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THE COMPREHENSION OF SYNTACTIC STRUCTURES WHEN PRESENTED IN VISUAL AND AUDITORY-VISUAL MODES TO A SELECTED GROUP OF ADOLESCENT DISABLED READERS

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Ethel Earl Young

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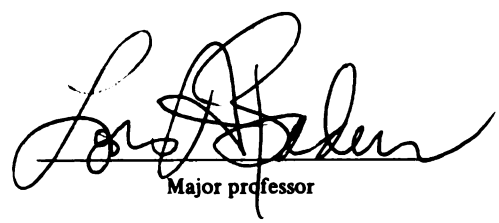

Major professor

Date November 3, 1977

THE COMPREHENSION OF SYNTACTIC STRUCTURES WHEN PRESENTED IN VISUAL AND AUDITORY-VISUAL MODES TO A SELECTED GROUP OF ADOLESCENT DISABLED READERS

By

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ABSTRACT

THE COMPREHENSION OF SYNTACTIC STRUCTURES WHEN PRESENTED IN VISUAL AND AUDITORY-VISUAL MODES TO A SELECTED GROUP OF ADOLESCENT DISABLED READERS

By

Ethel Earl Young

Purpose of the Study

The purpose of this study was to obtain, analyze, and compare data regarding syntactic structures that contribute to the listening and reading comprehension of disabled readers. The study focused on two major problems: (1) the relationship between comprehension of syntactic structures when presented in a visual mode and a visual-auditory mode and (2) the relationship between general verbal ability and comprehension of syntactic structures and nonverbal ability and comprehension of syntactic structures.

Sample

Thirty-six eighth and ninth graders who had been identified as reading three and four years below grade level placement by the Total Reading score on the Metropolitan Achievement Test, Form F (1971) and had obtained

between 4.0 and 6.0 on the Word Knowledge subtest of the Metropolitan Achievement Test, Form F (1971) composed the sample.

Instruments

The Word Knowledge subtest of the Metropolitan Achievement Test, Form F (1971) was used to assess word recognition and general verbal ability. The Mathematics: Computation subtest of the Metropolitan Achievement Test, Form F (1971) was used to assess nonverbal ability. Selected items from A Test of Sentence Meaning (Marcus, 1969) were used to measure comprehension of syntactic structures when presented in a visual mode and parallel items constructed by the investigator were used to measure comprehension of syntactic structures when presented in a visual-auditory mode.

Methodology

Students were tested in two 35-minute sessions on comprehension of syntactic structures when presented in a visual mode and in two 55-minute sessions on comprehension of syntactic structures when presented in a visual-auditory mode.

Major Findings

The statistical tests supported the following findings:

1. There were significant differences in comprehension among eight syntactic structures when presented in a visual mode.

2. There were significant differences in comprehension among eight syntactic structures when presented in a visual-auditory mode.

3. There was a significant difference between comprehension of syntactic structures when presented in a visual mode and a visual-auditory mode.

4. There was no significant relationship between general verbal ability, as determined by a test of synonyms, antonyms and word classification, and comprehension of syntactic structures.

5. There was a significant relationship between nonverbal ability, as measured by mathematic computation, and comprehension of syntactic structures.

Implications

The data pertinent to the present study indicated the following:

1. Teachers should be aware that some syntactic structures are more difficult for students to comprehend than other structures.

2. Skill in syntactic comprehension should be included as an objective of reading instruction.

3. Methods that use the visual-auditory mode as well as the visual mode should be included in instruction of syntactic structures.

4. The relationship between computational skills and syntactic comprehension should be explored further.

To Hilda and Stephanie,

my family

ACKNOWLEDGMENTS

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CHAPTER I

THE PROBLEM

Background

The literature specific to the effective instruction of disabled readers has primarily concerned itself with the decoding of words and the knowledge of word meanings. However, numerous individuals who are reading below grade level can decode words and know the lexical meaning of the words but are unable to comprehend the syntactic structures of the sentence. Because there are many individuals who are reading below grade level, there is a need for examining the effect of syntactic structures on reading comprehension and identifying the elements within the structures which may hinder reading comprehension.

Although linguistic-based research in reading comprehension is providing insight into the reading process, Wardhaugh (1976) stated,

> So far as research in reading is concerned, one of the greatest needs is to look at some of the basic linguistic units employed in reading instruction--sounds, syllables, words, and sentences, What they are and how they work in the spoken language is important as are their written correlates and the nature of the correlations (p. 86).

