the letter of the correct answer with the felt tip marker. He checks his answer with the teacher, and then erases it with a wet cloth.
b. Additional stories may be read following the same procedure.

Answers: I. b; II. b; III. b; IV. a; V. a; VI. c; VII. c; VIII. b; IX. c.

Stories (front):

I
The two boys blew up the inner tubes. Then they put the tubes into the water. Next, they sat on the inner tubes. They stayed on the tubes all afternoon.

Questions and answer choices (back):

What did the boys do just *before* they sat on the inner tubes?

a. They blew up the inner tubes.
b. They put the inner tubes into the water.
c. They stayed on the tubes all afternoon.

C.2
Skill 2

Comprehension
Level C

II

The men each took a card with a number. They put their names on their cards. Then they put the cards into a large box. Card number two won the new red car.

What happened just *before* the men put the cards in the box?

a. The men took a card with a number.
b. They wrote their names on the cards.
c. Card number two won a red car.

III

The man put the hot rolls out to cool. He put frosting on some. He put sugar on others. Then he put the rolls in a large case. He placed a sign next to them.

What did the man do just *before* he put the rolls in the case?

a. He put rolls out to cool.
b. He poured sugar on some rolls.
c. He put a sign by the rolls.

IV

The bell rang. All the workers left their desks. They put on their coats. They walked out the doors and got into their cars.

What happened just *before* the people left their desks?

a. The bell rang.
b. The workers put on their coats.
c. They got into their cars.

V

Billy went to get a drink of water. Just then Mary came back. She sat in Billy's seat. Billy came back but he had no place to sit. So Billy sat on the floor.

What happened just *before* Mary came back?

a. Billy went to get a drink.
b. Mary sat in Billy's chair.
c. Billy sat on the floor.

VI

The boys and girls opened their songbooks. Then the teacher started to play the piano. The boys and girls sang the song with the teacher. Then they sang the song alone.

What happened just *after* the children sang with the teacher?

a. They opened their books.
b. The teacher played the piano.
c. They sang all alone.

VII

The boys climbed onto their bikes. Jerry started down the road. All the boys went fast to keep up. They rode up a large hill. They rode across a bridge. Finally they all stopped to rest.

What did the boys do just *after* they rode across a bridge?

a. They got on their bikes.
b. They went up a hill.
c. They rested.

VIII

The baby began to cry. He kicked his feet and waved his arms. His face became very red. His mother gave him a bottle of milk. Soon the baby went back to sleep.

What did the baby do just *after* his face turned red?

a. He waved his arms and feet.
b. He drank his milk.
c. He went to sleep.

IX

A man opened the door of the shop. A lady came running with a broom. A rat ran out from under some boxes. He jumped over the counter and ran out of the store.

What happened just *after* the rat came out from under some boxes?

a. The man opened the door.
b. The lady got a broom.
c. The rat ran out of the store.

☆10 Materials: Stories recorded on tape, cassette recorder, mimeographed copies of worksheet 2, pencils.

VI The boys and girls opened their songbooks. Then the teacher started to play the piano. The boys and girls sang the song with the teacher. Then they sang the song alone.	What happened just *after* the children sang with the teacher? a. They opened their books. b. The teacher played the piano. c. They sang all alone.
VII The boys climbed onto their bikes. Jerry started down the road. All the boys went fast to keep up. They rode up a large hill. They rode across a bridge. Finally they all stopped to rest.	What did the boys do just *after* they rode across a bridge? a. They got on their bikes. b. They went up a hill. c. They rested.
VIII The baby began to cry. He kicked his feet and waved his arms. His face became very red. His mother gave him a bottle of milk. Soon the baby went back to sleep.	What did the baby do just *after* his face turned red? a. He waved his arms and feet. b. He drank his milk. c. He went to sleep.
IX A man opened the door of the shop. A lady came running with a broom. A rat ran out from under some boxes. He jumped over the counter and ran out of the store.	What happened just *after* the rat came out from under some boxes? a. The man opened the door. b. The lady got a broom. c. The rat ran out of the store.

10 Materials: Stories recorded on tape, cassette recorder, mimeographed copies of worksheet 2, pencils.

Answers: 1. b; 2. a; 3. a; 4. b; 5. a; 6. c; 7. c.

Stories and questions:

1. Barbara watched the Spinning Mouse. Then she rode the Ferris wheel. After that Barbara went through the Spook House. Later she met a friend.

   What did Barbara do just *before* she went through the Spook House?

2. Peter poked the fire with a stick. He used the stick to roast a hot dog. Then he toasted some marshmallows for dessert. Finally he tossed some more wood on the fire.

   What did Peter do just *before* he roasted a hot dog?

3. The boys saw a dim red light. Soon they heard a train scream past them. Then they noticed a flashing green light. Then they heard the train's whistle.

   What did the boys do just *after* they saw the dim red light?

4. The cowboys tell a wild story about the Ironwood train. They say that the train went slowly up Wishbone Mountain. Then it crossed the old bridge. Then it went through Copper Gulch. At the end of the gulch it went into a large tunnel. When the train came out, it was empty. No one ever saw the people on that train again.

   What did the train do just *after* it crossed the bridge?

5. Mother was just finishing hanging the clothes on the clothes-line. Suddenly, she saw a fire truck stop next door. Mother got so upset that she dropped the clothes basket on her toe. She saw smoke pouring out of her neighbor's windows.

   What did Mother do just *after* she hung up some clothes?

6. Patches did not like to take baths. Jack struggled to lift the big dog into the tub. Then Jack washed Patches. The slippery soap dropped in the bucket. Jack then turned on the faucet to rinse Patches.

   What happened just *after* Jack dropped the soap?

C.2
Skill 2

Comprehension
Level C

7. Tiny drove to the forest. Then he ate breakfast. Next he checked his maps to see where he had to pick up the logs. After that he decided to stop and fish for a few minutes.

What did Tiny do just *after* he checked his map?

C.2
Activity 4
Gameboard 1

Comprehension
Level C
Skill 2

the band played

the church bells rang

listened to angry growls

lightning flashed

two friends came by

C.2
Activity 8
Worksheet 1

Comprehension
Level C
Skill 2

DIRECTIONS: Listen very carefully to the story your teacher reads. Then put a red X on the event that happened just before the event on the far left. Put a blue X on the event that happened just after the event on the far left.

1. Billy slipped and fell on the ice.	a. Billy left home with his books.	b. The books and papers flew all over.	c. Billy picked himself up.

2. A dime fell into the ice cream.	a. Jane looked at all the ice cream.	b. Jane handed the man the dime.	c. The man washed the dime.

3. The bull ran at the cowboy.	a. The bull pawed the ground.	b. The cowboy climbed over the fence.	c. The bull walked away mad.

C.2
Activity 10
Worksheet 2

Comprehension
Level C
Skill 2

DIRECTIONS: Listen to the stories on the tape. Then answer the question for each story. Your answers will be discussed. Fill in the circle next to the correct answer for each question.

1. ⓐ watched a rabbit
   ⓑ heard a shot
   ⓒ flew to the mountains

2. ⓐ went to buy some meat
   ⓑ put the meat on to cook
   ⓒ went for catsup

3. ⓐ cut steaks
   ⓑ called for more sausage
   ⓒ put fresh chickens in the case

4. ⓐ pounded a nail in
   ⓑ felt the plane move
   ⓒ put his seat belt on

5. ⓐ put straw on the floor
   ⓑ found a sore
   ⓒ fixed a sore

C.2
Activity 11
Worksheet 3

Comprehension
Level C
Skill 2

DIRECTIONS: Listen to the stories and questions read by the teacher. Then fill in the circle next to the best answer for each question.

1. What did Barbara do <u>just before</u> she went through the Spook House?
   - ⓐ watched the Spinning Mouse
   - ⓑ rode the Ferris Wheel
   - ⓒ met a friend

2. What did Peter do <u>just before</u> he roasted a hot dog?
   - ⓐ poked the fire
   - ⓑ toasted marshmallows
   - ⓒ put wood on the fire

3. What did the boys do <u>just after</u> they saw the dim red light?
   - ⓐ heard a train go past them
   - ⓑ saw a flashing green light
   - ⓒ heard a whistle

4. What did the train do <u>just after</u> it crossed the bridge?
   - ⓐ went up Wishbone Mountain
   - ⓑ went through Copper Gulch
   - ⓒ went into a large tunnel

5. What did Mother do <u>just after</u> she hung up some clothes?
   - ⓐ saw a fire truck next door
   - ⓑ dropped the clothes basket
   - ⓒ saw smoke

6. What happened <u>just after</u> Jack dropped the soap?
   - ⓐ Jack put Patches in the tub
   - ⓑ Jack washed Patches
   - ⓒ Jack turned the faucet on

7. What did Tiny do <u>just after</u> he checked his map?
   - ⓐ drove into the forest
   - ⓑ ate breakfast
   - ⓒ fished

SKILL 3

Uses Logical Reasoning: Determines Cause-Effect Relationships

CONCEPT DEVELOPMENT ACTIVITIES

***Concept:** The child understands the concept of cause-effect.*

1 Materials: Ball and bat, glass, pitcher of water, mobile.

Procedure:

a. The teacher explains to the children that they are going to do some simple experiments. He then throws the ball into the air and hits it with the bat. The teacher asks the children to explain what the ball did. The children should respond that the ball flew through the air. He then asks the children what caused the ball to fly through the air. The children should respond that he hit the ball with the bat and that that made the ball fly through the air. The teacher then states that hitting the ball with the bat *caused* the ball to fly through the air.

b. The teacher fills a glass with water so that the water overflows. He then asks the children to explain what the water did. The children should respond that the water ran out of the glass onto the table. The teacher asks the children what caused the water to run out of the glass onto the table. The children respond that filling the glass with too much water caused the water to run out of the glass and onto the table. The teacher reiterates that pouring too much water into the glass *caused* the water to run out of the glass and onto the table.

c. The teacher blows on a mobile. He then asks the children to explain what the mobile is doing. The children should respond that the mobile is moving. The teacher then asks the children what caused the mobile to move. The children should respond that air or blowing on the mobile caused it to move. The teacher reiterates that blowing on a mobile *caused* it to move. The teacher should then explain that many things that happen daily, happen as a result of something else. He further explains that they are going to be studying some sentences that describe events that occur as a result of something else.

2 Materials: Cause-effect relationships, chalkboard, chalk.

Procedure: The teacher puts the first cause-effect relationship on the chalkboard. (A. The farmer shook the apple tree. B. Some apples fell off the apple tree.) He then reads the statements out loud as the children read them to themselves. He asks the children what the farmer did. The children should respond that the farmer shook the apple tree. The teacher then asks what happened as a result of the farmer's shaking the apple tree. The children should respond that some apples fell off the tree. The teacher says he's interested in knowing whether, because the first sentence happened, the second would happen too. He asks the children to look at sentence B. (Some apples fell off the apple tree.) He then asks the children why apples would fall off a tree. The children should respond, "They fall off when they're ripe; they fall off when they're pulled; they fall off when the tree is bumped or shaken." The teacher then asks if the first sentence, "The farmer shook the apple tree," answers the question why apples would fall off a tree. The children respond that it does and conclude that if sentence A happened, sentence B would probably happen too. The teacher writes the other two cause-effect relationships on the board, following the same procedure.

Cause-effect relationships:

A. The farmer shook the apple tree.
B. Some apples fell off the apple tree.

A. Mrs. Olson forgot her umbrella.
B. When it rained, she got wet.

A. The coffee was too hot.
B. Mother burned her tongue.

3 Materials: Cause-effect relationships, chalkboard, chalk.

Procedure: The teacher writes the first cause-effect relationship on the board. (A. Judy spilled her soup. B. She has a spot on her skirt.) The teacher asks the children to read the first sentence to themselves. He then asks the children what might happen if Judy spilled her soup. The teacher should point out that there are many things that might happen as a result of Judy spilling her soup—soup on the floor, soup on her dress, soup on the table, etc. The teacher then has the children read sentence B. (She has a spot on her skirt.) He then asks

the children to think of all the many things that may happen to cause Judy to have a spot on her skirt. The teacher should elicit a variety of responses—someone may have splashed mud on her, she may have spilled soda, she may have spilled soup. The teacher leads the children to the understanding that many things could happen as a result of sentence A and that sentence B could happen as a result of many different things. He points out, however, that the children should be interested only in the two sentences and the relationship that has been established. Given the information that Judy spilled her soup, is it possible that Judy has a spot on her skirt? The children should respond that it is possible. The teacher points out that when someone spills something, it often happens that they spill it on themselves. The teacher then writes the remaining cause-effect relationships on the board following the same procedure. The children's responses should be discussed.

Cause-effect relationships:

A. Judy spilled her soup.
B. She has a spot on her skirt.

A. There was a hole in the roof.
B. Water ran down the kitchen wall.

A. Paint dripped from her brush.
B. Jane is washing her arm.

A. The batter hit a home run.
B. The crowd roared.

A. There is a hole in the gas tank.
B. The car stopped.

SKILL DEVELOPMENT ACTIVITIES

***Rationale:** The child learns to identify whether the relationship between two statements is cause-effect.*

4 Materials: Sentences, chalkboard, chalk.

Procedure: The teacher puts the sets of sentences on the board. The children read each set and decide if the first sentence would cause the second sentence in each set to happen. The teacher asks individual students to explain their answers.

Answers: 1. no; 2. yes; 3. yes; 4. no; 5. no.

Sample sentences:

1. A. The bird was a robin.
   B. He fell out of the nest.
2. A. Sandy has a cold.
   B. She is staying home from school today.
3. A. Phillip missed the bus.
   B. He was late for school today.
4. A. The mailman is six feet tall.
   B. He picks up our letters.
5. A. Joyce is seven years old.
   B. She likes to swim.

5 Materials: Sentences written on 4" x 12" cards.

Procedure:
a. The children are divided into two teams. Each team forms a line. Each child on a team is given an A sentence card.
b. The teacher places the B sentence cards along the board or wall that the two teams are facing.
c. The first child from team 1 reads his sentence card aloud (with help from the teacher if necessary). He then goes to the board and is given one minute to find the sentence that results from the action expressed on his card. If he finds the correct sentence card, his team earns a point. If not, he goes to the end of the line and the first player on team 2 follows the same procedure. Play alternates between teams. The team with the most points at the end of the game wins.

Sample A sentences:	Sample B sentences:
The egg fell off the table.	It cracked.
She stepped in the mud.	Her shoes were dirty.
She cut her finger.	She got out the bandages.
The gas tank was empty.	He stopped for gas.
Bill was thirsty.	He drank some water.

☆ 6 Materials: Gameboard 1, statements recorded on cardboard strips.

Procedure: The child reads the statements on the cardboard strips. He decides which statements would cause the statements on the

cardboard square to happen. He places the strips beside the appropriate statements on the cardboard square. The child's answers should be discussed.

Statements:

Jane's shoes were full of mud.
The ball bounced into the street.
The glass was too full.
It was snowing.

Answers: Jane's shoes were full of mud—Mother scolded; The ball bounced into the street—The car stopped quickly; The glass was too full—There was a puddle of Kool-aid on the table; It was snowing—Mary took her boots.

☆ 7 Materials: Mimeographed copies of worksheets 1 and 2, pencils.

Procedure: The teacher does the example with the children. The children then do the worksheets independently. They mark their answers by filling in the circle under yes or no for each item. Their answers are discussed.

Answers: Example, no; 1. no; 2. yes; 3. yes; 4. no; 5. no; 6. yes; 7. no; 8. yes; 9. no; 10. no; 11. no; 12. yes; 13. no; 14. yes; 15. no; 16. no; 17. yes; 18. no; 19. no; 20. no.

C.3
Activity 6
Gameboard 1

Comprehension
Level C
Skill 3

Mother scolded.

The car stopped quickly.

There was a puddle of
Kool-aid on the table.

Mary took her boots.

C. 3
Activity 7
Worksheet 1

Comprehension
Level C
Skill 3

DIRECTIONS: Read each set of sentences. Then decide whether sentence A would cause sentence B to happen. Mark your answer by filling in the circle under Yes or No.

Example	Would A cause B to happen? Yes	No
A. John is sick. B. He is four years old.	○	○

		Would A cause B to happen? Yes	No
1.	A. Karl bought new skates. B. He went swimming.	○	○
2.	A. The forest was on fire. B. The animals ran out of the woods.	○	○
3.	A. The brake let go. B. The wagon rolled down the hill.	○	○
4.	A. Martha is afraid of the dark. B. Martha sat in the water.	○	○
5.	A. He painted the boat. B. The boat sank.	○	○
6.	A. Heavy winds knocked down a bridge. B. There is a long line of cars on the freeway just before the bridge.	○	○
7.	A. Eric had his picture taken. B. He has a new tooth.	○	○
8.	A. The time ran out on the meter. B. The policeman is putting a ticket on Joe's car.	○	○
9.	A. The children went to the zoo. B. The bear was gone.	○	○

C.3
Activity 7
Worksheet 2

Comprehension
Level C
Skill 3

		Would A cause B to happen?	
		Yes	No
10.	A. Mary rode her bike to school. B. She is in the third grade.	○	○
11.	A. The shore was muddy. B. The river ran fast.	○	○
12.	A. Sue spilled her milk. B. Mother is washing the floor.	○	○
13.	A. The snowman was under a tree. B. He melted.	○	○
14.	A. Phil tripped over a log. B. He lost the race.	○	○
15.	A. The horse held his tail high. B. Mary fell off him.	○	○
16.	A. The trunk was open. B. The car was hard to start.	○	○
17.	A. The school bell rang. B. The children entered the building.	○	○
18.	A. The water was deep. B. The boat turned over.	○	○
19.	A. Mother closed the drapes. B. The window broke.	○	○
20.	A. The cat likes to eat meat. B. The dog is chasing the cat.	○	○

SKILL 1

Identifies a Topic Sentence

CONCEPT DEVELOPMENT ACTIVITIES

***Concept:** The child learns that the main idea of a paragraph is often expressed in a topic sentence.*

1 Materials: Paragraphs, chalkboard, chalk.

Procedure: The teacher writes the first paragraph on the chalkboard. He develops the concept that a paragraph usually consists of several sentences, all about one topic. He points out that, very often, what the paragraph is all about—its "topic"—is expressed in one sentence, the "topic sentence." The children and the teacher read the paragraph on the chalkboard. The teacher asks the children what the paragraph is about. He then asks the children to identify the one sentence in the paragraph that tells what the paragraph is all about. The teacher and the children discuss the remaining paragraphs following the above procedure.