Additional support for the idea that the relationship of spoken to written language needs further clarification with regard to the reading process was provided by Lefevre (1964), who concluded that intonation is a very important nuance of our language and may be decisive in reading as well as in writing instruction. Similarly, Marcus (1969) reported that while administering his diagnostic test on grammatical structures, he observed students vocalizing the sentence structures to themselves as a means of obtaining meaning from the sentences. Based on his observations, Marcus asked the following questions, which might provide a basis for additional research: "How important are intonation clues to the derivation of meaning?" and "Do students achieve better when they hear the sentences out loud than when they silently read the sentences?" (p. 115).

Research concerned with reading and reading-related components has generally emphasized problems at the elementary level. However, since some junior high school students with reading difficulties appear to have problems with syntactic structures, an investigation of the relationship between reading ability and comprehension of syntactic structures seems appropriate at the junior high level.

More research is needed in two areas: (1) the nature of syntactic comprehension difficulties of

disabled readers and (2) the relationship between auditory and reading comprehension of syntactic structures. Further, to obtain more insight into basic reasoning processes, more information is needed on the relationship between general verbal ability and comprehension of syntactic structures and nonverbal ability and comprehension of syntactic structures.

Statement of Purpose

The purpose of this study was to obtain, analyze, and compare data regarding syntactic structures that affect listening and reading comprehension. A secondary purpose was to examine the relationship between general verbal ability and comprehension of syntactic structures and nonverbal ability and comprehension of syntactic structures.

Theoretical Framework

Research in the area of linguistics has served as a basis for the development of linguistic and reading-related theories with respect to reading and speaking. Renewed interest, stimulated by psycholinguists, into the nature of language components has reemphasized the importance of the sentence as a key unit of language. The realization that reading is not merely a function of recognizing words and knowing their meanings, but also of seeing relationships among words in a sentence, seems to

indicate that consideration be given to certain elements of linguistic theory with regard to reading comprehension. An explanation of relationships among words in a sentence was provided by Noam Chomsky's (1957, 1965) transformational-generative grammar theory. This theory proposes that every sentence has a surface structure, or spoken or written representation, and a deep structure, or meaning representation. The role of syntax, which is the arrangement of the smallest units of meaning, is to serve as an intermediary between sound and meaning. A set of transformational rules allows for the manipulation of syntax and determines the complexity of the sentence by the number of transformations performed in a sentence.

In seeking insight into language processing with regard to the transformational-generative grammar theory and existing parallels in psychological models, research was conducted to determine the psychological reality of the components of transformational-generative grammar. Findings by Miller and Isard (1963) as well as Marks and Miller (1962) indicated that the structure of the language facilitated recall of strings of words.

Other data provided by some studies proposed a correspondence hypothesis which suggested that the difficulty in comprehension of a sentence is related to the number of transformations within the sentence. Findings by Miller (1962) and Miller and McKean (1964) indicated

a relationship between the number of transformations and the reaction time involved in processing a sentence. Similarly, Gough (1965) found that the time involved in the verification of a statement was influenced by the number of transformations. Also, Mehler (1963) noted that sentences with fewer transformations were easier to recall. In their study on short-term memory, Savin and Perchonock (1965) found that when passive, negative, or interrogative forms were used fewer unrelated words were recalled than when simple active forms were used.

In investigating other aspects of syntactic structures as a factor in reading comprehension, Mehler, Bever, and Carey (1967) conducted a study on the reflections of linguistic units in the eye movements of a reader. They found a relationship between grammatical structures and duration of fixations. Also, Wanat (1971), in his study on the effects of manipulation of various linguistic components on eye movements, found that syntactic structures affected eye fixations and visual processing.

The full development of a coherent theoretical formulation has yet to come into being in the field of psycholinguistics, according to Wanner (1977). However, the foregoing studies do seem to make a case for continued exploration in the area of syntactic comprehension.

Two major areas of language processing are reading and listening. Positive correlations between listening and reading have been reported by Condon (1972), Lundsteen (1963), and Devine (1961). Duker (1965) stated, "Listening and reading both involve comprehension, interpretation, and evaluation. . ." (p. 321). In fact, according to Moffett (1968), there is no such thing as reading comprehension but a general process, comprehension, which is equally inclusive of reading and listening (p. 16). It would appear to be appropriate to investigate a possible relationship between auditory and visual syntactic abilities.

In investigations concerning the basic reasoning processes involved in comprehension of syntactic structures, Loban (1963) and Strickland (1962) provided evidence that the use of movables and elements of subordination within syntactic structures is necessary to see relationships and derive meaning in oral and written language. Similar characteristics appear to be required in some tasks used to determine nonverbal ability, such as mathematic computation. With respect to intelligence testing, comprehension has been studied with regard to its relation to verbal ability. That is, those with better vocabularies seem to be better readers as indicated by Wheeler (1949), who found a high relationship between verbal scores on tests of mental ability and

reading scores. Thus, there appears to be a relationship between verbal intelligence and semantic comprehension. However, nonverbal intelligence does not appear to be as closely related to general comprehension as verbal intelligence. Triggs (1954) found that the reading skills of rate, vocabulary, and comprehension were more closely related to verbal than nonverbal skills. However, since syntactic comprehension would appear to be different from semantic comprehension in that it deals with patterns and their relationships rather than word meanings, it may be that more precise investigation in this area may reveal a relationship between nonverbal intelligence and syntactic comprehension.

Further research concerning the identification of syntactic structures affecting reading, effective instructional presentations of syntactic structures, and the relationship between reasoning processes and comprehension of syntactic structures is needed to provide pertinent information to the existing body of knowledge regarding the relationship between syntactic ability and reading ability.

Research Questions

To guide the investigation, the following research questions were formulated:

1. Is there a significant difference in comprehension among eight syntactic structures when presented in a visual mode?

2. Is there a significant difference in comprehension among eight syntactic structures when presented in a visual-auditory mode?

3. Is there a significant difference between comprehension of syntactic structures when presented in a visual mode and comprehension of syntactic structures when presented in a visual-auditory mode?

4. Is there a significant relationship between general verbal ability, as measured by a test of synonyms, antonyms, and word classification, and comprehension of syntactic structures?

5. Is there a significant relationship between nonverbal ability, as measured by mathematic computation, and comprehension of syntactic structures?

The above research questions were restated in null hypothesis form for statistical testing. These are presented in Chapter III.

Delimitations

1. This study was limited to a group of eighth and ninth grade students from a moderate-sized midwestern city who were reading four and five levels below grade placement.

2. The syntax tests were limited to eight structures:

- Prepositional phrase modifiers
- Complex sentences with two relative clauses
- Relative clauses that modify objects of prepositions
- Relative clauses that modify direct objects
- Elliptical structures
- Recognition of transformations of nominalizations into active verbs
- Included clauses
- Passive voice in simple sentences

3. The vocabulary used in the syntax tests was limited to words that were familiar to the students.

4. The study was limited to students who scored above the 4.0 grade level on the Word Knowledge subtest of the Metropolitan Achievement Test, Form F and passed an informal word recognition test administered by the investigator.

Definition of Terms

This study may be better understood by the reader with initial clarification of certain terms.

Syntactic structures: Syntactic structures refers to the combining of words into larger structures to denote meaning in sentences. Three categories of syntactic structures, as classified by Nelson Francis

(1958), were used in this study. Francis (1958) defined structures of modification, structures of predication, and structures of coordination. A fourth category that is a combination of the first three categories was developed and used by Marcus (1969) in his study and was also used in this study.

1. Structures of modification consist of two immediate constituents, a head and a modifier. The head may be any of the parts of speech, certain function words, or any of the four structures. The modifier may be any of the four parts of speech, a prepositional phrase, or various other structures, including the included clause. The immediate constituents in complex structures of modification are indicated by patterns of word order and prosody (p. 425).

   Examples of structures of modification constructed by the investigator are:

   a. Prepositional phrase modifiers--

      Bill gave the book under the sofa to the girl.

   b. Complex sentence where relative clause modifies direct object--

      Jane hit the girl who was throwing the paper.

   c. Complex sentence where relative clause modifies object of preposition--

      The father of the boys who were riding in the car drove to the front entrance of the house.

   d. Complex sentences with two relative clauses--

      The boy to whom she gave the dog raced down the small path that was long and bumpy behind the house.

2. Structures of predication consist of two immediate constituents, a subject and a predicate. The predicate consists of a verb alone, or some structure in which a verb is prominent, such as a verb-headed structure of modification, a structure of complementation, or a structure of coordination whose constituents are verbs or

verb-headed structures. . . . The subject is commonly a noun or noun-headed structure, but may be any of the other parts of speech, a prepositional phrase, or other structure, up to included clauses (p. 425).

Examples of structures of predication constructed by the investigator are:

a. Passive voice in simple sentence--

The man gave her the cat.

b. Recognition of transformations into active verbs--

He planned for the conclusion of his acting on television because of the arrival of Joe.