Answers: 1. Building a log cabin took many hours of work; 2. This was a great Fourth of July parade; 3. Keeping fit is important for each of us.

Paragraphs:

1. Building a log cabin took many hours of work. First, many large trees had to be cut dow... Then the settlers trimmed each tree. They took them to where the cabin would be built. Usually it took several people to lift each log into place. The logs were so rough that there were often open spaces. The settlers filled in these spaces with mud or clay.
2. The high school band marched past playing a lively march. Tom and his friends and hundreds of other people watched from the sidewalk. One by one the red, white, and blue floats passed by. When the clowns came, the people laughed and cheered. A sad-looking clown stopped near Tom. He gave Tom a piece of candy. This was a great Fourth of July parade!
3. Keeping fit is important for each of us. Young people take part in many active sports. Older people often like quieter types of exercise. For any age a balanced diet and plenty of rest are also important.

2 Materials: Mimeographed copies of worksheet 1, pencils.

Procedure: The teacher asks the children to read the first paragraph silently. When they have finished reading, he asks them to decide what the entire paragraph is about. He then reads the first sentence again and asks if that sentence tells what the entire paragraph is about. He reads the second sentence and asks if that sentence tells what the entire paragraph is about. He continues through the paragraph sentence by sentence until the topic sentence is identified. The children underline the correct topic sentence for the paragraph. The teacher and children go through the remaining paragraphs following the above procedure. The correct topic sentence for each paragraph and the difference between the topic sentence and the other sentences should be discussed.

Answers: 1. Each night Paul had many dreams; 2. Billy and Mike found many uses for the large boxes; 3. The heavy storm ended quickly; 4. Mary enjoys adding up her savings.

☆3 Materials: Mimeographed copies of worksheets 2 and 3, pencils.

Procedure: The teacher does the example item with the children. He emphasizes that every sentence in the paragraph should be about the idea or topic presented in the topic sentence. The children do the worksheets independently. Their paragraphs should be read to the class and discussed.

Note: The children will probably include the topic sentence at the beginning of each paragraph. The teacher should point out that the topic sentence sometimes occurs at the end of a paragraph or in the middle. The teacher may find it helpful to write on the chalkboard some of the children's paragraphs, inserting the topic sentences in the middle as well as at the end of the paragraphs.

SKILL DEVELOPMENT ACTIVITIES

***Rationale:** The child learns to identify the topic sentence of a paragraph.*

☆4 Materials: Mimeographed copies of worksheets 4 and 5, pencils.

Procedure: The teacher does the example with the children. The children do the worksheets independently. Their answers should be discussed.

Answers: Example, a; 1. a; 2. b; 3. b; 4. a; 5. b; 6. b.

5 Materials: 5-10 teacher-prepared paragraphs containing well-defined topic sentences, numbered and posted on the walls around the room; paper; pencils.

Procedure: The children work in pairs. Each pair walks around the room reading the paragraphs attached to the walls. After reading each paragraph, they decide which sentence in the paragraph is the topic sentence. They record their choices on paper. When all the children have read all the paragraphs, the answers are given and discussed. The pair with the most correct wins the game.

☆6 Materials: Mimeographed copies of worksheets 6, 7, and 8; pencils.

Procedure: The teacher does the example with the children. The children then do the worksheets independently. Their answers should be discussed.

Answers: Example, 4; 1. 1; 2. 3; 3. 2; 4. 1; 5. 5; 6. 8; 7. 6; 8. 5; 9. 1; 10. 1.

D.1
Activity 2
Worksheet 1

Comprehension
Level D

1. Each night Paul had many dreams. Some were about monsters. Others were about swimming and camping. In Paul's favorite dreams he was a cowboy. He saw himself riding on a beautiful brown horse. He did all the exciting things cowboys do.

2. Billy and Mike each took a large box into Billy's backyard. First they pretended the boxes were boats. Then they cut a window in each box and made large houses. Later that night the boys put the boxes together to form a train. Billy and Mike found many uses for the large boxes.

3. The heavy storm ended quickly. The blinding rain suddenly stopped falling. The dark clouds moved to the east. The winds became calm. The sun began to shine. In the trees birds began to sing. Children ran outdoors to play in the puddles.

4. Each week Mary opens her fat, pink piggy bank. She empties all the coins out onto her desk. Yesterday there were several pennies, one dime, and two nickels. Mary counted the pennies. There were twenty of them. Altogether the piggy bank held forty cents. Mary enjoys adding up her savings.

D.1
Activity 3
Worksheet 2

Comprehension
Level D
Skill 1

DIRECTIONS: Write a paragraph for each of the topic sentences below. Remember, the topic sentence can be at the beginning, middle, or end of the paragraph. Your teacher will help you spell any words you do not know.

Example

Mary planted a garden.

1. There are many different kinds of trees in our country.

2. Summer is Sally's favorite season.

D.1
Activity 3
Worksheet 3

Comprehension
Level D
Skill 1

3. Policemen help people in many ways.

4. Cars have changed a lot in the last fifty years.

5. Martha brought three kinds of baked goods to the bake sale.

D.1
Activity 4
Worksheet 4

Comprehension
Level D
Skill 1

DIRECTIONS: Read the following paragraphs. Then for each paragraph decide which of the two sentences given is the topic sentence. Fill in the circle next to the correct topic sentence for each paragraph. Remember, the topic sentence may be at the end or the middle of the paragraph as well as at the beginning.

Example

Joe ate too much for dinner. He had pizza, potato chips, four pickles, two cokes, and a cheese sandwich. For dessert he had a banana split.

(a) Joe ate too much for dinner.
(b) For dessert he had a banana split.

1. Julie spent her afternoons teaching her pets to do tricks. She taught her dog to fetch a stick. Her parrot learned to say "cheese, please." After much work on Julie's part, Seal, her cat, learned to "sing" for food.

(a) Julie spent her afternoons teaching her pets to do tricks.
(b) Her parrot learned to say "cheese, please."

2. Adam pounded the lump of clay with his fist until it became soft. He dropped it on the wheel. When the wheel started turning, Adam put his hands on the clay. Adam was making a clay bowl for his sister.

(a) He dropped it on the wheel.
(b) Adam was making a clay bowl for his sister.

3. During the day, Jill goes to the library to read books. She read three books last week. In the evenings she often reads until 11 o'clock. Jill really enjoys reading.

ⓐ She read three books last week.

ⓑ Jill really enjoys reading.

4. Many different kinds of clams live in the oceans. The soft-shell clam lives off the coast of South Carolina. A clam called the Pacific razor clam lives in the California waters. Giant clams are found near Australia.

ⓐ Many different kinds of clams live in the oceans.

ⓑ Giant clams are found near Australia.

5. Martin placed the log on the ground. He cut through the log carefully. He cut a board for a table. After the board was sanded, Martin nailed on four legs. Martin made the table in less than four hours. He painted it and gave it to his sister as soon as it had dried.

ⓐ He cut a board for a table.

ⓑ Martin made the table in less than four hours.

6. Sixty-thousand-year-old pollen grain fossils have been discovered in Mexico. Small ears of corn have been uncovered too. They are about as big as a strawberry and nearly three thousand years old. These discoveries add to the evidence that corn plants may have existed thousands of years ago.

ⓐ They are about as big as a strawberry and nearly three thousand years old.

ⓑ These discoveries add to the evidence that corn plants may have existed thousands of years ago.

D.1
Activity 6
Worksheet 6

Comprehension
Level D
Skill 1

DIRECTIONS: Read the paragraph and then decide which sentence is the topic sentence. Fill in the circle at the beginning of the topic sentence.

Example

① Cotton leaves and stems are put back into the ground to help make the soil richer. ② The cotton bulb is used in making cloth. ③ Even cotton seeds are helpful in producing oils and chemicals. ④ Man makes use of all the parts of the cotton plant.

1. ① The woods were full of insect life. ② A group of beetles were climbing up the bark of an old oak tree. ③ Two grasshoppers were fighting over a leaf. ④ On the ground hundreds of ants were tugging on a piece of dried bread.

2. ① David is often afraid of being attacked by the bears when he visits the zoo. ② He fears being eaten by the crocodiles when he goes to Florida. ③ David is afraid of many animals. ④ Even the neighborhood dogs scare him at times.

3. ① When the cowboy worked on the range, his horse was the only living thing he could talk to. ② The cowboy's best friend was his horse. ③ His horse was his only transportation. ④ With his sharp ears the horse heard things first and warned the cowboy.

D.1
Activity 6
Worksheet 7

Comprehension
Level D
Skill 1

4. ① On a warm, sunny day many people enjoy being near water. ② Young people often spend their time water-skiing. ③ Fishermen relax for hours waiting for a bite. ④ Quiet lakes and fast-moving rivers attract people taking canoe trips.

5. ① Boxcars, flatcars, tank cars, and refrigerator cars make up freight trains. ② Freight trains carry food products or other items needed by people. ③ Coaches, sleeping cars, and diners make up passenger trains. ④ People ride on passenger trains. ⑤ Passenger trains and freight trains are different.

6. ① Mike stopped at the corner. ② He looked up the street. ③ There were no cars coming when he looked. ④ From the other direction he could hear a truck. ⑤ He waited until the truck went by. ⑥ Then he looked both ways again, but saw nothing. ⑦ Mike walked across the street between the two white lines. ⑧ Mike remembered to stop, look, and listen before he crossed the street.

7. ① Hanging lanterns and sheaves of corn decorated the barn. ② The foot-tapping fiddler played "Turkey in the Straw." ③ The dance caller shouted, "Boys, choose your partners!" ④ The girls' full skirts made a rainbow of color as they whirled around. ⑤ Soon the music stopped and the evening was over. ⑥ At the end of the evening, the young people agreed it had been a wonderful square dance.

8. ① The mother turtle digs a hole in the sand or soft earth. ② She lays her eggs in it and then leaves to go about her own business. ③ The sun keeps the eggs warm until the young turtles hatch. ④ The baby turtle somehow knows how to walk and swim and find his own food. ⑤ A baby turtle comes into the world and grows up without his parents.

9. ① Mixing different amounts of red, blue, and yellow together produces every other color that we know of. ② Red plus blue makes purple. ③ Red combined with yellow makes orange. ④ Mixing all of these colors together makes brown. ⑤ An artist can find all different shades of green by combining blue and yellow.

10. ① All birds have certain features in common. ② Every bird has feathers which keep it warm and dry. ③ Although some birds do not fly, all birds have wings. ④ Every bird has a be k which is shaped to help it feed.

SKILL 2

Determines Sequence: Explicit Relationships

NOTE: A concept that is requisite to mastery of this sequencing skill is identified on this page. Concept Development Activities 1-4 familiarize the child with explicit sequential cue words and their meanings. The number of activities selected for instruction from the concept development activities will vary according to class and/or individual needs.

The skill development activities (Activities 5-16) teach the skill as identified by the behavioral objective. The number of activities selected for instruction from the skill development activities will vary, too, according to class and/or individual needs.

CONCEPT DEVELOPMENT ACTIVITIES

***Concept:** The child learns to identify words that indicate sequential relationships.*

1 Materials: Explicit sequence cue words written on cardboard strips—e.g., [first], [last], [then], [next], [finally].

Procedure:

a. The teacher hands the child two or three sequence cue cards—e.g., first, then, and finally. He explains to the child that the sequence of events, or when things happen, in stories can often be determined by looking for specific words in paragraphs or stories. The teacher indicates that the words in the child's hands are specific words that help determine order in stories.
b. The child arranges the words to reflect their sequential order. The teacher and child discuss the sequential connotation of the specific cue words. (For example, "then" indicates that something has happened before; "first" connotes initial; "finally" connotes last event.)
c. The child arranges additional sequence cue cards following the same procedure. The teacher should stress the importance of the cue words in determining order in stories.

2 Materials: None.

Procedure:

a. The teacher tells the child to do two things—e.g., open a window, sharpen a pencil. The teacher emphasizes that the two things are to be done in a special order. The teacher indicates that the two events as stated lack a specific order. He says that adding specific cue words will help determine the order.
b. The teacher says, "Open a window *after* you sharpen a pencil," or "*Before* you sharpen a pencil, open a window." The child does as told. The teacher and child discuss the sequential connotation of the cue words "before" and "after."
c. Additional directions may be given following the above procedure. The teacher should vary the position of "before" and "after" in the directions, so that the child will learn that the cue words occur both at the beginning (of a sentence) and in the middle (of a sentence).

☆ 3 Materials: Mimeographed copies of worksheets 1 and 2, pencils.

Procedure: The children do the worksheets independently. The drawings are identified, and a discussion of the words that indicate sequential relationships should follow.

Drawings: Star; ice-cream cone.

4 Materials: Mimeographed copies of worksheet 3, pencils.

Procedure: The teacher does the example with the children. The children then do the worksheet independently. The teacher may ask what happened first, second, or third for each story. The words that indicate sequential relationships are discussed. The teacher points out how the sequence can be altered by substituting different words that show sequential relationships.

Answers: Example, after; 1. before; 2. first, then; 3. after, next; 4. before, last; 5. before, finally.

SKILL DEVELOPMENT ACTIVITIES

***Rationale:** The child learns to identify the order of events in sentences which have explicit sequential relationships.*

☆ 5 Materials: Sequential stories and statements written on colored cardboard squares and laminated with clear plastic, felt tip marker.

Procedure:

a. The child reads the sequential story cards and marks his answers on the cards with a felt tip marker. He checks his responses with the teacher and then erases his responses with a wet cloth.
b. A discussion of the sequence implied by the specific cue words should follow.

Answers: I. coat, shoes; II. before; III. saw the boat, got in the water; IV. played a song, marched down the street; V. stepped on a thistle, tripped over a stump; VI. flew away from the flower, stung Tommy; VII. heard about Jeff's illness, donated blood; VIII. after; IX. after; X. after.

Sequence cards:

I

Before John took off his shoes, he removed his coat.

First John took off his [shoes / coat].

Then he took off his [shoes / coat].

II

First John put on his coat. Then he put on his hat.

John put on his coat [before / after]

he put on his hat.

III

The beaver saw the boat just before he got in the water.

First the beaver [saw the boat / got in the water].

Then he [saw the boat / got in the water].

IV

Before the band marched down the street, it played a song in front of the school.

The band [marched down the street / played a song] first.

Then it [marched down the street / played a song].

V

After the rabbit stepped on the thistle, it tripped over a stump.

First the rabbit [stepped on a thistle / tripped over a stump].

Then it [stepped on a thistle / tripped over a stump].

VI

The bee flew away from the flower before it stung Tommy.

First the bee [flew away from the flower / stung Tommy].

Then it [flew away from the flower / stung Tommy]

VII

Mr. May donated a pint of blood after he heard that Jeff was ill.

Mr. May [donated blood / heard about Jeff's illness] first.

Then he [donated blood / heard about Jeff's illness].

VIII

First Edith gave a letter to the mailman. Next she took a package from the mailbox.

Edith took the package from the mailbox [before / after] she gave the mailman a letter.

IX

George checked the air pressure in his bicycle tires. Then he fixed the handlebars.

[Before / After] he checked his tires, George fixed his handlebars.

X

When Martha has a cold, she drinks a glass of orange juice. Then she takes two aspirin and goes to bed.

[Before / After] Martha drinks the juice, she takes two aspirin.

☆ 6 Materials: Gameboards 1 and 2, enlarged and laminated; sentences recorded on cardboard strips.

Procedure: The child places the sentence strips beneath the appropriate pictured sequences. The child's responses should be discussed. The sequence implied by "before" and "after" should be pointed out.

Sentences (in correct order):

Gameboard I
Top: Sharon practiced the piano before she ate; Before she ate, Sharon practiced the piano.

Bottom: Sharon practiced the piano after she ate; After she ate, Sharon practiced the piano.

Gameboard II
Top: Allen put the chips in the bowl before he got out the chip dip; Before Allen got out the chip dip, he put the chips in the bowl.

Bottom: Allen put the chips in the bowl after he got out the chip dip; After Allen got out the chip dip, he put the chips in the bowl.

7 Materials: Five to eight simple sequential paragraphs prepared by the teacher. (Sequence should be straightforward—e.g., First Kathy took a glass out of the cupboard. Then she took the milk out of the refrigerator. Finally she poured herself a glass of milk.)

Procedure: The teacher writes the first paragraph on the chalkboard. He asks the children to identify what happened first, second, etc. He then asks the children to identify the words that help indicate the order of events. The teacher then rewrites the same paragraph in mixed sequential order (e.g., Before Kathy took the milk out of the refrigerator, she took a glass out of the cupboard. Then she poured herself a glass of milk). He points out that the order of events isn't always indicated by the position of the event in the paragraph—i.e., the words "Kathy took the milk out of the refrigerator" come before the words "she took a glass out of the cupboard" in the paragraph, but that isn't the order in which the events occurred in the story.

☆ 8 Materials: Short paragraphs (mixed sequential order), pictures of events pasted onto cardboard backing, envelopes.

Procedure:
a. The teacher writes one of the short paragraphs on the front of an envelope. Each of the events from the paragraph is illustrated in a picture, mounted on cardboard backing, and placed in the envelope.
b. The child is asked to read the paragraph on the envelope, then to turn the envelope over and take out the event pictures. The

child identifies the pictured event that happened first, second, third, etc. He checks his answers with the story on the envelope.

9 Materials: Five to eight stories (mixed sequential order).

Procedure: The teacher reads a story that describes a sequence of events to the children. The children indicate orally the event that happens first, second, third, etc. Their responses are discussed.

☆ 10 Materials: Short paragraphs (mixed sequential order), individual events written on strips of paper.

Procedure: The child reads a paragraph. He then examines the corresponding sets of individual events written on separate strips of paper. He identifies the events that happened first, second, third, etc. His responses are discussed. The same procedure is followed for the other paragraphs.

11 Materials: Short paragraphs (mixed sequential order), chalkboard, chalk.

Procedure: The children read a paragraph. The teacher then writes the events in scrambled order on the chalkboard. He designates a child to come to the chalkboard and write a *1* after the event that happened first, a *2* after the event that happened second, etc. His responses are discussed. The same procedure is followed for the other paragraphs.

12 Materials: A three- or four-event story (mixed sequential order), three or four events recorded on 2' x 4' cardboard squares.

Procedure: The teacher places the three- or four-event cards face-down on the floor. He mixes them up. Three or four children each select a card. The teacher reads the story. The children, facing the class, hold up their event cards and arrange themselves in the order in which the events happened in the story. The teacher should stress again that the order of events isn't always indicated by the position of that event in the story. The teacher asks one of the children to step forward. He then asks the other children in the class to identify the events that occur immediately before and after the event on the child's card.