3. Structures of coordination have two or more immediate constituents, which are syntactically equivalent units joined in a structure which functions as a single unit. The constituents may be any grammatical units from single words to sentences. The joining may be accomplished by word order and prosody alone, or with the aid of coordinators. A structure of coordination with more than two immediate constituents is a series. Structures of coordination may be elliptical or split (p. 426).

An example of a structure of coordination constructed by the investigator is:

Elliptical structure of coordination--

John told Jim to leave at seven and Bill at ten.

4. Combination of structures--Included clauses as modifiers, subjects or complements.

An example of combination of structures constructed by the investigator is:

Everyone knows that she is a winner.

Syntactic comprehension: Syntactic comprehension was operationally defined as performance on A Test of Sentence Meaning (Marcus, 1969) as well as on the parallel items constructed by the investigator.

Disabled readers: Disabled readers were defined as those students who were identified as reading three and four years below grade level by the total reading score on the Metropolitan Achievement Test, Form F.

General verbal ability: General verbal ability was defined by the scores obtained on the Word Knowledge subtest of the Metropolitan Achievement Test, Form F.

Nonverbal ability: Nonverbal ability was defined by the scores obtained on the Mathematics Computation subtest of the Metropolitan Achievement Test, Form F.

Organization of Subsequent Chapters

The content of Chapter I included a background of the problem, purpose of the study, theoretical framework, research questions, limitations of the study, assumptions of the study, definition of terms, and a presentation of the organization of subsequent chapters.

In Chapter II a review of the literature related to the study is presented. It includes sections on relationships between syntactic structures and comprehension, instruction in syntactic structures as an aid to comprehension, and relationships between listening and reading comprehension.

Chapter III comprises a description of the methodology used in this study.

Chapter IV organizes, analyzes, and presents the data and findings of the study.

Chapter V presents the conclusions, implications, and recommendations of the study as based on the findings.

CHAPTER II

RELATED LITERATURE AND RESEARCH

The review of related literature and research in this chapter is organized under three major headings. These are: (1) Relationships Between Syntactic Structures and Comprehension, (2) Instruction in Syntactic Structures as an Aid to Comprehension, and (3) Relationships Between Listening and Reading Comprehension.

Relationships Between Syntactic Structures and Comprehension

Within the last 20 years a concern for the importance of syntactic structures as they relate to reading comprehension has received a new impetus due to the impact of transformational-generative grammar. In his theory of transformational-generative grammar, Chomsky (1965) noted that every sentence can be represented on two levels, a surface level and a deep structure level. According to Wardhaugh (1968), "In order to fully comprehend a sentence, a listener or reader must be able to relate the correct deep structure to the surface structure of the sentence and to project a consistent semantic reading of the individual words" (p. 556). Smith

(1971) also stated, "The decoding that the skilled reader performs is not to transform visual symbols into sounds, but to transform the visual representation of language into meaning and that decoding is effected through syntax." He viewed the role of syntax as that of "mediator between visual (or acoustic) surface structure and meaning" (p. 222).

Numerous investigations have been conducted to determine the syntactic variables contributing to difficulties in reading comprehension. However, the majority of the research has been directed to reading problems at the elementary level. Even so, the data provided by some studies may be relevant to older students, especially if they are low-achieving readers.

In an early study, Gibbons (1941), using third grade students as subjects, investigated the relationship between sentence parts and reading comprehension. A disarranged phrase test composed of 15 sentences of varying difficulty and structures was administered to the subjects. The phrases were presented in mixed order in a column form with the subjects being instructed to make good sentences from the phrases in mixed order. Based on their scores on the test of disarranged phrases, the students were divided into two groups. Reading achievement of the students was measured by scores obtained from the Gates Standardized Reading Test. When

intelligence was partialled out, a correlation of .89 was found between the ability to see the relationship between sentence parts and comprehension of the sentence. Also, a correlation of .72 was found between the ability to understand sentences and reading achievement, when intelligence was partialled out. Thus, Gibbons (1941) concluded that there was a relationship between the ability to see relationships between sentence parts and reading ability. Lefevre (1972), who was supportive of Gibbons' findings, stated that "sentence sense" is an important factor in reading comprehension (p. 229).

Using 131 fourth graders as subjects, Ruddell (1965) conducted a study on the effect of the similarity of oral and written patterns of language structure on reading comprehension. He found that material that used high-frequency oral language patterns was easier to comprehend than material that contained oral language patterns of low frequency.