☆ 13 Materials: Snapshots or slides taken of field trips or vacations, projector, paper, pencils.

Procedure:

a. Each child selects two or three pictures or slides. He creates a short story describing the sequence of events pictured. The teacher should encourage the children to use sequential cue words such as *before*, *after*, *first*, *last*, *next*, etc., in their stories.
b. The children share their stories and sets of pictures. They read the stories and arrange the pictured events to reflect their order in the story.

14 Materials: Five to eight stories (mixed sequential order), a set of four cards numbered 1-4 for each child, chalkboard, chalk, scratch paper.

Procedure: The children read a story. The teacher then writes three or four events from the story on the chalkboard. The children, working independently, order the events on scratch paper. The teacher designates an event and asks the children whether it happened first, second, third, etc. The children respond by holding up the appropriate number card. The results of the vote are tallied on the board and discussed. The teacher reads the other paragraphs following the same procedure.

☆ 15 Materials: Mimeographed copies of worksheet 4, pencils.

Procedure: The teacher does the example with the children. The children then do the worksheet independently. Their answers are discussed.

Answers: Example, 3, 1, 2; I. 2, 1, 3; II. 2, 1, 3; III. 1, 3, 2, IV. 2, 3, 1; V. 3, 1, 2.

☆ 16 Materials: Mimeographed copies of worksheets 5 and 6, pencils.

Procedure: The teacher does the example with the children. The children then do the worksheets independently. Their answers are discussed.

Answers: Example, 1, 3, 2; I. 1, 2; II. 2, 1; III. 1, 2; IV. 2, 1; V. 1, 2, 3; VI. 2, 1, 3; VII. 1, 2, 3; VIII. 1, 3, 2; IX. 1, 2, 3; X. 2, 1, 3.

D.2
Activity 3
Worksheet 1

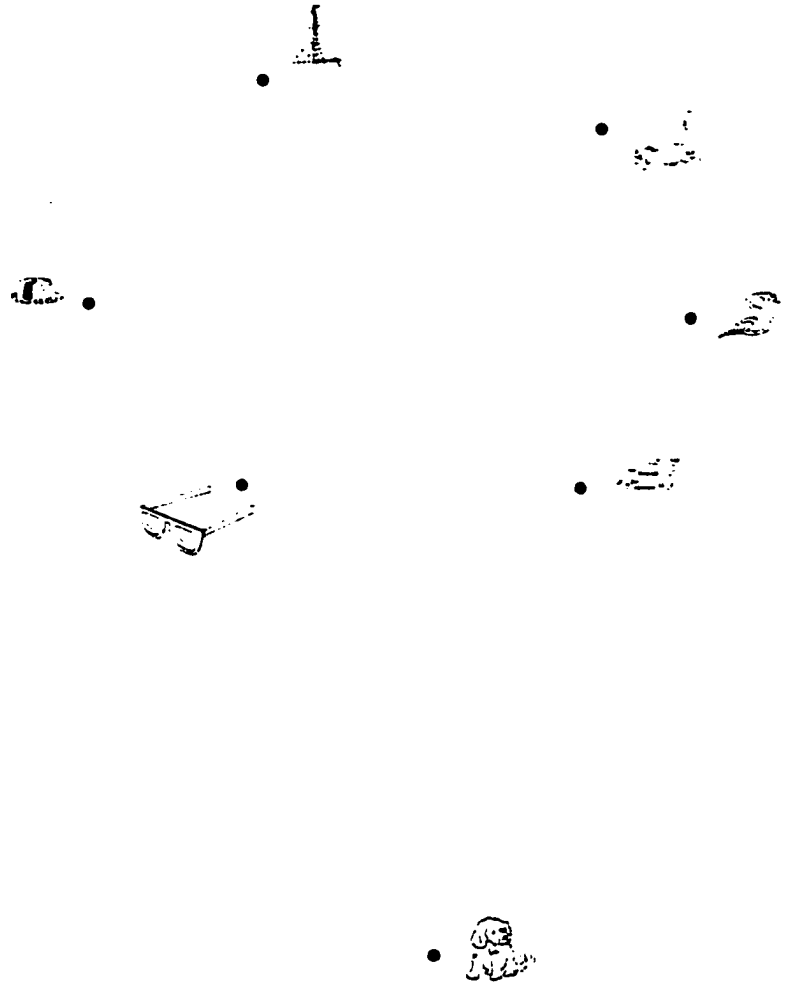
Comprehension
Level D
Skill 2

DIRECTIONS: Follow the directions on the bottom of this and the next worksheet to make a picture. Read the underlined words carefully.

First, put your pencil on the dot next to the flower. Then draw a line to the dot beside the boat. Before you draw a line to the dot beside the bird, draw a line to the dot next to the car. After you draw a line to the dot near the tree, draw a line back to the dot beside the flower.

D.2
Activity 3
Worksheet 2

Comprehension
Level D
Skill 2



First, put your pencil on the dot beside the glasses. Then draw a line to the dot next to the dog. After you draw a line to the dot beside the train, draw a line to the dot next to the glasses again. Next draw a line to the dot beside the cake. Before you draw a line to the dot next to the mouse, draw a line to the dot beside the boat. Next draw a line to the dot near the snake. Finally draw a line to the dot beside the train.

D.2
Activity 4
Worksheet 3

Comprehension
Level D
Skill 2

DIRECTIONS: Draw a circle around the words that help you understand the order in which things happen. Your teacher may ask you what happened first, second, or third for each story.

Example
After the movie started, George wanted some popcorn.

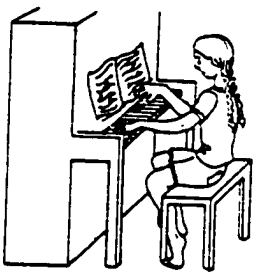
1. Before Alice ordered her new bike, she considered buying a used one.

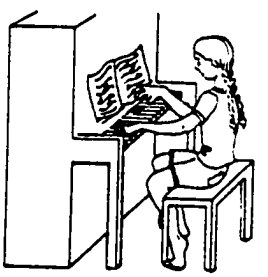
2. Alan first put the stamp on the envelope. Then he sealed it.

3. After the lion-tamer gave his show, four clowns entertained the crowd. Next came the high-wire act.

4. Ed put the filmstrip in the machine before he plugged in the tape recorder. He put the tape in the recorder last.

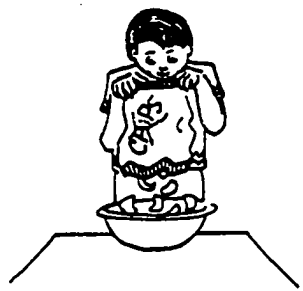
5. Before the raccoon sniffed the garbage, he knocked over the can. Finally he grabbed a piece of bread and ran.

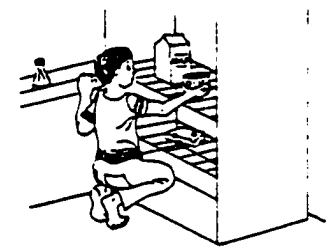


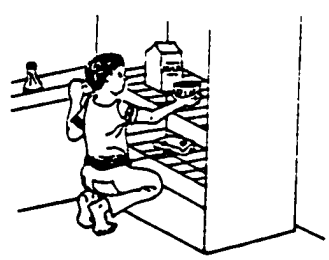


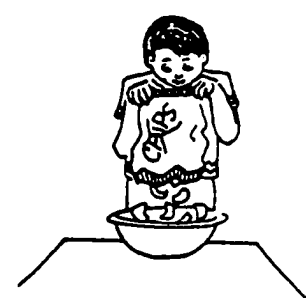
D.2
Activity 6
Gameboard 2

Comprehension
Level D
Skill 2









D.2
Activity 15
Worksheet 4

Comprehension
Level D
Skill 2

DIRECTIONS: Read each story. Then read the sentences below each story. Number the events so they are in order. Place a *1* in front of the event that happened first, a *2* in front of the event that happened second, and a *3* in front of the event that happened third.

Example

Before Kathy watered the plants, she mowed the lawn. Then she set the table for dinner.

Kathy set the table.
Kathy mowed the lawn.
Kathy watered the plants.

I. Ellen took the cold meat out of the refrigerator. Before she shut the refrigerator door, she poured a glass of milk.

Ellen poured a glass of milk.
Ellen took the cold meat out of the refrigerator.
Ellen shut the refrigerator door.

II. Jeff got out the doughnuts after he started the coffee. Then he sat down and read the paper.

Jeff got out the doughnuts.
Jeff started the coffee.
Jeff read the paper.

III. First Oscar washed the car. Next he took out the garbage. Finally he swept the garage floor.

Oscar washed the car.
Oscar swept the garage floor.
Oscar took out the garbage.

IV. Just before the horse jumped over the fence, he threw his rider. Then he stopped near the fence and rested.

The horse jumped the fence.
The horse rested near the fence.
The horse threw his rider.

V. Mary removed the papers from the bulletin board. Before she put the papers in her teacher's desk, she threw away the damaged ones.

Mary put the papers in her teacher's desk.
Mary removed the papers from the bulletin board.
Mary threw away the damaged papers.

D.2
Activity 16
Worksheet 5

Comprehension
Level D
Skill 2

DIRECTIONS: Read each of the stories below. Then decide when the events under each story happened. Fill in the circle under 1 if the event happened first in the story; fill in the circle under 2 if it happened second, etc.

Example

Jerry helped his father rake the leaves off the lawn. Before he asked his father to go to the park, Jerry helped put the leaves in plastic bags.

1	2	3	
○	○	○	raked the leaves
○	○	○	asked to go to park
○	○	○	put leaves in bag

I. After the fawn ate the brush, he scampered down to the pond.

1	2	
○	○	ate the brush
○	○	ran to the pond

II. Before the hen returned to the nest, the sly fox sneaked away with the egg.

1	2	
○	○	hen came back
○	○	fox got away

III. Before he saw the large crack on the side, Gary had stuffed two balls of ice cream into the cone.

1	2	
○	○	stuffed ice cream into cone
○	○	saw crack

IV. Before she saw the old lady in the window, Sal banged on the door.

1	2	
○	○	saw the old lady
○	○	banged on the door

V. After the kitten sipped her cream, John gave her some fresh fish to eat. Then the kitten sat down to clean her whiskers.

1	2	3	
○	○	○	had her cream
○	○	○	got fresh fish
○	○	○	cleaned her whiskers

D.2
Activity 16
Worksheet 6

Comprehension
Level D
Skill 2

VI. Before Ellen put the onions in the stew, she added the potatoes. Then she dropped in the meat.

1	2	3	
○	○	○	put onions in stew
○	○	○	put in potatoes
○	○	○	added meat

VII. The two boys climbed on the train. After they had their tickets checked, they sat down to write their postcards to friends at home.

1	2	3	
○	○	○	got on board
○	○	○	had tickets checked
○	○	○	wrote postcards

VIII. Judy stomped on the grapes in the wash tub as fast as she could. Before she had to stop to rest, she saw the first juice begin to drip into the bucket.

1	2	3	
○	○	○	stepped on fruit
○	○	○	stopped to rest
○	○	○	saw juice go into pail

IX. Mark tried to pull his hands apart. He felt the hardened, sticky candy start to give way just before he ran his hands under hot water.

1	2	3	
○	○	○	tried to pull his hands apart
○	○	○	felt the candy loosen
○	○	○	put hands under water

X. Before he put on a layer of butter, Max spread thick peanut butter on his bread. Next he spooned a glob of jelly right in the middle of the bread.

1	2	3	
○	○	○	put on butter
○	○	○	spread peanut butter
○	○	○	put on jelly

SKILL 3

Reasons Deductively

NOTE: The following introduction gives information that is basic to understanding the reasoning skill being taught. Its perusal is highly recommended. Although this section serves as an introduction to the teacher, it is *not* intended for classroom use.

What Is Syllogistic Reasoning?

At Level D, the child is introduced to simple syllogistic reasoning. Syllogistic reasoning involves the child's being able to see the relationship between two terms and the constraints that follow in making a conclusion based on that relationship. The skill involves the child's reading a simple problem (a general statement of relationship between two terms and a specific instance of either term) and then determining what conclusion can be reached. A conclusion can be right, a conclusion can be wrong, or a conclusion can be indeterminate (one can't say whether it's right or wrong). Whichever it is, though, can be determined by rules—rules the child can learn.

What Is a Syllogism?

A syllogism is a logical argument or "word problem" consisting of three parts: (a) a statement of relationship between two terms; (b) a specific instance of either of the two terms or the negation of either of the terms; (c) a conclusion based on the two terms. The following is a syllogism: "All poodles are dogs. Sully is a poodle. Sully is a dog." "All poodles are dogs" is a statement of the relationship between the two terms "poodles" and "dogs." "Sully is a poodle" is the specific instance of the term "poodle." "Sully is a dog" is the conclusion based on the terms.

The Kinds of Syllogisms

There are basically two kinds of syllogisms: traditional syllogisms and conditional syllogisms. Both types of syllogisms have (a) a statement of relationship between two terms, (b) a specific instance of either of the two terms, and (c) a conclusion based on the terms. They differ mainly in the way in which they are worded. Traditional syllogisms are worded in the following way:

All bananas are fruit.

D.3
Skill 3

Comprehension
Level D

Conditional syllogisms are worded like cause-effect relationships:

If it rains, then the children will play indoors.

Whenever Mother goes to the store, she buys treats for her children.

Regardless of the way in which the syllogism is written, whether traditionally or conditionally, the rules for determining whether the conclusion is right, wrong, or indeterminate are the same.

The Rules

To understand the rules for determining whether a conclusion is right, wrong, or indeterminate, the teacher must know what the parts of the syllogism are and how they work. The three parts of a syllogism are diagrammed below:

Statement of relationship of two terms	→	Instance of either term or the negation of either term	→	Conclusion which is either right, wrong, or indeterminate (can't say)

By examining the instance offered in every syllogism, one can at a glance determine whether the conclusion is right, wrong, or indeterminate. For every statement of relationship—e.g., All poodles are dogs—there are four possible instances:

(1) An instance of the first term (Sully is a poodle).
(2) An instance of the negation of the first term (Sully is not a poodle*).
(3) An instance of the second term (Sully is a dog).
(4) An instance of the negation of the second term (Sully is not a dog*).

The following rules are used to determine whether a conclusion can be called right or wrong, or is indeterminate:

Rule 1: If an instance of the first term is given, the conclusion will be either right or wrong.
Rule 2: If an instance of the negation of the first term is given, the conclusion will be indeterminate (can't say).
Rule 3: If an instance of the second term is given, the conclusion will be indeterminate (can't say).
Rule 4: If an instance of the negation of the second term is given, the conclusion will be either right or wrong.

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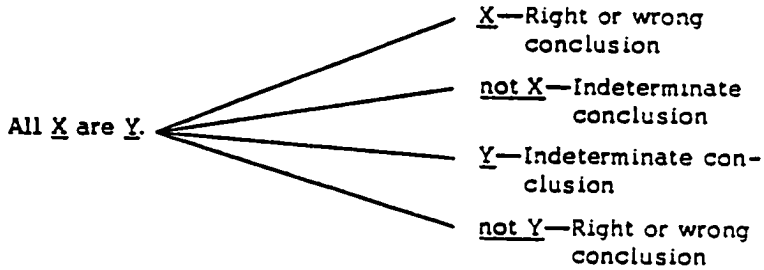
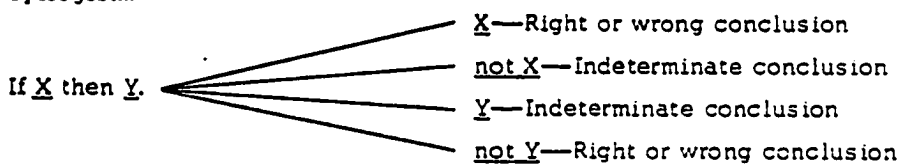
*The negation of a term can be expressed by something that the term is not, as well as by the negative. For example, given the relationship "All the elephants in our zoo are Indian," both "Petunia is an African elephant" and "Petunia is not an Indian elephant" are instances of the negation of the second term.

The rules can be diagrammed as follows, X representing the first term and Y representing the second:

For the traditional syllogism:



For the conditional syllogism:



At Level D the child is asked simply to determine whether a conclusion is right or wrong (syllogisms that include instances of X or not Y); syllogisms with indeterminate conclusions are not presented. At Level F the child will handle syllogisms that contain conclusions that are definitely right or wrong, as well as more difficult syllogisms with indeterminate conclusions. It is important that the teacher differentiate between the types of syllogisms the child encounters at Levels D and F. When determining items to be included in the following exercises for Level D, the teacher should avoid syllogisms with indeterminate conclusions. A suggested way of approaching a syllogism might be to (1) identify the statement of relationship, including identifying the first and second terms, (2) identify the term included in the instance, (3) identify the conclusion, (4) and then apply the rules to determine whether the conclusion would be right or wrong or, at Level F, indeterminate.

Syllogisms to Avoid

There will be certain types of items the teacher should avoid in preparing for skill instruction:

(1) For reasons stated earlier, syllogisms with indeterminate conclusions.
(2) Syllogisms in which the relationship is one with which the children are already highly familiar—e.g., "When you turn on a water faucet, water comes out." In this type of problem, a child is probably able

to respond to the syllogism with previous knowledge rather than rely on the reasoning process.

(3) Nonsense syllogisms such as "If Bill is tall, then Joe is smart." The child is usually aware that such relationships don't exist in the real world.

(4) Conditional syllogisms in which the terms in the statement of relationship are in reversed order—e.g., "Kelly eats candy whenever she's nervous." The proper order is "Whenever she's nervous Kelly eats candy."

(5) Syllogisms in which the relationship between the terms can work both ways—e.g., "All men are homosapiens" and "All homosapiens are men."

(6) Syllogisms which are clearly untrue—e.g., "All fat men have wooden legs."

IMPORTANT: Two concepts requisite to mastery of this reasoning skill are identified on pages 372 and 375. Concept Development Activities 1-5 familiarize the child with "major premise" terminology. Activities 6-8 teach the child the role of the minor premise in syllogistic reasoning. The number and kind of concept development activities selected for instruction will vary according to class and/or individual needs. An attempt should be made, however, to ensure that each child has an understanding of both concepts prior to skill instruction.