Coleman (1962) changed complex sentences into paraphrased forms. Comprehension was measured using a cloze test. He found that shortening sentences improved performance. Coleman and Blumfield (1963) reported that the disembedded, or sentences using active verbs, were easier to comprehend than the embedded or the nominalizations of active verbs.

In his study, Smith (1971) investigated whether structures that were more syntactically complex contributed to increased reading difficulty and whether passages written at four different levels of syntactic maturity could be read by all students with the same ease if vocabulary, content, and sentence length were held constant. The paragraphs were based on types and numbers of transformations in writing samples obtained by Hunt (1970). A cloze reading test with every fifth word deleted was used as a measurement instrument. The subjects were 120 students randomly selected from grades four through twelve in a Florida school system. The findings indicated that students beyond the fourth grade did not find fourth grade writing easier to read. Also, students experienced difficulty with unfamiliar material which was far below their grade level. Smith concluded that mature readers had difficulty reading sentences that were shorter and with less complex transformations because mature readers think and write in syntactic units more complex in nature.

Bormuth, Manning, Carr, and Pearson (1970) tested 240 fourth grade children from a semi-rural population on their comprehension of grammatical structures. A taxonomy of 52 sentence structures was identified. From these, 25 were selected which "seemed least likely to be understood by all of the fourth grade students"

(p. 351). Four types of questions were used to measure reading comprehension. The percentages of students responding correctly determined the order of difficulty of sentence structures, anaphoric structures, and intersentence structures. The mean percentage of comprehension of the sentence structures was .73; of anaphoric structures, .77; and of intersentence comprehension, .58. The difficulty of the structures indicated a skills hierarchy.

Findings supportive of Bormuth (1970) were provided by Simons (1971), who concluded from his study that when compared with word knowledge, word recognition, and I.Q., deep structure was the most significant factor affecting reading comprehension.

Using 440 fourth, fifth, and sixth grade Canadian pupils, Fagan (1971) investigated the effect that the number and type of transformations had on reading comprehension. His findings indicated that embedding, or inserting one kernel into another, and deletion, or omitting unnecessary redundant words, had higher correlations with reading ability than did other transformations. Appositives, participles, gerunds, and genitive embeddings were found to be the most difficult structures. Fagan also reported that the complexity of the transformations rather than the number of the transformations contributed to reading difficulty.

Evidence supportive of syntactic complexity as a factor in comprehension was provided by Marcus (1969), who devised a diagnostic instrument to measure comprehension of syntactic clues for intermediate-grade students. The Francis (1958) version of structural grammar was used by Marcus (1969) to identify four basic types of syntactic structures: modification, predication, complementation, and coordination. Seventeen structures which seemed to represent basic English structures and which lent themselves to multiple-choice format were selected for the test. Using the transformational-generative theory, the sentences were factored into their underlying kernels. Transformations with equivalent meanings were compared. Vocabulary and punctuation were controlled. In addition, only students who obtained a minimum of a fifth grade level on the Huelsman Word Discrimination Test were selected for the study. The population comprised 421 students in grades five, six, seven, and eight from disadvantaged and middle-class areas in New York City. Marcus found that from fifth to eighth grade the grade averages of syntactic comprehension increased. The average number of items correct for the eighth graders was 81 and for the fifth graders 60. The rank order of difficulty of structures, as determined by the mean, indicated that the prepositional phrase modifiers such as "Jane gave the cooky behind the jar to the boy"

proved to be the most difficult of any of the structures for the students to comprehend. The elliptical structures of coordination such as "Anne asked Jane to come at six and Mary at noon" were found to be the easiest of any of the structures for the students to comprehend. Marcus reported that the students also experienced difficulty comprehending sentences which contained interjections of relative clauses in the subject-verb-object patterns of the independent clauses. Marcus noted, ". . . some students mistakenly thought that a coincidental noun-verb-noun sequence of words was a subject-verb-object sequence and thus a kernel sentence of the larger sentence" (p. 58).

Additional findings indicated that some students were unable to perceive differences between stated and implied meanings in the sentences and had insufficient comprehension of relative pronouns, prepositions, and correlatives. The data were supportive of information obtained by Stoodts (1972), who conducted a study with fourth grade students and found positive correlations between reading comprehension and comprehension of various conjunctions.