Two important aspects of the D reasoning skill are identified in the two rationales on pages 378 and 384. Activities 9-13 teach the child to determine whether a conclusion is right or wrong. Activities 14-15 teach him to identify and solve syllogisms which have extraneous information. As stated previously, the number of activities taught from each of the two rationales will depend on individual needs, but an attempt should be made to cover thoroughly both aspects of the skill.

CONCEPT DEVELOPMENT ACTIVITIES

***Concept:** The child learns to identify a statement of relationship between two terms (i.e., the major premise) and understands the role of the major premise in a syllogism.*

1 Materials: Chalkboard, chalk.

Procedure:

a. The teacher informs the children that they are going to work on some word problems, called syllogisms. He says that by reading

words and thinking about them carefully, the children can learn to solve word problems. The teacher explains that a very important part of a word problem is called the major premise. He explains that the major premise is a special kind of sentence. The teacher writes "All cats hate to swim" on the chalkboard. He explains that this sentence is a major premise. It is a sentence that says if one thing happens, another happens too. The teacher explains that "All cats hate to swim" says "If something is a cat, it will hate to swim." The teacher and children discuss the sequence of events described by the major premise.

b. The teacher writes on the chalkboard, "Whenever Tim whistles, his dog comes to him," and discusses it following the same procedure.
c. The teacher should stress that a major premise describes an important sequence of events or relationship in word problems or syllogisms.

2 Materials: Mimeographed copies of worksheet 1, pencils.

Procedure: The teacher does the example with the children. He tells them to think carefully about what the major premises say. The children then do the worksheet independently. Their answers should be discussed.

Answers: Example, b; 1. b; 2. a; 3. c; 4. b; 5. a.

3 Materials: Chalkboard, chalk, paper, pencils, safety pins.

Procedure: The teacher tells the children that they use major premises every day. He reminds the children that major premises are sentences that describe a sequence of events or make a general statement of relationship. The teacher gives the children the following examples: "All dogs are animals"; "All my pencils are sharpened"; "Whenever I clap my hands, my dog dances." Then he writes the following patterns for major premises on the board in a conspicuous place:

All _____ are _____.
If _____ then _____.
Whenever _____, _____.
When _____, _____.
Every _____, _____.

He points out that major premises are usually worded like the sentences on the board. The teacher reads each of the sentence patterns to the children. He then says that they are going to play a game all day. The teacher explains that they are going to listen carefully all day for major premises. He says that they are going to listen carefully to each other, and to their teachers. They are also going to watch carefully for major premises in their reading materials. The teacher explains that every time a child hears or sees a major premise, he should write it down and bring it to the teacher. If he correctly identifies a major premise, he gets to pin a safety pin on his clothing. The child with the most safety pins at the end of the day becomes the major premise champion for the day.

Specific children may write selected major premises on the chalkboard, and at the end of the day the teacher and children discuss the sequence of events or relationships described in the major premises collected.

4 Materials: Transparency 1, overhead projector, chalkboard, chalk.

Procedure: The teacher writes the following sentence patterns on the chalkboard:

All _____ are _____.
If _____ then _____.
Whenever _____, _____.
When _____, _____.
Every _____, _____.

He reminds the children that major premises are worded like the sentences on the board. He tells the children that he is going to read some sentences. He explains that he wants the children to identify the major premises in each set. The teacher projects the transparency. He reads each set of sentences. The children should identify the major premise in each set. The children's responses should be discussed. A discussion of how the children identified the major premises should follow.

Answers: 1. When I have a cold, I take aspirin; 2. All my sisters have had the measles; 3. If the mouse touches the trap, it will snap; 4. Whenever Zeke gets mad, he stomps his foot; 5. Every Friday, the garbage man comes to pick up the trash.

5 Materials: None.

Procedure: The teacher tells the children to listen carefully for major premises that their parents or friends may use. He suggests that the children write them down and bring them to school to share with the class. The teacher also encourages the children to examine television and newspaper advertisements for major premises. These should be shared with the class on a daily basis and the sequence of events or relationships described should be discussed.

Concept: The child learns to identify a minor premise and understands the role of the minor premise in a syllogism.

6 Materials: Chalkboard, chalk.

Procedure:

a. The teacher asks the children to recall that a major premise describes a sequence of events or a general statement of relationship. He asks the children to generate some major premises—e.g., "Whenever Billy goes to the zoo, he buys some fish to feed the seals." The teacher writes the major premises on the chalkboard.
b. The teacher reminds the children that they are going to work on some word problems, called syllogisms. The teacher also reminds the children that the major premise is a very important part of the word problem. He says that there are other important parts of the word problem too.
c. The teacher selects one of the major premises generated by the children and writes an instance or example of the first term beneath it on the chalkboard—e.g., for "Whenever Billy goes to the zoo, he buys some fish to feed the seals," the teacher would write, "Billy is going to the zoo." The teacher reads the minor premise aloud as the children read it silently. He says that this sentence represents a second important part of a word problem, called the minor premise. He tells the children that the minor premise is a sentence that says the first event happened or the second event didn't happen. The children identify the event of the major premise referred to and the teacher or a child circles it on the board. The teacher and children discuss the importance of the minor premise in determining conclusions: the teacher should explain that the major premise says when one event happens, a second event happens too. If the minor premise says the first event happened, a right conclusion will say the second happened. If the minor premise says the second event didn't happen, a right conclusion will say the first didn't happen.

d. The teacher should discuss several of the premises generated by the children, following the same procedure.

☆7 Materials: Problems written on individual cardboard squares and laminated, grease pencil.

Procedure:

a. The teacher reminds the child that a major premise either describes a sequence of events or a relationship, and that a minor premise says that either the first event happened or the second event did not happen.
b. The child reads the problem cards independently and does what the instructions tell him to do. His responses should be discussed.
c. The teacher may generate additional items to provide further practice in identifying the minor premise.

Answers: 1. Jill is eating spaghetti; 2. It is 6:35 in the morning; 3. Mark is not playing street ball; 4. I am going to the swimming pool; 5. This pen isn't red; 6. This pen is black.

Problems:

1. Place an X by the minor premise that says the first event in the major premise happened.

   Whenever Jill eats spaghetti, she wears a bib.

   Jill is eating spaghetti. ____
   Jill is not eating spaghetti. ____
   Jill is wearing a bib. ____
   Jill is not wearing a bib. ____

2. Place an X by the minor premise that says the first event in the major premise happened.

   Every morning at 6:35 the Cedar Avenue bus goes by our house.

   The Cedar Avenue bus just went by our house. ____
   It is 8:30 in the morning. ____
   It is 6:35 in the morning. ____
   The Wilson Street bus just went by our house. ____

3. Place an X by the minor premise that says the second event in the major premise didn't happen.

Every Friday night, Mark plays street ball.

It is Friday night. ____
Mark is playing street ball. ____
Mark is not playing street ball. ____
It is Monday night. ____

4. Place an X by the minor premise that says the second event in the major premise didn't happen.

   If it rains, I won't go to the swimming pool.

   It is snowing. ____
   I am going to the swimming pool. ____
   I am not going to the swimming pool. ____
   It is raining. ____

5. Place an X by the minor premise that says the second event in the major premise didn't happen.

   All the pens in my desk are red.

   This pen isn't red. ____
   This pen is in Mary's desk. ____
   This pen is red. ____
   This pen is in my desk. ____

6. Place an X by the minor premise that says the second event in the major premise didn't happen.

   All the pens in my desk are red.

   This pen is red. ____
   This pen is in Mary's desk. ____
   This pen is in my desk. ____
   This pen is black. ____

8 Materials: Transparencies 2 and 3, overhead projector, grease pencil.

Procedure: The teacher tells the children they are going to work with word problems. He reminds the children of the parts of the word problems that they have been working with: (a) the major premise, (b) the minor premise, and (c) the conclusion. The teacher projects the first transparency. He reads the syllogism aloud as the children read it to themselves. The teacher then asks one of the children to identify the major premise. The child should say, "All the plants in

Ann's yard have flowers on them." The teacher draws a single line under the major premise. The teacher asks another child to identify the minor premise. The child should respond, "The prettiest plant is by her back door." The teacher draws a double line beneath the sentence. The teacher then asks the child to identify what is said in the minor premise. The teacher and children discuss why the conclusion given is appropriate. The teacher projects transparency 3 following the same procedure. The children's responses should be discussed.

Answers:

1. All the plants in Ann's yard have flowers on them.

   The prettiest plant is by her back door.

2. All the furniture in room 10 is green.

   Ellen's desk is not green.

3. Every Tuesday night, Mr. Walter cooks dinner for the whole family.

   Mr. Walter will not cook dinner tonight.

4. When Jack goes to basketball games, he takes a taxi.

   Jack went to a basketball game last night.

SKILL DEVELOPMENT ACTIVITIES

***Rationale:** The child learns to use given information to determine w..ether a conclusion is right or wrong.*

9 Materials: Labels, box, five red marbles, five yellow marbles, five black marbles, chalkboard, chalk, tape.

Procedure:

a. The teacher tells the children that they are going to play some word games. He writes on the chalkboard, "All the marbles in the box are red. John's marble is in the box. John's marble is not red." Then he gives the box, with five red marbles, a yellow marble and two black marbles in it, to one of the children. He tells the child to listen carefully as he reads the word problem on the board. Then he tells the child to do whatever is necessary

to make the sentences true. The teacher says, "All the marbles in the box are red." The child should remove the two black and one yellow marble from the box. The teacher says, "John's marble is in the box," and tells the child to do something to the marbles to make the statement true. The child should label one of the marbles in the box "John's." Then the teacher says, "John's marble is not red," and tells the child to look at the marbles in the box and decide whether the conclusion is right or wrong. The child should respond that it is wrong.

b. The teacher gives additional children boxes of marbles. He follows the procedure described above, using the following syllogisms and materials:

1. Box: four yellow marbles, three red marbles.

   Syllogism: "All the marbles in the box are yellow. John's marble is black. John's marble is not in the box."

   Correct responses: All the marbles in the box are yellow: the child should remove the three red marbles from the box. John's marble is black: the child should label all the marbles in the box "not John's." John's marble is not in the box: right.

2. Box: two black marbles, two red marbles, one yellow marble.

   Syllogism: "All the marbles in the box are black. John's marble is in the box. John's marble is not black."

   Correct responses: All the marbles in the box are black: the child should remove the two red marbles and the one yellow marble from the box. John's marble is in the box: the child should label one of the marbles in the box "John's." John's marble is not black: wrong.

3. Box: three red marbles, two yellow marbles.

   Syllogism: "All the marbles in the box are red. John's marble is black. John's marble is in the box."

   Correct responses: All the marbles in the box are red: the child should remove the two yellow marbles from the box. John's marble is black: the child should label all the marbles in the box "not John's." John's marble is in the box: wrong.

4. Box: three red marbles, two black marbles, one yellow marble.

   Syllogism: "Every marble in the box is red. John's marble is blue. John's marble is in the box."

Correct responses: Every marble in the box is red: the child should remove the two black marbles and the one yellow marble from the box. John's marble is blue: the child should label all the marbles in the box "not John's." John's marble is in the box: wrong.

c. The child's responses for each item should be discussed. The teacher may point out that sometimes syllogisms are difficult to understand. He should explain that seeing or drawing what is being said in the syllogism often helps in understanding the problems. The teacher should emphasize that the child should feel free to draw out a syllogism to help him in determining whether a conclusion is right or wrong.
a conclusion is right or wrong.

d. A follow-up activity might be a discussion of the major and minor premises for each of the above syllogisms. The children should identify whether the minor premise says the first event happened or whether it says the second event did not happen. The teacher and children should discuss the kinds of conclusions that follow specific minor premises.

10 Materials: A deck of thirty cards (ten of the cards with +1 written on them, ten with -2, and ten with happy faces drawn on them).

Procedure:

a. The teacher tells three or four children that they are going to play a card game with syllogisms. The cards are shuffled and stacked facedown in front of the children. The teacher explains the rules of the game to the children. He tells them:
   1. Every time you draw a +1 card, you get 1 point.
   2. Whenever you draw a -2 card, you subtract 2 points.
   3. Whenever you draw a "happy face," you can either add or subtract 1 point.

   The teacher explains that the goal of the game is to reach a total of exactly 5 points. The first child to reach 5 wins the game.

b. The teacher writes the three rules on the chalkboard so the children can refer to them when necessary.

c. The children take turns drawing cards from the deck. They play until one of the children attains a score of 5.

d. The teacher should occasionally quiz the children's understanding of the syllogisms by asking the following questions:
   1. Whenever you draw a -2 card, you subtract 2 points. John just drew a -2 card. Should John subtract 2 points?
      or

2. Every time you draw a +1 card, you get 1 point. John's card doesn't give him 1 point. Did John draw a +1 card?

e. At the end of the game, the teacher and children discuss how the three rules of the game were all syllogisms. He stresses that the children must have understood syllogisms to play the game.

11 Materials: Problems, chalkboard, chalk.

Procedure:

a. The teacher explains to the children that they're going to work on some more word problems, or syllogisms. He reads a problem to the children—e.g., "All the people in the boat are fishing. Bill's brother, John, is in the boat. John is fishing." The teacher re-reads each sentence in the problem, illustrating the sentence as he reads it. "All the people in the boat are fishing." The teacher first draws the outline of a boat. He then draws two or three people in the boat, fishing. He then reads the second sentence, "John is in the boat." He labels one of the people "John." The teacher then re-reads the conclusion. "John is fishing." He asks the children to look at the drawing. He then asks the children to determine, based on what they see in the drawing, whether the conclusion is right or wrong.

b. The teacher reads additional problems following the same procedure. Selected children may draw some of the later problems. The children should identify the major and minor premises in each syllogism and discuss why the conclusion is right or wrong.

Sample problems:

Teacher Reads	Teacher Draws
1. All the pets in the wagon are dogs. Kim's pet is in the wagon. Kim's pet is a dog. (right)	1. a. draw a wagon b. draw two or three dogs in the wagon c. label one "Kim's pet"
2. All the pencils on the table have been sharpened. Bill's pencil is not sharpened. Bill's pencil is not on the table. (right)	2. a. draw three sharpened pencils on a table b. label all pencils "not Bill's" (the teacher points out that Bill's pencil has not been

sharpened; any pencil that has been sharpened cannot be Bill's, therefore Bill's pencil cannot be on the table)

3. All the houses on the lake have docks. Kelly's house does not have a dock.

   Kelly's house is on the lake.
   (wrong)

3. a. draw a lake
   b. draw three or four houses with docks along the lake edge
   c. label all houses "not Kelly's" (see item 2 for explanation)

4. Every plate on the table is cracked. Joel's plate is on the table.

   Joel's plate is not cracked.
   (wrong)

4. a. draw a table top
   b. draw two or three cracked plates on the table
   c. label one of the plates "Joel's"

5. Every cup on the table has a broken handle. The blue and white cup doesn't have a broken handle.

   The blue and white cup is not on the table.
   (right)

5. a. draw a table top
   b. draw two or three cups with broken handles
   c. label all the cups "not blue and white"

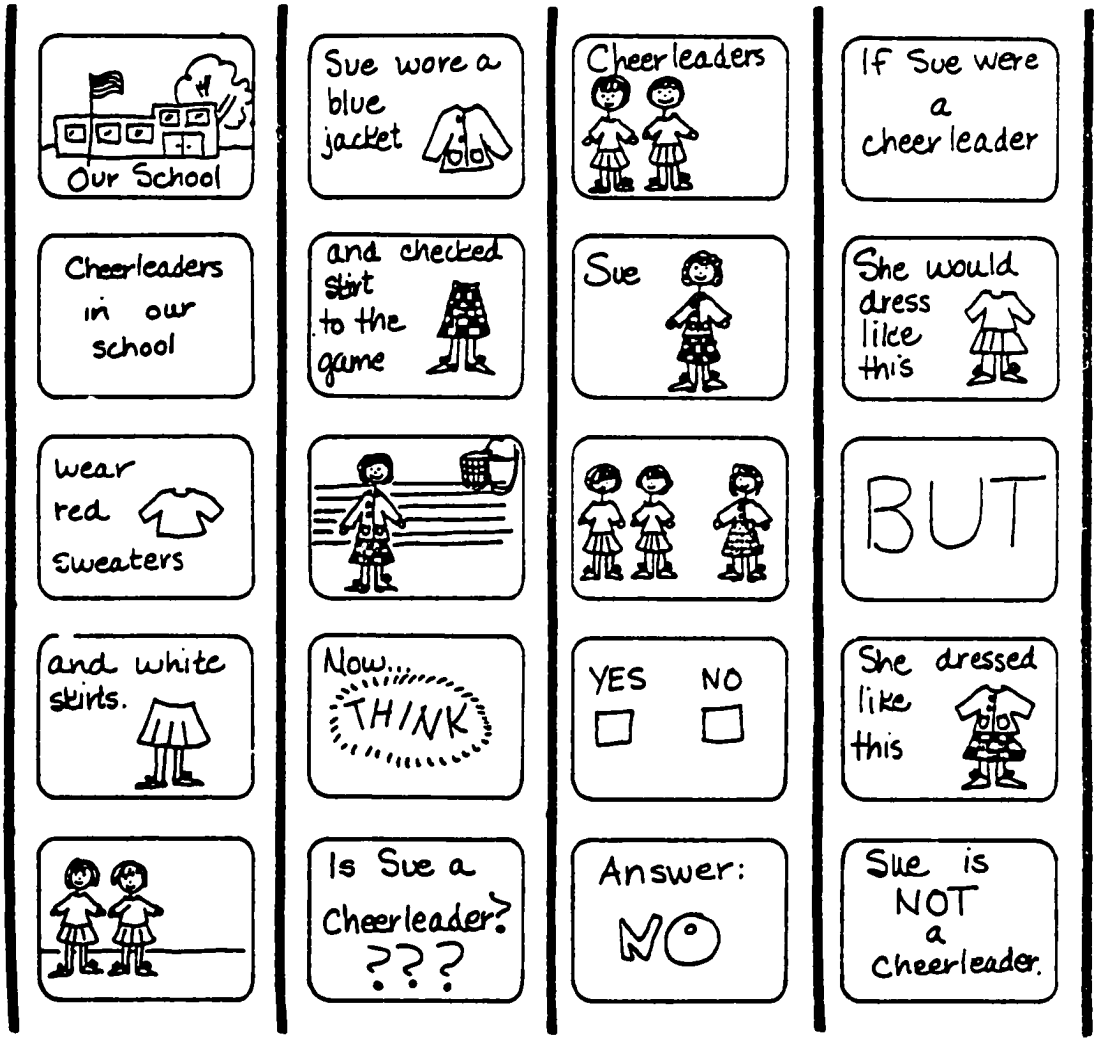
☆ 12 Materials: Teacher-made filmstrips, projector. (Blank filmstrips with a special surface for writing and coloring are available from: Filmkare Products Co., 427 West 42 Street, New York, N.Y., 10036.)