Even though researchers differ as to the nature of the difficulties among syntactic variables that contribute to problems in reading comprehension, there appears to be a consensus that if students do not have an awareness and understanding of syntactic structures,

they seem to experience difficulty obtaining the meaning conveyed by these structures. Also, experimenters have identified specific syntactic structures believed to be basic in the transmitting of information as well as a skills hierarchy of these structures. Valuable insight into the reading process has been obtained as a result of linguistic-based research which seems to have provided a basis for more precise investigations into language processing.

Instruction in Syntactic Structures as an Aid to Comprehension

There is a paucity of experimental studies concerned with the application of linguistic research to the improvement of reading comprehension. However, various investigators have suggested, as a result of their investigations, that instruction in syntactic structures might increase reading comprehension. Marcus (1971) suggested teaching students the equivalency of one structure to another in order to expand their knowledge of various structures. Fagan (1971) stated,

> Since reading comprehension appears to depend upon the type of syntactic structure of the printed language, it would seem that children would find it easier to understand what they read if they could readily analyze the various structures and understand the relationship of the various lexical items in such structure (p. 172).

Since basic syntactic structures were not comprehended by a large number of students in Bormuth's (1970) study,

he concluded, ". . . This deficiency may constitute a serious impediment to the efficiency of instruction" (p. 356). Briggs (1969) stated that reading programs have not placed enough emphasis on increasing comprehension using syntactical skills but instead have given precedence to semantic skills. Allen (1964) reported that recognition of meaningful grammatical relations within and between structural elements might promote improved reading comprehension.

Thus far, experimenters have found instruction in syntactic structures to be a positive factor in increasing reading comprehension. Allen (1967) found that an experimental group who spent a year on grammar practice achieved greater gains in reading than did a control group who had been instructed with reading materials. Although O'Donnell (1961) concluded from the results of his study that there was no evidence that instruction in grammatical structures was related to reading comprehension, structural awareness was found to be strongly related to reading comprehension.

Reed (1967) conducted a study that was composed of 167 monolingual and bilingual seventh graders who were instructed through the use of study guides in syntax and paragraph structure. Students in the control group followed a regular program while students in the experimental group used study guides two days a week and English

classwork three days for 15 weeks. Reed found that although there were gains at the .01 level of confidence for the experimental group, within the experimental group the bilingual students showed greater gains at the .01 level of confidence than the monolingual students. She concluded that there may be value in this approach for the instruction of bilingual students.

Lefevre (1972), in supporting the teachings of syntactic structures to students, stated, "Their need of systematic instruction in how to decode whole sentences so as to derive meaning is painfully clear" (p. 229). Based on this realization, Lefevre, Lefevre, and Shore (1971) have developed a program entitled Reading by Patterns: A Programmed Guide to Reading Sentences and Paragraphs, which instructs the students "to associate the main structure parts with the message of each sentence" (p. 229). The program, which consists of 54 programmed units, progresses from instruction in the less difficult noun-verb-completer sentence patterns to the more complex elements in sentence patterns. Reading by Patterns has been tested by students in the Philadelphia and Georgia areas. The program, which is considered to be one approach in a total reading program, is currently being used at Temple University in teacher training courses as a method for teaching reading to low-achieving readers at the secondary level. One of

the reasons that Reading by Patterns is considered to be successful is that it is presented in an auditory mode which allows the low-achieving reader to experience success while gaining competence in reading comprehension.

One of the studies using Reading by Patterns was conducted by O'Donnell (1973) with a population composed of 42 college students who were considered to be high-risk students. There were two treatment groups who were tutored by college students for four weeks. One group was instructed with the Reading by Patterns method, while the other group was instructed using a remedial reading program. Although both groups showed gains in reading comprehension, the group using the Reading by Patterns approach showed greater gains than the group in the remedial program.

Using 124 community college freshmen in New York who obtained a raw score of below 60 on the Nelson-Denny Reading Test and were enrolled in a reading and study skills course, Fryburg (1972) investigated the relationships among comprehension of English syntactic patterns, reading achievement, and grade point average. Comprehension of English syntactic patterns was measured by A Test of Sentence Meaning (Marcus, 1969). The students were randomly assigned by sections to the control group and the experimental group. Both groups were given

the same lectures and had the same requirements, course outlines, classroom and grading procedures. However, syntax was emphasized in individual and class assignments for the experimental group. At the end of one semester, findings showed a high correlation between scores on the Nelson-Denny Reading Test and scores on A Test of Sentence Meaning. Also, a significant relationship was found between directed instruction in syntax and the reading achievement of students. Fryburg concluded, "A knowledge of English syntax appears to be related to achievement in reading. For the student who is deficient in reading, instruction in English syntax may facilitate learning to read" (p. 43).