Procedure: The teacher makes filmstrips of syllogisms. The children view the filmstrips independently. The children should identify the major and minor premises and discuss the appropriateness of the conclusions to the minor premises.

D.3
Skill 3

Comprehension
Level D

Sample filmstrip:



☆13 Materials: Mimeographed copies of worksheets 3, 4, and 5; pencils.

Procedure: The teacher does the example with the children. The children then do the worksheets independently. Their answers should be discussed. The teacher should remind the children that:

1. If the minor premise says the first event in the major premise happened, a right conclusion will say the second event in the major premise happened.
2. If the minor premise says the second event in the major premise didn't happen, a right conclusion will say the first event in the major premise didn't happen.

Answers: Example, right; 1. right; 2. wrong; 3. wrong; 4. wrong; 5. wrong; 6. right; 7. wrong; 8. wrong; 9. right; 10. right.

Rationale: The child learns to solve syllogisms that include an extraneous sentence—a sentence that gives additional information and yet doesn't contribute to identifying whether the conclusion is right or wrong.

14 Materials: Mimeographed copies of worksheets 6 and 7; blue, yellow, green, and black crayons, chalkboard, chalk.

Procedure:

a. The teacher reminds the children of the three basic parts of a syllogism: (1) the major premise; (2) the minor premise; and (3) the conclusion. The teacher tells the children that very often when we see syllogisms in newspapers, in textbooks, or when we hear them on television, there is extra information given that really isn't part of the word problem itself. The teacher tells the children that it's important to be able to identify this extra information. The teacher explains to the children that this extra information doesn't help determine whether the conclusion is right or wrong. He explains that sometimes it may even confuse them when they try to determine the conclusion.
b. The teacher writes the following syllogism on the chalkboard: "Jack and Dale like the mountains. Whenever they go camping, Jack and Dale sleep in a tent. This weekend they are camping. They will not sleep in a tent." He asks the children to identify the major premise. The children should respond, "Whenever they go camping, Jack and Dale sleep in a tent." The teacher draws a line under the major premise. The teacher then asks

the children to identify the minor premise. The children should respond, "This weekend they are camping," and the teacher draws a double line under it. The teacher asks the children to identify the conclusion. The children should respond, "They will not sleep in a tent," and the teacher draws a triple line under it. Finally the teacher asks the children to identify the sentence that gives information but isn't part of the syllogism. The children should respond, "Jack and Dale like the mountains." The teacher draws X's through the sentence that doesn't contribute to identifying whether the conclusion is right or wrong. The teacher asks the children whether the conclusion is right or wrong. The children should respond that it is wrong.

c. The teacher tells the children to do the worksheets independently. Their answers should be discussed. The teacher and children review the kind of conclusion that will follow specific minor premises.

Answers:

1. blue: When Tim makes a snowman, he uses coal for the eyes; yellow: Tim is making a snowman; black: George helps him. (wrong)
2. blue: When Gene collects over $30, he will buy new equipment for the team; yellow: Gene has collected $42; black: Now they only have one ball and bat. (right)
3. blue: When Martin delivers newspapers, he gets up at four in the morning; yellow: This morning Martin slept until seven; black: He collects once a month from his customers. (wrong)
4. blue: When Amy goes on a hike, she wears tennis shoes; yellow: Amy is wearing sandals; black: Mrs. Miller's class likes to be outdoors. (wrong)
5. blue: When the train is late, John takes a bus to work; yellow: Yesterday John took the train to work; black: He goes to a large building in another city. (right)

☆ 15 Materials: Mimeographed copies of worksheets 8, 9, 10, 11, and 12; pencils.

Procedure: The teacher does the example with the children. The children then do the worksheets independently. Their answers should be discussed. The teacher should select three or four items

and have the children identify the major and minor premises. The children should identify whether the minor premises say the first event in the major premise happened or whether it says the second event in the major premise didn't happen. A discussion of the kind of conclusions appropriate to specific minor premises should follow.

Answers: Example, right; 1. right; 2. wrong; 3. wrong; 4. wrong; 5. right; 6. right; 7. wrong; 8. right; 9. wrong; 10. right; 11. right; 12. wrong; 13. wrong; 14. wrong; 15. right.

D.3
Activity 2
Worksheet 1

Comprehension
Level D
Skill 3

DIRECTIONS: Read each of the major premises. Then circle the letter under the picture that shows what you read in each major premise.

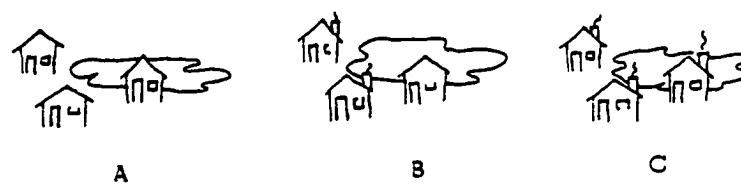
Example

All the eggs in the dish are cracked.

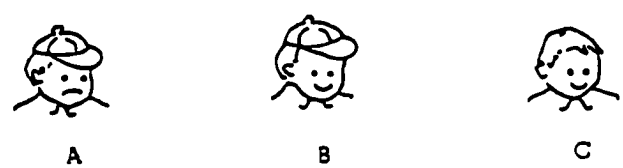
1. All the open cans have labels.

2. When Sandy wears a dress, she puts a ribbon in her hair.

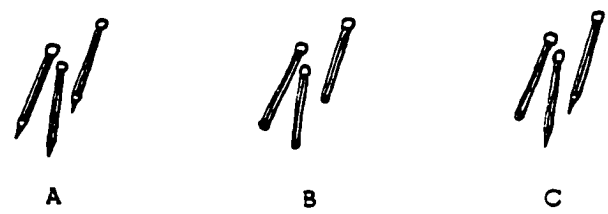
3. Every house on the lake has a chimney.



4. When Tom is happy, he wears his cap.



5. All the pencils are sharpened.



D.3
Activity 4
Transparency 1

Comprehension
Level D
Skill 3

1.	I'm sick.	When I have a cold, I take aspirin.	I have a very bad cold.
2.	Joe has the chicken pox.	The cat is ill.	All my sisters have had the measles.
3.	If the mouse touches the trap, it will snap.	Chester is my pet mouse.	Jeff's pet mouse likes to eat cheese and bread and butter.
4.	Zeke's mother bought him some new clothes for school.	Whenever Zeke gets mad, he stomps his foot.	Yesterday, Zeke made his own lunch.
5.	I like to watch the garbage man pick up the trash.	Sam, the garbage man, drives a big truck that makes lots of noise.	Every Friday, the garbage man comes to pick up the trash.

D.3
Activity 8
Transparency 2

Comprehension
Level D
Skill 3

All the plants in Ann's yard have flowers on them.

The prettiest plant is by her back door.

The prettiest plant has flowers on it.

D.3
Activity 8
Transparency 3

Comprehension
Level D
Skill 3

All the furniture in room 10 is green.

Ellen's desk is not green.

Ellen's desk is not in room 10.

Every Tuesday night, Mr. Walter cooks dinner for the whole family.

Mr. Walter will not cook dinner tonight.

Tonight is not Tuesday night.

When Jack goes to basketball games, he takes a taxi.

Jack went to a basketball game last night.

Jack took a taxi to the game.

D.3
Activity 13
Worksheet 3

Comprehension
Level D
Skill 3

DIRECTIONS: Read the syllogisms and decide whether each conclusion is right or wrong. Fill in the circle under Right if you think the conclusion is right, or fill in the circle under Wrong if you do not.

Example

Whenever Mr. and Mrs. Jay go to a movie, they ask Carol to baby-sit. Mr. and Mrs. Jay went to a movie.

	Right	Wrong
Mr. and Mrs. Jay asked Carol to baby-sit.	○	○

1. All of Jane's old dresses are too small for her. Jane is wearing a dress that fits her.

	Right	Wrong
Jane doesn't have one of her old dresses on.	○	○

2. When Mike blows his whistle, his dog will roll over. Mike's dog is not rolling over.

	Right	Wrong
Mike is blowing his whistle.	○	○

3. All the older boys on the block are playing baseball. Tim and Scott are watching from the house.

	Right	Wrong
Tim and Scott are both older boys on the block.	○	○

D.3
Activity 13
Worksheet 4

Comprehension
Level D
Skill 3

4. Every Wednesday Dad drives the car to work. Today he is not driving the car to work.

It is Wednesday. Right ○ Wrong ○

5. Whenever Teddy goes hunting, he hunts for wolves. Teddy is hunting.

He is not hunting for wolves. Right ○ Wrong ○

6. All of the children in Mrs. May's class wear name tags. Kip doesn't wear a name tag.

Kip isn't in Mrs. May's class. Right ○ Wrong ○

7. The day after it snows, Jane and Jim have a snow picnic by the lake. It snowed last night.

Jane and Jim will not have a picnic today. Right ○ Wrong ○

8. On days when it's warm and sunny outside, Doug and David go to the park. Today it was warm and sunny outside.

The boys played in the house. Right ○ Wrong ○

D.3
Activity 13
Worksheet 5

Comprehension
Level D
Skill 3

9. Whenever Marcia visits her friend Susan on the 11th floor, she rides the elevator. Marcia went up to see Susan.

	Right	Wrong
Marcia took the elevator.	○	○

10. Right after school each day, Sue takes her dog for a walk. Sue's dog is napping in the sunlight.

	Right	Wrong
It's not right after school.	○	○

D.3
Activity 14
Worksheet 6

Comprehension
Level D
Skill 3

DIRECTIONS: Read each of the syllogisms. Then for each problem, draw a blue line under the major premise. Draw a yellow line under the minor premise. Put a black line through the sentence that doesn't help you say whether the conclusion is right or wrong. Then decide whether the conclusion is right or wrong. Put your answer on the line provided.

1. When Tim makes a snowman, he uses coal for the eyes. George helps him.

   Tim is making a snowman.

   He will not use any coal. _____

2. When Gene collects over $30, he will buy new equipment for the team.

   Now they only have one ball and bat. Gene has collected $42.

   He will buy new equipment for the team. _____

3. When Martin delivers newspapers, he gets up at four in the morning.

   He collects once a month from his customers. This morning Martin slept until seven.

   Martin delivered papers this morning. _____

D.3
Activity 14
Worksheet 7

Comprehension
Level D
Skill 3

4. Mrs. Miller's class likes to be outdoors. When Amy goes on a hike, she wears tennis shoes. Amy is wearing sandals.

   She is on a hike. _____

5. When the train is late, John takes a bus to work. He goes to a large building in another city. Yesterday John took the train to work.

   The train was not late. _____

D.3
Activity 15
Worksheet 8

Comprehension
Level D
Skill 3

DIRECTIONS: Read the syllogisms and decide whether each conclusion is right or wrong. Fill in the circle under Right if you think the conclusion is right, or fill in the circle under Wrong if you do not.

Example		
Every Tuesday night, Jenny goes to yoga class. It is held at the YWCA. Jenny did not go to yoga tonight.	Right	Wrong
It is not Tuesday.	○	○

1. During the first month of school each year, the mayor visits each school in our town. He spends about two hours talking with the teachers and the principal. Today is the first day of school.

	Right	Wrong
The major will be visiting our school this month.	○	○

2. We live close to the airport. Whenever an airplane flies over our house, the windows begin to rattle. Right now our windows are not rattling.

	Right	Wrong
Right now an airplane is flying over our house.	○	○

D.3
Activity 15
Worksheet 9

Comprehension
Level D
Skill 3

3. All the newspapers that John delivered had mud on them. John delivered a paper to Mr. Cane. Mr. Cane read it in the house.

	Right	Wrong
Mr. Cane's newspaper did not have mud on it.	○	○

4. Whenever the zoo keeper clapped his hands, the bears danced. The people smiled and watched. The bears just layed down and went to sleep.

	Right	Wrong
The zoo keeper just clapped his hands.	○	○

5. Everytime we plug a lamp into the outlet by the door, we burn out the light bulb. We turned on the lamp and the bulb didn't burn out. The light was bright.

	Right	Wrong
We didn't plug the lamp into the outlet by the door.	○	○

6. Every Friday, Mr. Stanley shows a movie in his science class. Last Friday we saw a movie about a butterfly. Today is Friday.

	Right	Wrong
Mr. Stanley will show a movie in science class today.	○	○

D.3
Activity 15
Worksheet 10

Comprehension
Level D
Skill 3

7. When Dan and Bob go swimming at the lake, they take a picnic lunch. The boys are swimming at the lake today. Dan and Bob are practicing for the swimming team.

They will have lunch at home. Right ○ Wrong ○

8. If Danny got good grades in school this year, his father would buy him new golf clubs. Danny picked out the set he wanted at the store downtown. Danny's father didn't buy him the clubs.

Danny's grades weren't good. Right ○ Wrong ○

9. We keep tissue in our room. All the tissues in Mrs. Nail's box are light blue. Ellen has a pink tissue.

She got her tissue from Mrs. Nail's box. Right ○ Wrong ○

10. Every summer Edith's mother makes home-made jam. It's summer. The berries are already ripe.

Edith's mother will be making jam. Right ○ Wrong ○

D.3
Activity 15
Worksheet 11

Comprehension
Level D
Skill 3

11. Whenever Emmy is nervous, she taps her foot. Tapping her foot makes her feel better. Emmy is not tapping her foot.

She is not nervous.

Right ○ Wrong ○

12. Mr. Blue works hard. On the days that he works in the factory, Mr. Blue carries a lunch. Mr. Blue is not taking his lunch today.

Today Mr. Blue is working in the factory.

Right ○ Wrong ○

13. Whenever Judy goes to the book store, she buys a book for her brother. She usually buys a book about animals. Today she went to the book store again.

Judy didn't buy a book for her brother.

Right ○ Wrong ○

14. Every Sunday, Denny's father gives him a quarter for his allowance. His older brother gets fifty cents. Yesterday was Sunday.

Denny didn't get any money from his father yesterday.

Right ○ Wrong ○

D.3
Activity 15
Worksheet 12

Comprehension
Level D
Skill 3

15. All the streets in Mayville need to be repaired. They are old and worn. We live on Pine Street in Mayville.

	Right	Wrong
We live on a street that needs to be repaired.	○	○

SKILL 4

Reads for Details: Interprets Sentences with Clauses at the Beginning or End

CONCEPT DEVELOPMENT ACTIVITIES

Concept: The child understands both the nature of a clause and its role in a sentence.

NOTE: You may find that certain texts no longer use the terminology *main* and *subordinate* for clauses. Although the terminology may be different, the skill remains the same. The following activities should serve as models for the types of activities that develop the skill of deriving meaning from sentences with introductory or terminal clauses. The teacher should modify the activities to include the terminology that he feels most comfortable with.

1. Materials: Chalkboard, chalk, mimeographed copies of worksheet 1, pencils.

   Procedure: The teacher explains that they are going to be looking at information given in sentences. He says that all parts of sentences give information. The teacher writes the following words on the chalkboard: *when, as, if, before, while, that, because, where, after.* He then explains that these words often introduce "helper" clauses in sentences. The teacher explains that helper clauses don't give enough information to stand by themselves, but do give some additional information in support of the main clause of a sentence. The teacher does the example on the worksheet with the children. The children then do the worksheet independently. Their answers should be discussed and the importance of the helper clause to each sentence should be reviewed. A discussion of the additional information revealed in the helper clause for each sentence should follow.

   Answers: Example, that; 1. when; 2. while; 3. when; 4. if; 5. before.

2 Materials: Transparency 1, overhead projector, grease pencil.

   Procedure: The teacher projects the transparency. He explains that the statements on the left are main clauses (or sentences) and

the statements on the right are helper clauses. He tells the children that main clauses and helper clauses need each other. Main clauses need helper clauses to give additional information. Helper clauses need main clauses to make sense or to give them meaning. The teacher points out that main clauses and helper clauses join to give very important information. He stresses that both the main clause and the helper clause should be read very carefully. The teacher asks the children to read the statements on the transparency to themselves. He then asks individual children to come up and match appropriate main and helper clauses by drawing an arrow from the main to the helper clauses. The children's responses should be discussed. The information given as a result of the union between the main and helper clauses should be discussed.

Answers: Sue was happy when she found her glove in the grass; The rabbit fell over the log that was in front of his hole; Kris misspelled a word which she was supposed to know from spelling class.

3 Materials: Transparency 2, overhead projector, grease pencil.

Procedure: The procedure is the same as for Activity 2, except that the teacher explains that the statements on the left are helper clauses and the statements on the right are main clauses. The children's responses should be discussed.

Answers: Because she was scared of strangers coming into her house, Ellen locked her door; As he stepped out of the boat and onto the dock, a fish jumped n the water; When the smoke cleared out of the garage so he could see, Ed found his burned bicycle.

4 Materials: Paragraphs, chalkboard, chalk.

Procedure: The teacher writes a paragraph without subordinate clauses on the chalkboard—e.g., "She put the glass to her mouth. She tipped the glass up. She swallowed some water. Then she put the glass down on the table. She picked it up again and took another drink." He reads it aloud as the children read it silently to themselves. He points out to the children that all the sentences in the paragraph lack helper clauses. The children discuss what they learn from the paragraph. The teacher then writes a version of the same paragraph with helper clauses beside the other paragraph on the chalkboard—e.g., "As she put the glass to her mouth, she tipped the glass up and swallowed some water. Then she put the glass

down on the table for a while before she picked it up again and took another drink." He reads the paragraph aloud as the children read it to themselves. The children discuss the differences in the two paragraphs. The teacher leads the children to the understanding that the paragraph with helper clauses seems to be more reflective of natural language and is a much more interesting paragraph to read.

Sample paragraphs:

Without helper clauses:	With helper clauses:
He has a new puzzle. It is made of wood. It has twenty pieces. The pieces fit together. They make a picture of a dog. The puzzle was a birthday present from his grandfather.	He has a new puzzle that is made of wood. It has twenty pieces that fit together to make a picture of a dog. The puzzle was a birthday present from his grandfather.
The island was in the middle of a small lake. There were three people living on it. It was small, with many trees and bushes. It had some rabbits and wild birds.	There were three people living on the island which was in the middle of the small lake. Even though it was only a small island, it had many trees and bushes, as well as some rabbits and wild birds.
The nose sits in the middle of the face. It sits below the eyes and above the mouth. It is an important part of the face. It can smell pretty flowers and cooking food. It holds up people's glasses.	The nose sits in the middle of the face, which is somewhere below the eyes but above the mouth. Because it can smell pretty flowers and cooking food, it is an important part of the face. It holds up people's glasses.

5 Materials: Chalkboard, chalk.

Procedure: The teacher tells the children that they are going to study sentences. He explains that very often the children use sentences with helper clauses when they speak. He has the children generate sentences with helper clauses—e.g., "We go swimming every night when my mother and father get home from work." The teacher writes some of the sentences on the chalkboard. He underlines the main clause and then the subordinate clause. The children discuss what

they learn from the main clause alone and what they learn from the main clause plus the subordinate clause. The teacher emphasizes that the children should read all the words in the sentence carefully. He stresses that there is important information in the subordinate clause as well as in the main clause.

SKILL DEVELOPMENT ACTIVITIES

***Rationale:** The child derives meaning from sentences with introductory or terminal subordinate clauses by synthesizing the information from the main clause with that from the subordinate clause.*

☆6 Materials: Mimeographed copies of worksheet 2, pencils.

Procedure: The teacher does the example with the children. The children then do the worksheet independently. Their answers should be discussed. The importance of the clause should be reviewed—i.e., that it gives additional information about the main thought in the sentences.

Answers: x. Beth had a cat that liked to drink milk from a glass; y. John fell into the water when he tripped on the loose cloth on the diving board; 1. Eric likes to go to the movies if he can eat popcorn and watch the cartoon twice; 2. Mr. John noticed that the tire on the left side of his car was flat; 3. Kathy has a bruise on her leg which is as big as a baseball; 4. Esther scolded her turtle because he climbed out of his dish for the third time; 5. Tammy would set the table for dinner if Cari would mow the lawn before she cut the hedge.

☆7 Materials: Mimeographed copies of worksheet 3, pencils.

Procedure: The teacher does the example with the children. The children then do the worksheet independently. The teacher should encourage a variety of answers. After completion of the worksheet, the children's answers should be discussed. Their ideas may be copied on the chalkboard or on ditto sheets. Using one or more of the children's answers for each item, the teacher and children should discuss the way in which the additional information given in the clause can change the meaning of the main thought or clause.

8 Materials: Sentences, nine 2" x 6" cards, two envelopes.

Procedure:
a. The teacher prints the sentences on the cards and puts the sentences without subordinate clauses in one envelope, and the sentences with subordinate clauses in the other.
b. The child places the sentences without subordinate clauses in one pile, and the sentences with subordinate clauses in another. He reads each of the sentences without subordinate clauses and places them on the table in front of him. He then reads the sentences with subordinate clauses.
c. The child is told that each sentence with a subordinate clause matches one of the sentences without a subordinate clause in front of him. He matches each of the sentences.
d. The teacher should check to see that he has matched the sentences correctly.

Answers: After he paid the man for the tickets, Marc walked into the theater - Marc bought the tickets and went to the show. Marc walked out the door before the waitress could give him his change - Marc left without his money. If Sara can't fix the wagon that belongs to Marc, he will have to buy a new one - Marc may have to replace his broken wagon.

Sentences with subordinate clauses:	Sentences without subordinate clauses:	
After he paid the man for the tickets, Marc walked into the theater.	Marc bought the tickets and went to the show.	A strange man bought Marc some movie tickets.
Marc walked out the door before the waitress could give him his change.	Marc left without his money.	Marc waited for his change and then left.
If Sara can't fix the wagon that belongs to Marc, he will have to buy a new one.	Marc may have to replace his broken wagon.	Sara will buy Marc a new wagon.

☆9 Materials: Gameboard, three or four markers, one die, score sheets, answer sheet, pencils.

Procedure:
a. The teacher prepares the gameboard by glueing the following two sheets to a piece of cardboard.

move ahead 1 space	you get 1 point	you lose 2 points	lose a turn		
				you get 1 point	When Grandmother was a girl of sixteen, she and her family moved to northern Wisconsin. They settled in a little cabin which her father made in the middle of a big forest. Grandmother remembers many evenings when she couldn't get to sleep because the wolves were roaming outside the cabin.
				3. Did Grandmother become upset many times by wild animals near her house?	
				2. Did Grandmother's family buy a house in the woods?	you lose 1 point
				1. Did Grandmother live in Wisconsin all of her life?	go back 2 spaces
					you lose 1 point
1. Did Sandy see many animals on the lake bottom?	you lose 1 point	go ahead 2 spaces			move ahead 1 space
you get 2 points		2. Did Sandy grab a floating object and hurt her hand?			
go ahead 2 spaces		3. Did Sandy's brother fix her cut at the hospital?			you get 2 points
Sandy swam down to the bottom where she saw lots of fish, snails, and clams. As she was swimming around, she cut her hand on a bottle that was buried in the sand on the lake bottom. Sandy's brother took Sandy to the hospital, where the doctor put stitches in her hand.			you lose 1 point		free turn

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b. Three or four children can play the game. The first child throws the die and moves his marker the appropriate number of spaces. He does whatever the square on which he has landed tells him to do. If he is to add or subtract points, he does so on his score sheet. If he is to move back or ahead, he does so. If he lands on a paragraph, he reads the paragraph to himself; then he shakes the die again and proceeds to enter the question boxes above the paragraph; again, he does whatever the square on which he has landed tells him to do. If he lands on a question square, the child reads the question and supplies the answer. The teacher, another child, or the child himself can check his answer with the answer sheet. If he is correct, he adds five points to his score. Play alternates among the children until all of the children have gone completely around the board. Then the children compare total scores. The child with the most points wins the game.

Answer Sheet

Sandy Paragraph	Indian Dolls Paragraph
1. yes	1. yes
2. no	2. no
3. no	3. yes
Grandmother Paragraph	**Cave Paragraph**
1. no	1. yes
2. no	2. yes
3. yes	3. no

☆10 Materials: Mimeographed copies of worksheets 4 and 5, pencils.

Procedure: The teacher does the example with the children. The children then do the worksheets independently. Their answers should be discussed.

Answers: Example, wrong; 1. wrong; 2. right; 3. right; 4. wrong; 5. wrong; 6. right; 7. wrong; 8. right; 9. wrong; 10. wrong.

D.4.a
Activity 1
Worksheet 1

Comprehension
Level D
Skill 4

DIRECTIONS: Read the sentences below. Draw a circle around the word in each sentence that tells you that a helper clause follows.

Example

Betty dropped the bowl that she was carrying to the car for her mother.

1. When she was only five, my grandmother moved to the United States.

2. George waited for twenty minutes while Sam had his teeth fixed by the dentist.

3. Ellen wasn't watching her step when she tripped over the bicycle on the sidewalk.

4. If the teddy bear gets very dirty, Mother washes it in the clothes washer.

5. Maria took the bird into the house before she made a call to the veterinarian.

D.4.a
Activity 2
Transparency 1

Comprehension
Level D
Skill 4

Sue was happy	that was in front of his hole.
The rabbit fell over the log	when she found her glove in the grass.
Kris misspelled a word	which she was supposed to know from spelling class.

D.4.a
Activity 3
Transparency 2

Comprehension
Level D
Skill 4

Because she was scared of strangers coming into her house,	Ed found his burned bicycle.
As he stepped out of the boat and onto the dock,	Ellen locked her door.
When the smoke cleared out of the garage so he could see,	a fish jumped in the water.

D.4.a
Activity 6
Worksheet 2

Comprehension
Level D
Skill 4

DIRECTIONS: Read the clauses in column A. Then read the clauses in column B. Draw a line from each clause in column A to the clause in column B that it goes with to make a good sentence.

Example A	B
x. Beth had a cat	when he tripped on the loose cloth on the diving board.
y. John fell into the water	that liked to drink milk from a glass.

A	B
1. Eric likes to go to the movies	that the tire on the left side of his car was flat.
2. Mr. John noticed	because he climbed out of his dish for the third time.
3. Kathy has a bruise on her leg	if Cari would mow the lawn before she cut the hedge.
4. Esther scolded her turtle	which is as big as a baseball.
5. Tammy would set the table for dinner	if he can eat popcorn and watch the cartoon twice.

D.4.a
Activity 7
Worksheet 3

Comprehension
Level D
Skill 4

DIRECTIONS: Read each of the statements below. Then finish each of the sentences in your own words. Your teacher will help you with the spelling of words you don't know.

Example

Joseph found a cave near the woods that _____

_____

1. When _____

_____, Mary opened the can.

2. You can find the store easily if _____

_____

3. The kitten hit the ball with her paw before _____

_____

4. While Father _____

_____, Mother read the newspaper.

5. The elephant stumbled over the rocks because _____

_____

D.4.a
Activity 10
Worksheet 4

Comprehension
Level D
Skill 4

DIRECTIONS: Read the stories below and then read the sentences beside each story. If a sentence beside the story agrees with what you read in the story, fill in the circle under Right for that sentence. If a sentence does not agree with what you read in the story, fill in the circle under Wrong.

Example

After he had been hunting in the woods for a while, he saw a rabbit. He lifted his bow and aimed the arrow. It missed.

	Right	Wrong
He saw a rabbit right away in the woods.	○	○

Ginny and Roger walked in the dark along the shore of the Atlantic Ocean. They examined the shells that were scattered along the sandy beach for miles and miles. Suddenly Roger tripped over a large object which looked like a stingray that was either dead or sleeping very soundly. When Roger kicked it gently, the stingray didn't move. Roger was scared and yet excited. When he finally found the nerve to pick up the stingray, Roger ran back to his friends, Bobby and Sara. "Look what we found," Roger and Ginny screamed. When Roger held up the stingray for all to see, Bobby and Sara started to laugh. The stingray was only a hermit crab.

	Right	Wrong
1. Ginny and Roger dug in the sand to find some sea shells.	○	○
2. Roger stumbled over an animal lying on the beach.	○	○
3. Roger had a hard time deciding whether to carry the animal to his friends.	○	○
4. Bobby and Sara were afraid when they saw the stingray.	○	○

D.4.a
Activity 10
Worksheet 5

Comprehension
Level D
Skill 4

Ted and Gordon are interested in mirrors. To see himself from head to toe, Ted found that he had to use a mirror at least half as tall as he was. Gordon had learned that county fairs, carnivals, and circus sideshows use convex and concave mirrors for amusement. When Gordon looked in a mirror that was convex, he was very tall and stretched out. Gordon had Ted stand in front of the concave mirror and laughed at how short and round he appeared.

	Right	Wrong
5. Ted couldn't see himself completely in a mirror that was twice his height.	○	○
6. Gordon found out about people using mirrors for fun.	○	○
7. Gordon looked short and fat in the convex mirror.	○	○

Edith went down to the park. She watched some baby ducks as they tried to learn how to fly out of the water. By flapping their wings and pushing with their feet, they were able to get into the air quite easily. Edith also found a school of fish that were nibbling bugs very carefully along the edges of the pond. Mother fish was teaching them the dangers of nibbling carelessly. Just before Edith left the park, she saw a mother skunk and her three babies. They were grinning as the people in the park ran in all directions to get out of their way. Mother skunk was teaching her babies how people behave when they see a skunk.

8. Edith saw some ducks practicing their flying.	○	○
9. Edith saw some fish jumping for food in the middle of the lake.	○	○
10. Everyone went over to see the cute little baby skunks.	○	○

SKILL 2

Determines Sequence: Implicit Relationships

NOTE: A concept that is requisite to mastery of this sequencing skill is identified on this page. Concept Development Activities 1-5 familiarize the child with the characteristics of implicit sequential cues. The number of activities selected for instruction from the concept development activities will vary according to class and/or individual needs.

The skill development activities (Activities 6-11) teach the skill as identified by the behavioral objective. The number of activities selected for instruction from the skill development activities will vary, too, according to class and/or individual needs.

CONCEPT DEVELOPMENT ACTIVITIES

***Concept:** The child understands how implicit sequential relationships differ from explicit sequential relationships.*

1 Materials: Transparency 1, overhead projector, chalkboard, chalk.

Procedure:

a. The teacher projects the transparency, revealing only the top half. He reminds the children that up to this time, they have been working with stories that have a sequential order that has been clearly identified—i.e., the order of the events has been identifiable by their position in the paragraph and by cue words such as *first*, *last*, *then*, *before*, *after*, *finally*. The childr n read the first paragraph on the transparency. The teacher asks one of the children to order the events on the chalkboard as they occur in the story. He reminds the children to watch for cue words like *first*, *last*, *before*, *after*, or *then*. The child should respond, "Margaret looked for her ring under the chair; Margaret looked under the table; Margaret looked in the drawers; Margaret checked the rug." The teacher and children discuss the child's responses. The teacher asks the child to identify the cue words that indicated the sequential order. The child should respond that "first," "then," and "before" are the cue words.

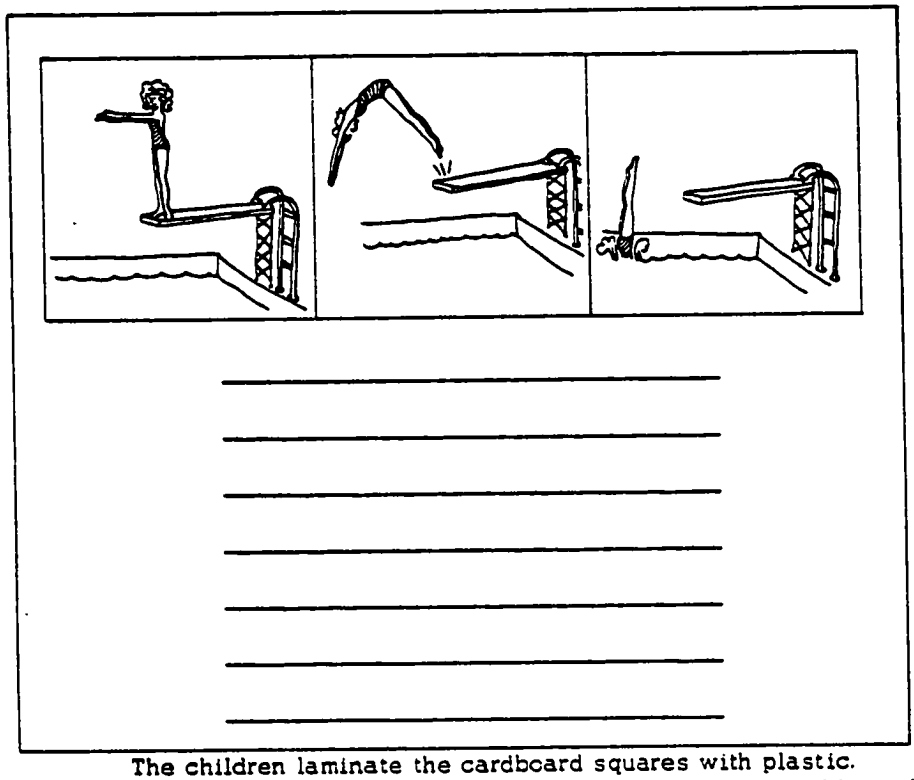
b. The teacher reveals the second paragraph. He tells the children that sometimes the order of events in a paragraph can be

determined by thinking about the way things happen—e.g., May comes after April, or something is a seed before it is a seedling, etc. The teacher tells the children that the second paragraph doesn't have cue words like *first*, *then*, or *before* to help determine the order of the events in the paragraph. The teacher explains that to understand the order of the events in this paragraph, the child needs to think about the way things happen—e.g., one prepares the soil before one plants seeds; something is a seed before it is a seedling; something is a seedling before it is a plant that bears fruits and vegetables. The children identify and discuss the order of the events in the second paragraph.

2 Materials: Camera equipment, film (film processing equipment), cardboard squares, glue, laminating plastic, felt tip markers.

Procedure: (Note: The intent of the following activity is to demonstrate the occurrence of implicit sequential cues. The activity may be expanded, however, to include a unit of study on photography techniques and/or film processing.)

a. The children take pictures of activities with two or three events—e.g., girl standing on a diving board; girl in air, diving; girl entering water from dive. They process the film themselves or send it to a professional processing service.
b. When the photographs of the activities have been processed, the children arrange their pictures to reflect the order in which the specific events occurred. They glue their pictures, in order, to a cardboard square, and then draw six to seven lines on the cardboard for paragraphs they will generate later (see next page for example).



The children laminate the cardboard squares with plastic.

c. The teacher and children discuss how the pictures could easily be ordered by thinking about the way in which things happen—e.g., the girl would stand on the diving board before she would be in the air; and the girl would be in the air before she would be halfway in the water. The teacher explains to the children that the order of events in paragraphs can often be determined by thinking about the way things happen. The teacher stresses that by reading very carefully and looking for clues that help explain the way things happen, the children will be able to identify the order of events in paragraphs.

d. The teacher reminds the children that sometimes the order of events in stories can be determined by special words like *first*, *last*, and *then*, and sometimes the order can be determined by thinking logically about when things happen—e.g., fall comes right before winter, etc. The teacher asks the children to write paragraphs that describe the sequence of events pictured on the cardboard squares. The children may use explicit cue words and/

or implicit cues. The cues (whether explicit or implicit) in the children's paragraphs should be identified and discussed.

e. The children may erase their paragraphs with a wet cloth and then exchange cardboard squares and follow the above procedure.

3 Materials: Cards 1-3, enlarged and laminated onto colored cardboard.

Procedure:

a. The teacher explains that the order of events in paragraphs can be determined by looking for clues. He says that sometimes the clues are special sequence words like *first*, *then*, *before*, etc. He explains that sometimes the clues are hidden in the words or phrases, but by looking carefully at what is said and by thinking about the way things happen, the order can be determined.
b. The teacher shows the children one of the paragraph cards. He explains that the events in the paragraph occur in a special order, and that order can be determined by looking at the words that are in the boxes. The teacher and children discuss the kind of clues in the paragraph and the order that the specific clues indicate.
c. The teacher and children discuss the remaining cards following the same procedure. The teacher should stress the importance of searching for clues when determining the order of events in paragraphs.