Although the research studies were conducted using different age levels, reading levels, and instructional modes, there appears to be a consensus among the experimenters that an awareness of and instruction in syntactic structures seems to be influential in improving reading competence. However, more analysis and research in this area may provide more specific information concerning various aspects of comprehension affected by instruction in syntactic structures.

Relationships Between Listening and Reading Comprehension

A number of researchers have indicated a high positive correlation between reading and listening. In

spite of the utilization of different channels for obtaining information, reading and listening share the commonality of being receptive skills and the two major subclasses of language processing.

McConnell (1966) conducted a study concerned with the relationship between reading and listening using 409 fourth graders and 181 sixth graders. Listening was measured by the Sequential Test of Educational Progress-Listening and reading was measured by the Metropolitan Reading Test. Findings indicated that even though the sixth graders had significantly higher listening scores than the fourth graders, the difference in reading scores was not that significant. However, there was a correlation between reading and listening of .59 and .73 for fourth graders and sixth graders, respectively.

In an experiment using subjects from the same grade levels, Hamplemann (1955) provided supportive evidence for some of the findings of McConnell's (1966) study. The sixth graders scored significantly higher in reading than the fourth graders, although the listening scores were higher than the reading scores in both the fourth and sixth grades.

Biggins (1961) administered the California Reading Test and the Evan L. Wright Listening Test to second and third graders. He found a correlation of .45 between

listening and reading for second graders and a correlation of .70 between listening and reading for third graders.

In Jackson's (1966) study, 224 students were administered the Sequential Test of Educational Progress-Listening to measure listening and the Gates Basic Reading Test to measure reading. A significant correlation was indicated between listening and reading.

Lundsteen (1963) studied critical listening with 263 students in grades five and six. Reading achievement was measured by the Stanford Achievement Test of Reading, and listening was measured by a listening test developed by the investigator. A correlation of .47 was found between listening and reading achievement.

An investigation was conducted by Toussaint (1961) on the interrelationships of reading, listening, arithmetic computation, and intelligence. She used 172 intermediate-grade students as subjects. Findings indicated a correlation of .70 between reading, as measured by the Durrell-Sullivan Reading Capacity Test, and listening, as measured by the Sequential Test of Educational Progress.

Pratt (1956) reported a correlation of .64 between listening and reading using the Iowa Silent Comprehension Reading Tests and his own listening test with sixth grade students.

Bonner (1960) used 282 subjects from the fourth, fifth, and sixth grades in his study. The Stanford Achievement Test and the STEP Listening Test were measurement instruments employed. Correlations of .50 for fourth graders, .67 for fifth graders, and .57 for sixth graders were reported between reading and listening. Also, using intermediate grade students as subjects, Hollow (1955) found a correlation of .55 between listening and reading. Similarly, Ross (1964), using intermediate-grade students, reported a correlation of .74 between reading and listening.

Palmer (1968) conducted a study using a differeng age level of students than the aforementioned studies. He investigated the relationship between reading and listening using 329 high school freshmen. The Sequential Test of Educational Progress-Reading and the Sequential Test of Educational Progress-Listening were employed to measure reading and listening. The Otis Test of Mental Ability was used to measure intelligence. A correlation of .62 was found between listening and reading for the entire population of students. However, when the subjects were divided based on mental age, correlations of .54 between reading and listening for the group of low intelligence, .33 for the group of average intelligence, and .79 for the group of high intelligence were found.

Although the research studies conducted on the relationship between reading and listening have used subjects from various populations and employed different instruments to measure reading and listening, the findings are supportive of the positive correlation between these two areas.

Chapter Summary

This chapter reviewed the related literature and research in three sections. In the first section, literature and research were cited which summarized the position of investigators that an awareness and understanding of syntactic structures are necessary in comprehending sentences. The lack of consensus as to the nature of the difficulties among syntactic variables that affect reading comprehension was evident.

The second section in this chapter reviewed research and literature that were concerned with the importance of instruction in syntactic structures as a means of increasing reading competence. There is little research in this area, but writers seem to agree that attention should be given to instruction in syntactic comprehension.

The research and literature in the third section of this chapter presented evidence of a high positive correlation between listening and reading. This

relationship held even though different evaluative instruments were used to measure reading, and the studies were conducted at various academic levels.

Since it would appear that further research in syntactic comprehension is needed and that there is a relationship between reading and listening comprehension, this study was designed to explore the comprehension of selected syntactic structures presented in visual and auditory-visual modes. The following chapter describes the methodology of the study.