4 Materials: Transparency 2, overhead projector.

Procedure:

a. The teacher projects transparency 2, revealing only the first paragraph. The children read the paragraph and discuss the sequence of events. The children identify the sequence of events and the explicit cues. The teacher and children discuss how the cue words help determine the order.
b. The teacher reveals the second paragraph. He tells the children that the order of the events in the paragraph isn't indicated in the same way that it was in the previous paragraph. The children identify the sequence of events and the implicit cues—i.e., "when he finished eating" indicates that "got dressed" occurred after "John ate breakfast." The teacher and children discuss how the words "when he finished eating" and "when he was fully clothed" helped determine the order of events.
c. The teacher and children discuss the differences in the two paragraphs when explicit cue words and implicit cues are given. The

teacher should stress the importance of looking carefully for clues in paragraphs.

5 Materials: Transparency 3, overlay 1, overhead projector, chalkboard, chalk.

Procedure:

a. The teacher projects the transparency. The children read the two paragraphs and order the events. The teacher writes the correct orders for each paragraph on the lines provided.

Answers: a. Sue and Andy made lunches; They left for school; They waved good-bye to their brother. b. Sue and Andy made lunches; They waved good-bye to their brother; They left for school.

b. The teacher places the overlay on the projector. The children read the paragraph and order the events. The teacher writes the events in order on the lines provided. The children discuss the implicit clues that help determine the order of events—i.e., "with their lunches in their hands" indicates that "left for school" would happen after "made their lunches," and "on their way to school" indicates that "waved good-bye to their baby brother" would occur after "they left for school." The teacher asks the children to identify the paragraph with explicit clues that has the same order as the paragraph with implicit clues. The teacher and children discuss the differences in the two paragraphs.

Answer: a.

SKILL DEVELOPMENT ACTIVITIES

***Rationale:** The child determines the order of events which have implicit sequential relationships.*

☆ 6 Materials: Paragraphs with implicit sequential relationships written on envelopes; event pictures for each paragraph inserted in appropriate envelopes.

Procedure: The child reads the paragraph on the envelope. He removes the event pictures from the envelope and arranges them in sequential order. The teacher should check the child's responses. The teacher should elicit from the child the clues he used to determine

the sequential order. The child reads the remaining paragraphs following the same procedure. His sequential arrangements should be checked.

Sample paragraphs:

Milly made coffee. As she was getting out the typewriter, Milly spilled her cup of coffee. After she cleaned up the coffee, Milly typed her letters.

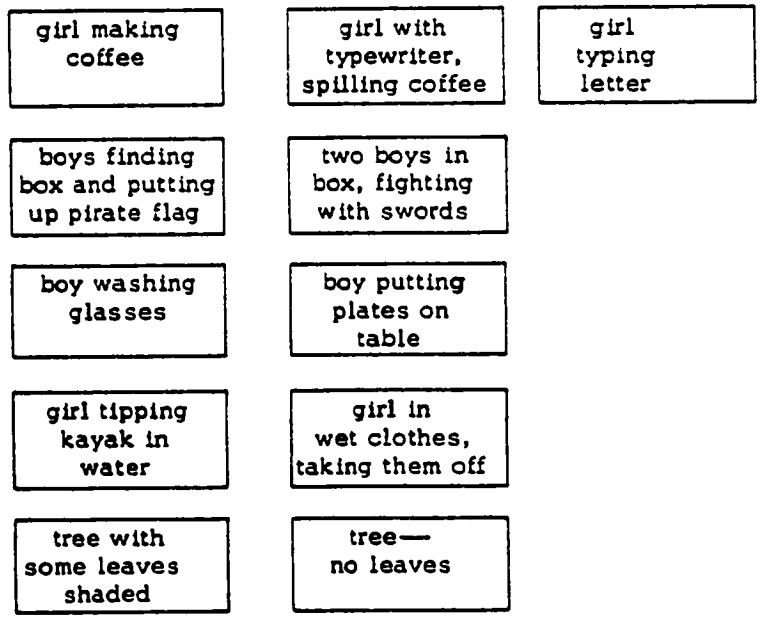
Paul and Bill found a box in the park and pretended it was a pirate ship. In their make-believe pirate ship, the boys had pretend battles with other pirates.

Arthur washed some glasses. When he had enough clean glasses, Arthur put the plates on the table.

Melanie had a lesson in tipping a kayak. She had to put on clean clothes when the lesson was over.

The leaves first begin to turn colors in the autumn. After the leaves change colors, they fall from the trees.

Sample pictured events in correct order:



☆ 7 Materials: Paragraph cards; events recorded on cardboard strips and inserted into a large box; a single die.

Procedure:

a. Two to three children are each given two paragraph cards. The children take turns throwing the die. When a child throws a 1, 3, or 5, he wins the opportunity to draw an event strip from the box. The child studies the event strip drawn. He keeps it if he thinks it's an event for one of his two paragraphs. If not, he throws it back into the box.

b. Play continues until one child has collected the three event strips for each of his paragraphs. To win the game, the child must be able to order the event strips for each paragraph to reflect the order in which the events occurred in the paragraphs. The other children or the teacher may check his responses. The children should discuss the implicit clues that helped determine the order of the events.

Paragraphs:	Events in correct order:
Sandy walked up to the door. As she touched the door knob, the lightning struck the house. The lightning sent Sandy running back to the car.	walked up to door lightning struck ran to car
Before Sara could go out and play in the snow, she had to put her snowsuit on. When she'd been in the snow an hour, Sara's mother called her in for hot chocolate.	put snowsuit on played in snow went in for hot chocolate
Victor cut his own shapes and pieces. When the shapes and pieces were assembled, Victor glued them together to make a model airplane. After the model was completed, Victor painted it red.	cut the shapes glued the shapes painted the model
Before Mr. Edward drove into the parking lot, he watched a young woman in a green car back out of her parking place. Once he was in the parking lot, Mr. Edward saw three empty spots.	saw green car back out of parking place drove into parking lot saw three parking spots

After Adam dropped the paintbrush on the floor, he cleaned the floor with turpentine. Unfortunately, when he cleaned the floor with turpentine, Adam rubbed a hole in the carpet.	dropped the paintbrush cleaned the floor put a hole in the carpet
Mr. Smith rented a car to use before he left his car at the garage to be repaired. When he drove away from the garage, Mr. Smith ran over a nail.	rented a car left car at the garage ran over a nail

8 Materials: Event strips in envelopes.

Procedure: The child reads the event strips in the envelopes and orders them in the way that they would occur. The teacher should elicit from the child the information he used to determine the order of the events—e.g., for envelope 1, Sandy wouldn't know that the cabin looked spooky unless she was already at the cabin, or Sandy had to be at the cabin to know that it looked spooky. Therefore the Adams' would have to arrive at the cabin before they could see that it looked spooky. The child's answers should be discussed. The teacher should stress that the order of the events can be determined by looking carefully for specific information.

Event strips in correct order:

Envelope 1:
The Adams' arrived at the old cabin.
The cabin looked spooky, but Sandra jumped from the car anyway.

Envelope 2:
Joey dribbled the ball slowly down the court looking for an opening.
As soon as a place opened, Joey rushed through and took a shot.

Envelope 3:
When Jackie gets up in the morning she takes a bath.
After bathing, Jackie goes down for breakfast.

Envelope 4:
The black and white cat ran from under the car into the yard.
In the yard the cat found a ball to play with.

Envelope 5:
Dee Dee emptied the box of mix into the bowl and started the mixer.
While the mixer hummed she began to make the frosting.

Envelope 6:
Maria was biking along Main Street when the chain broke on her bicycle.
With a bike that didn't work, Maria was forced to walk down the street.

☆ 9 Materials: Gameboard 1, enlarged and laminated; two or three markers; a single die; events recorded on strips and inserted into envelopes; answer key.

Procedure:

a. Two or three children play the game. They place their markers on start and take turns throwing the die. They move their markers the number of spaces indicated on the die and do what the square on which they land tells them to. When they draw an envelope, the children arrange the events in the order in which they would occur. A fourth child or the teacher checks the order with that on the answer key to determine whether it is correct. If the order is correctly identified by the child, he earns the space. If not, he returns to start.
b. Play continues until one of the children finishes. That child wins the game.

Sample events in correct order (answer key):

Envelope 1:
As we approached the railroad crossing, the crossbar came down.
Seconds after the crossbar lowered, a freight train came whizzing by.
After the train was gone, we drove across the tracks.

Envelope 2:
Wizelda went to the Detroit airport.
When she walked in the terminal, Wizelda saw her plane come down.
After Wizelda's plane landed, it taxied to Gate 36.

Envelope 3:
When the gas tank neared empty, Martin stopped for gas.
While the attendant took care of the car, Martin bought a can of coke.
When he had finished the coke, Martin ate a candy bar.

Envelope 4:
Today Terry would do many things, starting with eating breakfast at the Pancake Hut.
After breakfast she was going to go shopping all day.
And at the end of shopping, she was going to a movie.
Terry would stop for a sandwich after the movie.

Envelope 5:
Margaret searched in the wastebasket for her contact lens.
After she checked through the trash, Margaret crawled all around the floor looking for her lens.
When she got up off her knees, having found nothing, Margaret cried.
Margaret's dog, Pal, tried to console Margaret when he saw her tears.

Envelope 6:
Bill took the dirty dishes off the counter.
When the counter was clean, Bill placed the checkers board on it.
Ralph and Todd came over to the counter when they saw the board set up.
After they sat down at the counter, Bill passed out the chips.

10 Materials: Directions, chalkboard, chalk.

Procedure: The teacher writes a set of directions on the chalkboard in scrambled order. He asks a child to read the directions. He tells the child to do whatever the directions tell him to do. He reminds the child that the directions must be ordered. The child orders the directions and then does as told. The teacher should discuss the child's responses to the directions. The child should identify the clues he used in determining the correct sequential order.

Sample directions (in sequential order):

Put your hand on your ear.
With your hand on your ear, touch your other hand to your elbow.
While both hands are still in place, touch your nose to your knee.

Walk four steps.
After taking four steps, jump up and down twice.
When you finish jumping, sit in a chair.
When you are sitting, put your hands on your head.

Dust off your chair.
When your chair has been dusted, turn it around twice.
After turning your chair around you may sit down.
While you sit, fold your hands in your lap.

First, go to the blackboard and write your name on it.
After writing your name, walk to the window and look out.
Return to your seat from the window and sit down.
When you are seated, pronounce your name.

☆ 11 Materials: Mimeographed copies of worksheets 1 and 2, pencils.

Procedure: The teacher does the example with the children. The children then do the worksheets independently. Their answers should be discussed.

Answers: Example, A,2; B,4; C,1; D,3. 1. A,2; B,4; C,3; D,1. 2. A,4; B,1; C,3; D,2. 3. A,3; B,1; C,4; D,2. 4. A,4; B,2; C,3; D,1.

E.2
Activity 1
Transparency 1

Comprehension
Level E
Skill 2

First Margaret looked for her ring under the chair. Then she searched under the table. Before she checked under the rug, Margaret looked in the open drawers.

In the spring, Jean prepares the soil for her garden. When the soil is soft and ready, Jean plants her seeds. The seeds become seedlings in a few weeks. By August Jean has fresh fruits and vegetables.

E.2
Activity 3
Card 1

Comprehension
Level E
Skill 2

Kathy left the house [after] she looked in the paper to see which movie was playing. She walked to the theater. [When she got there,] she went in and sat down.

E.2
Activity 3
Card 2

Comprehension
Level E
Skill 2

Before Wally walked out the door, he checked to see if he had the grocery list. Then he headed for the car. Wally discovered that he left his money at home when he drove into the store parking lot.

Before Peter took the wrapper off the gum, he paid for it. Then he put it in his mouth and chewed it. When the gum lost its flavor, Peter threw it away.

E.2
Activity 4
Transparency 2

Comprehension
Level E
Skill 2

First John ate breakfast. Then he got dressed. Finally, he brushed his teeth.

John ate breakfast. When he finished eating he got dressed. When he was fully clothed, he brushed his teeth.

E.2
Activity 5
Transparency 3

Comprehension
Level E
Skill 2

a.

Sue and Andy made their lunches. Then they left for school. Next they waved good-bye to their baby brother.

b.

Sue and Andy made their lunches. Just before they left for school they waved good-bye to their baby brother.

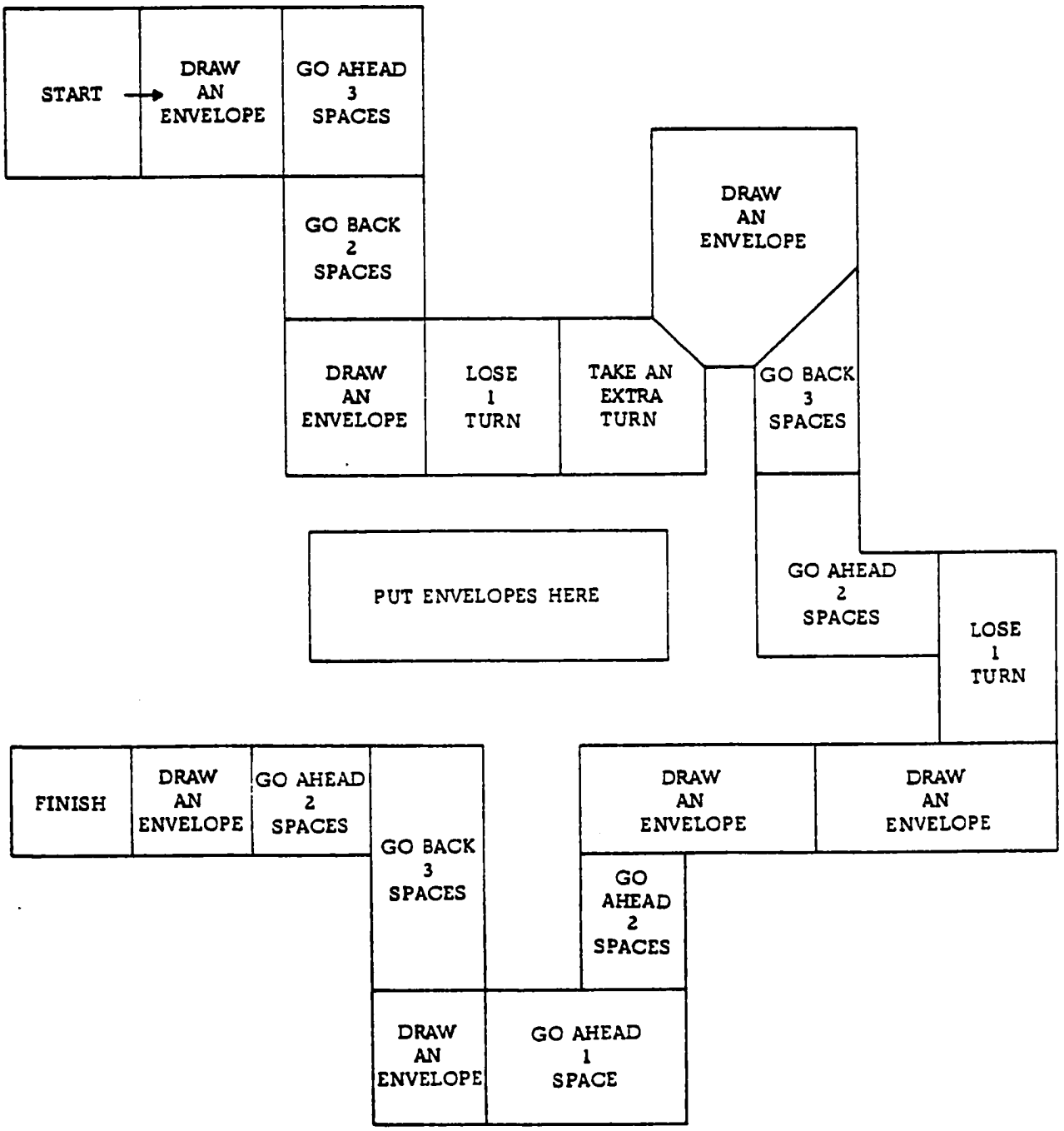
E.2
Activity 5
Transparency 3—Overlay 1

Comprehension
Level E
Skill 2

Sue and Andy made their lunches. With their lunches in their hands, they left for school. On their way to school, they turned and waved good-bye to their baby brother.

E.2
Activity 9
Gameboard 1

Comprehension
Level E
Skill 2



E.2
Activity 11
Worksheet 1

Comprehension
Level E
Skill 2

DIRECTIONS: Read the sets of statements. For each set, fill in the circle under 1 for the statement that happens first, under 2 for the statement that happens second, under 3 for the statement that happens third, and under 4 for the statement that happens last.

Example	1	2	3	4
A. Once they had chosen the plot, Tom and Carol each dug in with a shovel.	○	○	○	○
B. After bringing the supplies home, Tom and Carol dug little holes in even rows in their garden.	○	○	○	○
C. When Tom and Carol decided to plant a garden, they picked an area with rich soil.	○	○	○	○
D. After the ground was thoroughly spaded, Tom and Carol bought plants, seeds, string, and stakes.	○	○	○	○

	1	2	3	4
1. A. Kevin turned the corner in his wagon and saw a girl sitting on the ground holding her knees.	○	○	○	○
B. Mother helped Jane hop from the driveway to the front door.	○	○	○	○
C. Kevin took off Jane's skates and gave her a ride home in his wagon.	○	○	○	○
D. As Jane was skating along, she tripped over a crack in the sidewalk.	○	○	○	○

	1	2	3	4
2. A. To see what the problem was, Mike turned the wagon upside down.	○	○	○	○
B. Suzy went with Father to pick up her new blue wagon.	○	○	○	○
C. While pulling the wagon, Mike heard a loud, squeaky noise.	○	○	○	○
D. When Suzy and Father got home, Mike gave his teddy bear a ride in Suzy's blue wagon.	○	○	○	○

E.2
Activity 11
Worksheet 2

Comprehension
Level E
Skill 2

	1	2	3	4
3. A. From their perch Tom and Pete could see the runners on the track in the distance.	○	○	○	○
B. Tom and Pete went to see a track meet but did not have enough money to get it.	○	○	○	○
C. Tom and Pete soon grew tired of guessing which event was being held, so they went to buy a program.	○	○	○	○
D. Since the boys were unable to buy tickets, they climbed a tree and watched through a fence.	○	○	○	○

	1	2	3	4
4. A. Following their rest, Sue and Jack climbed to the top of the small hill on the other side of the river to see whether they could find some rare stones.	○	○	○	○
B. After Sue and Jack had gathered enough samples for polishing and cutting, they sat down beside the river to have lunch.	○	○	○	○
C. When Sue and Jack had eaten, they lay down on their blankets and took a nap.	○	○	○	○
D. Sue and Jack walked along the river bank to collect several different kinds of rocks.	○	○	○	○

SKILL 5

Uses Context Clues: Unknown Words

SKILL DEVELOPMENT ACTIVITIES

***Rationale:** The child determines the meaning of an unfamiliar word in context by inferring from direct description.*

1 Materials: Transparency 1, overhead projector.

Procedure:

a. The teacher reminds the children that all the words in a sentence or paragraph make up the setting or background for that paragraph. The teacher says that the setting or background the words make in a sentence or paragraph is called *context*. He reminds the children that there will always be words in their reading that they will not know. He states that writers, however, often provide clues to the meaning of the unfamiliar words. He points out that the children should be able to determine the meaning of unfamiliar words by looking carefully for the clues provided.

b. The teacher projects the transparency. The children read the paragraphs silently. The teacher tells the children that very often, when writers use a word that may be unfamiliar to the children, they provide a description or definition of the word. The teacher points out that this clue or description of the unfamiliar word can be a word, a phrase, or an entire sentence. It can appear near the unfamiliar word, in the sentence before it, or in one or two sentences after. The teacher asks the children to identify the clues to the meanings of each of the unfamiliar words underlined on the transparency. He then asks the children to identify the meanings of the words *kaput*, *sparingly*, and *flue*. The children should respond with words like *ruined*, *ended*, *broken* (kaput); *not often*, *seldom*, *in small amounts* (sparingly); *pipe* (flue).

2 Materials: Advertisements, chalkboard, chalk, pencils.

Procedure: The teacher writes the first advertisement on the chalkboard: "With this new *keit* your shoes will always be shiny and bright." He tells the children that they are going to play a little game. He explains that the sentence on the board is an advertisement, and

that the children are to guess the name of the pretend product described (not brand names). The teacher points out that by looking very carefully at the clues provided in the sentence, the children should be able to identify the product. The children should respond that *keil* is shoe polish or wax. The teacher writes the remaining advertisements on the chalkboard following the same procedure. The children's answers should be discussed. The children should be encouraged to write advertisements of their own to present to the class.

Answers: 1. shoe polish, wax; 2. soap, detergent; 3. breath spray, mouth wash.

Sample advertisements:

With this new *keil* your shoes will always be shiny and bright.

Don't let your friends talk behind your back about your ugly gray wash. Instead, this *clopper* will make your clothes come out sparkling clean.

Does your canary have bad breath? Use this aerosol *peipo* to make him a pleasure to be around.

☆ 3 Materials: Mimeographed copies of worksheet 1, pencils.

Procedure: The children do the worksheet independently. Their answers should be discussed.

Answers: 1. c; 2. a; 3. b.

Rationale: The child determines the meaning of an unfamiliar word in context by inferring from contrast.

4 Materials: Transparencies 2 and 3, overhead projector, grease pencil.

Procedure:

a. The teacher tells the children that there is another kind of context clue that they are going to learn about. He explains that they have been working with clues that describe or give examples of the unfamiliar words. He says that now they are going to work with clues that give the opposite of what the unfamiliar word means.
b. The teacher projects transparency 2. The children read the sentence silently as the teacher reads it aloud. The teacher draws

a line under "instead of being runny." He says that this is a clue to the meaning of the unknown word. He further explains that it is a clue to the meaning of the word because it tells us what the unknown word is not. The teacher says *aute* is *not runny*. He asks the children what something would be if it were not runny. The children should respond with words like *hard, solid, firm*. The teacher asks the children to look at the four possible meanings of the word *aute*. He asks the children to determine which meaning comes closest to being *not runny*. The children should respond that *a solid lump* comes closest.

c. The teacher projects the second transparency, following the same procedure. The children's responses should be discussed. The teacher should stress that very often knowing what something is not is as important a clue to the word's meaning as knowing what it is. More importantly, the teacher should explain that contrast context clues provide another means by which the author can help children understand the meaning of the unfamiliar words in their reading.

Answers: Aute: d; zerl: c; thabed: a.

5 Materials: Dialogues typed on cards for each participant, mimeographed copies of worksheet 2, pencils.

Procedure: The teacher tells the children to look at the word meanings beside the number 1 on the worksheet. He tells the children to listen carefully to determine the correct meaning for the pretend word *mank*. Two children read the dialogue to the class. The children listen to the dialogue and cross out meanings on the worksheet as they become inappropriate based on the dialogue read. As soon as a child thinks he has the correct meaning, he raises his hand. The child's response should be discussed. The remaining dialogues are read following the same procedure. The children may generate their own dialogues.

Answers: Mank: car; witen: concert; zeepe: clown.

Sample dialogues:

1. George: I can't go riding with you, Arch.
   Archie: Why not?
   George: My *mank* is broken.
   Archie: That's okay. I have two *manks*. You can borrow one of mine.
   George: Are the tires on your *manks* in good condition?

Archie: Yes, I have just had one of the front tires on my yellow *mank* repaired.
George: Do you want me to take the yellow *mank*?
Archie: Yes, the yellow *mank* is an automatic. You're not used to a straight stick.
George: The garage mechanic said my *mank* needs a new engine. It won't be ready for three weeks.

2. Mary: Jody wants to go to the *witen*.
Edith: I could go with Jody instead of going to the movie.
Joe: Rather than stick around at the swimming pool, I could take Jody to the *witen*.
Mary: I'd go grocery shopping rather than listen to that kind of music.

3. Carol: I want to be a *zeepe* when I grow up.
Mother: Let's see—three weeks ago you wanted to be a nurse. A week later, instead of being a nurse, you wanted to be a doctor. I know you'd be almost anything rather than be a dentist.
Carol: Being a *zeepe* would be great! I would be working with children every day. I would teach them many things and yet I would make them laugh and be happy.
Mother: You once told me you prefer being around tiny children rather than school-age children.
Carol: That's right.
Mother: Instead of wanting to be a teacher, my daughter wants to be a . . .

☆ 6 Materials: Mimeographed copies of worksheet 3, pencils.

Procedure: The teacher does the example with the children. The children then do the worksheet independently. Their answers should be discussed.

Answers: Example, b; 1. c; 2. a; 3. c; 4. a; 5. b.

☆ 7 Materials: Mimeographed copies of worksheet 4, pencils.

Procedure: The children do the worksheet independently. Their answers should be discussed. The children should identify the clues they used in determining the appropriate meanings. The teacher should elicit a variety of responses for the last limerick. A discussion of how only certain meanings are appropriate should follow.

Answers: 1. b; 2. b; 3. ugly, funny, etc.

8 Materials: Cardboard strips, felt-tip marker, sentences, nonsense words, and word meanings.

Procedure:

a. The teacher writes each sentence, each nonsense word, and each word meaning on separate cardboard strips.
b. He then divides the classroom into three groups. He gives one group of children the nonsense word cards, another group the sentence cards, and the third group the word meaning cards.
c. He tells the children who are holding the nonsense word cards to find the child who is holding the sentence that includes his made-up word.
d. The nonsense word card children and the sentence card children team up to locate the child who is holding the word meaning card that is appropriate.
e. When all the word meaning cards, nonsense word cards, and sentence cards have been matched, the teacher should have the teams present and discuss their individual matches.

Samples:

Nonsense Words	Sentences	Word Meanings
nute	Instead of being *nute*, Bob was very clean.	dirty
swolt	When the food finally came it was *swolt* instead of hot.	cold
oze	Ted hates carrots, rather than *oze* them as Jenny does.	love
poatly	Rather than cut the bread *poatly*, Greg cut it in thin slices.	thickly

Rationale: *The child determines the meaning of an unfamiliar word in context by inferring from both direct description and contrast.*

☆ 9 Materials: Mimeographed copies of worksheet 5, pencils.

Procedure: The children do the worksheet independently. Their answers should be discussed.

Answers: Retort: answer; coax: beg; expunged: erased; nummular: circular; sultry: hot; unicellular: single-celled; vituperated: severely scolded.

☆ 10 **Materials:** Mimeographed copies of worksheets 6 and 7, pencils.

Procedure: The teacher does the example with the children. The children then do the worksheets independently. Their answers should be discussed.

Answers: Example, b; 1. a; 2. c; 3. a; 4. d; 5. c; 6. b; 7. b; 8. d.

☆ 11 **Materials:** Mimeographed copies of worksheets 8, 9, and 10; pencils.

Procedure: The teacher does the example with the children. The children then do the worksheets independently. Their answers should be discussed. The children should identify the clues they used in determining the meaning of the unknown words.

Answers: x. c; y. a; 1. d; 2. b; 3. c; 4. a; 5. c; 6. d; 7. e; 8. e; 9. e; 10. d.

Adam ran out to start the car. He put the key in the ignition. The car made a big noise and then died. The engine was kaput. It would never run again.

Louise and I are in the same homeroom at school. We enjoy talking a lot. She told me that she is very careful about how many sweets she eats. Louise says she eats all desserts sparingly.

Mr. Tum is building a new house. In fact, he is building it entirely by himself. Last week Mr. Tum had finished all the building except for installing the flue, a pipe, in his fireplace.

DIRECTIONS: Read the following jokes. Look carefully for the clues in the jokes that help you determine the meaning of the underlined words. Fill in the circle next to the meaning of the underlined words.

1. Two stertzos were eating grass beside the highway one day. A milk truck came racing down the road. On the milk truck, the following was painted: "Pasteurized, homogenized, vitamins added." The two stertzos looked at each other and one said, "I feel like a failure."

   Stertzos are

   (a) horses
   (b) boys
   (c) cows
   (d) farmers

2. Peter: I heard that two scientists crossed a parrot with a keekee.
   Al: What did they get?
   Peter: I'm not sure, but if he starts talking to you, you'd better listen.

   Keekee is a

   (a) grizzly bear
   (b) duck
   (c) fish
   (d) worm

3. The English teacher asked the children, "What is the ledo of the word sad?" The class responded, "Happy." The teacher asked, "And the ledo of smart?" "Dumb," the class answered. "And what is the ledo of woe, meaning sorrow?" asked the teacher. "Giddap," they shouted.

   Ledo is

   (a) same
   (b) opposite
   (c) example
   (d) meaning

Instead of being runny, as Kim had expected, the cake was aute.

Aute is:
a. watery
b. icing
c. bitter
d. a solid lump

E.5
Activity 4
Transparency 3

Comprehension
Level E
Skill 5

Susy's dress was made of zerl rather than a heavier, warmer fabric.

Zerl is:
a. wool
b. fur
c. cotton
d. leather

Instead of punishing Joe for not talking to strangers, his mother thabed him.

Thabed is:
a. praised
b. fed
c. bathed
d. scolded

1. car

   horse

   bike

2. movie

   grocery store

   concert

   swimming pool

3. third-grade teacher

   nurse

   dentist

   clown

   doctor

DIRECTIONS: Read the made-up words and their made-up meanings. Then read the sentences beneath each word and its meaning. Fill in the circle beside the sentence that uses the made-up word correctly.

Example

Tumptious means kind or sweet.

(a) Instead of being tumptious, Roger is very nice.

(b) Instead of being tumptious, Roger is a cruel, evil person.

(c) Rather than being tumptious like Ed, Roger is understanding and good.

1. Tramified means scared.
   (a) Instead of being tramified by the monster, Kelly was afraid.
   (b) Kelly was frightened by the monster, rather than being tramified by it.
   (c) Instead of being tramified by the monster, Kelly was unafraid.

2. Dictoll means destroy.
   (a) Instead of wanting to dictoll the sand castle, we wanted to help build it.
   (b) Rather than dictoll the sand castle, Eric smashed it.
   (c) Eric wrecked the sand castle instead of dictolling it.

3. Leet means friend.
   (a) Jerome is Edith's pal rather than her leet.
   (b) Instead of being her buddy, Jerome is Edith's leet.
   (c) Instead of being her leet, Jerome is Edith's enemy.

4. Gooply means quickly.
   (a) Instead of running gooply, Karla went slowly.
   (b) Rather than run gooply, Karla ran fast.
   (c) Karla ran rapidly rather than gooply.

5. Blit means keep.
   (a) Instead of blitting the paper, Con saved it.
   (b) Con threw the paper away rather than blit it.
   (c) Rather than hold on to the paper, Con wants to blit it.

DIRECTIONS: Read the limericks below. Then decide what the nonsense word in each limerick means. Fill in the circle next to the correct meaning for the words in the first two limericks. For the last limerick, write on the line provided what you think the made-up word means.

1. There was an old man from Berlin
   Who became so unnaturally thin,
   That rather than sklee
   When he drank up his tea,
   He slipped through the straw and fell in.

   sklee means

   (a) fail

   (b) succeed

2. A little old lady from Bat
   Once sat very hard on her hat.
   She didn't get kied,
   But laughed till she cried,
   And she buried her hat with her cat.

   kied means

   (a) silly

   (b) mad

3. There was a young lady from Berm
   Who tied bows on the tail of a worm.
   He didn't look pretty,
   But instead looked so dritty
   That the lady of Berm called him "Germ."

   dritty means

   _____

DIRECTIONS: Read each of the sentences. Then decide which of the meanings at the bottom of the page is appropriate for the underlined word in each sentence. Write the appropriate word meanings in the parentheses next to the underlined words.

1. Mrs. Miller's retort ( ) was a good response to Mr. Shay's question.

2. Rather than coax ( ) Sheryl to go to the party, Sandy only asked her once.

3. The boy had blotted out the memory forever. He had totally expunged ( ) it from his mind. He did not remember anything.

4. Like a nickel, a dime is nummular ( ) in shape.

5. Unlike Joe's room, which always remains cool and comfortable, John's room was sultry ( ).

6. The amoeba, an animal which has only one cell, is unicellular ( ).

7. Rather than deal with Charles lightly as his father does when Charles is naughty, Charles' mother vituperated ( ) him.

---

severely scolded single-celled erased
beg hot answer circular

DIRECTIONS: Read the underlined words and their meanings. Then read the sentences below each word and its meaning. Decide which sentence uses the underlined word correctly. Fill in the circle next to the correct answer for each item.

Example

Copious means plentiful.

(a) Rather than having a copious amount, we had plenty.

(b) Instead of having a copious harvest, we barely had an acre of wheat.

(c) Rather than copious the paper, John handed it in blank.

1. Agley means off to one side.
   (a) Although Adam thought the hat was on straight, he had it on agley.
   (b) The people shouted with agley.
   (c) Instead of fixing dinner, mother made agley.
   (d) Agley thought carefully before he spoke.

2. Batten means strip of wood.
   (a) Mother used a batten to clean the bathroom floor.
   (b) This particular paint is made from battens.
   (c) Joel boarded up the windows with battens.
   (d) Unlike the other plastics we manufacture, a batten is soft and bends like paper.

3. Scrivener means writer.
   (a) Many years ago public writers were called scriveners.
   (b) The scrivener hit its bow on a rock and sunk.
   (c) Unlike other fish, scriveners usually wander the oceans alone.
   (d) Alex taped the scrivener to his book.

4. Quash means put an end to.
   - (a) Instead of ending the book, Zeke quashed it.
   - (b) Dick called the news station and gave them a quash.
   - (c) Rather than quash the glass, Milly destroyed it.
   - (d) Rather than continue the fight, Paul quashed it.

5. Regicide means the killing of a king.
   - (a) The regicide of the queen was a sad event.
   - (b) We destroyed the bugs with regicide.
   - (c) Unlike the nobles who were freed of the charges of killing the King, Sir Plan was accused of regicide.
   - (d) Rather than kill the king, Sir Arthur committed regicide.

6. Don means put on.
   - (a) The plane landed despite the old don.
   - (b) Rather than freeze in the cold room, Peter donned a sweater and a coat.
   - (c) Instead of putting on her clothes, Joy donned into the tub.
   - (d) Adam donned the cup of coffee.

7. Welt means hit hard.
   - (a) Warren tied the welt around his waist.
   - (b) The old school master welted Jonathan with the stick across his hand.
   - (c) Rather than hit the horse hard, Murtle welted him on the leg.
   - (d) Skins of beavers are called welts.

8. Otiose means not doing anything.
   - (a) Rather than do nothing, Bill is being otiose.
   - (b) Jill fried the eggs otiosely.
   - (c) My mother works very hard; she is otiose all the time.
   - (d) Instead of working hard today, my father is sitting at home, otiose.

DIRECTIONS: Read the sentences. Then decide what the underlined word means. Fill in the circle next to the meaning of each underlined word. When there is a blank, fill in the circle next to the meaning that would fit in the blank.

Example

x. The man was <u>prosperous</u>, having more possessions than anyone else in the village.

<u>prosperous</u> means

(a) well-liked
(b) greedy
(c) wealthy
(d) odd
(e) poor

y. Instead of putting the worms in an airtight can, Neil put them in one with _____ in it.

(a) holes
(b) food
(c) dirt
(d) water

1. Doug was not a man to waste words; he explained the rules <u>concisely</u>.

<u>concisely</u> means

(a) nicely
(b) fully
(c) too much
(d) briefly

2. Rex tied the two ends of the rope together to form a <u>quoit</u>. Then he tossed it around a post in the ground.

<u>quoit</u> means

(a) lasso
(b) ring
(c) whip
(d) horse shoe

3. Sue infringed Mark's trust. She told a secret that he had asked her to keep.

infringed means

(a) liked
(b) borrowed
(c) broke
(d) asked for

4. Rather than turning out thick and chalky, the mixture was more like _____.

(a) water
(b) milk
(c) syrup
(d) cream

5. Rather than show everyone the coin that he had discovered, Ben wanted to _____ it.

(a) lose
(b) find
(c) hide
(d) display

6. Instead of finding that the liquid in the bottle still looked like dark ink, Gina saw that it had become _____.

(a) moldy
(b) colored
(c) warm
(d) clear

7. Instead of making the ring out of a piece of hard iron, Herb formed it from a _____ material.

(a) hard
(b) stiff
(c) rigid
(d) heavy
(e) soft

8. Jane found a box full of crumbs, rather than a box of _____ cookies.

(a) burned
(b) sweet
(c) bitter
(d) tiny
(e) whole

E.5
Activity 11
Worksheet 10

Comprehension
Level E
Skill 5

9. Instead of finding that the soup had too much salt in it, Julie thought it was _____.

   (a) thin
   (b) hot
   (c) chunky
   (d) spicy
   (e) tasteless

10. Instead of looking around the room with interest and showing that he knew everyone, the boy just sat and stared _____ at the faces.

   (a) loosely
   (b) busily
   (c) softly
   (d) blankly
   (e) nicely

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