CHAPTER III

METHODOLOGY OF THE STUDY

Introduction

This chapter elaborates on the methodology employed in conducting the study. The population is identified, and the procedure used in the selection of the sample is described. The procedure used for the collection of data is outlined. The characteristics of the research instruments used and their administration are given, as well as an explanation of the statistical treatment.

Population

The parent population was comprised of students from a junior high school in Kalamazoo County, Michigan. The ethnic composition of the students was Caucasian and Black, with the socioeconomic levels ranging from low to middle as determined by parental occupation.

Selection of the Sample

The sample consisted of 36 eighth and ninth grade students who had been identified as reading three and four years below grade level by the total reading score on the Metropolitan Achievement Test, Form F and

obtained between 4.0 and 6.0 on the Word Knowledge subtest of the Metropolitan Achievement Test, Form F.

Measurement Instruments

The evaluation techniques utilized consisted of the Word Knowledge and Mathematics: Computation subtests of the Metropolitan Achievement Test, Form F, which is an instrument designed to measure academic progress in various subject matter and basic skill areas. The Word Knowledge subtest assesses students' knowledge of words used in different content areas and general information. Students are required to match synonyms, to match antonyms, and to classify words. The Word Knowledge subtest was used to indicate general verbal ability. The Mathematics: Computation subtest assesses students' ability to do computations in addition, subtraction, multiplication, and division as well as fractions equations, negative numbers, and powers. The Computation subtest was used to measure students' nonverbal ability.

The diagnostic instrument employed to measure comprehension of syntactic structures presented in a visual mode was A Test of Sentence Meaning, which was developed by Albert Marcus (1968). Marcus reported reliability coefficients ranging from .95 to .89 for disadvantaged and middle-class fifth through eighth grade students. The test contains 102 items which measure

students' knowledge of 17 grammatical structures. However, for this study the following eight grammatical structures were used: (1) Prepositional Phrase Modifiers, (2) Complex Sentences with Two Relative Clauses, (3) Recognition of Transformation of Nominalizations Into Active Verbs, (4) Relative Clauses that Modify Objects of Prepositions, (5) Included Clauses, (6) Relative Clauses that Modify Direct Objects, (7) Passive Voice in Simple Sentences, and (8) Elliptical Structures.

The first five of the aforementioned structures were selected because these were structures that Marcus (1969) found to be the most difficult to comprehend. The Relative Clause that Modifies Direct Objects structure was selected because the researcher has observed low-achieving readers experiencing difficulty with elements within this structure. The Passive Voice in Simple Sentence structure was selected because in his study Marcus (1969) found that a higher percentage of disadvantaged students answered these items correctly and he did not know if this had occurred by chance or not. Since the population used in this study was composed of quite a few students from a low socioeconomic level, the Passive Voice in Simple Sentence structure then seemed appropriate to select. Finally, the Elliptical Structures were selected because Marcus (1969) found this to be the easiest structure to comprehend. The instrument

used to measure comprehension of syntactic structures presented in a visual-auditory mode consisted of 48 items parallel to the ones selected from A Test of Sentence Meaning which was constructed by the investigator.

Each of the eight structures selected contained six test items which were divided into two sections with three items in each section measuring comprehension of the same structures. This organization of the tests lent itself to the control of variables and shorter sessions, which allowed for closer attending to the visual and visual-auditory tasks. The tests were in a multiple-choice format with grammatically correct detractors.

Items 1 through 3 were sentences containing prepositional phrases as nouns, verbs, or sentence modifiers.

Items 4 through 6 were complex sentences with two relative clauses.

Items 7 through 9 were sentences containing relative clauses that modify objects of prepositions.

Items 10 through 12 were sentences containing relative clauses that modify direct objects.

Items 13 through 15 were sentences containing elliptical structures.

Items 16 through 18 were sentences requiring recognition of transformation of nominalizations into active verbs.

Items 18 through 21 were sentences containing clauses that were shifted in position.

Items 22 through 24 contained the passive voice in simple sentences.

The highest possible score for each structure was 6 on the tests presented in visual and visual-auditory modes. (See Appendices A and B for sample test items.)

Data Collection

The testing sessions took place during four sittings which were approximately 35 to 55 minutes per session. In the first session, which lasted approximately 35 minutes, the researcher explained the procedures and administered the first section of A Test of Sentence Meaning (Marcus, 1969), which was read by the students. During the second session, which lasted approximately 35 minutes, the researcher explained the procedures and administered the second section of the Marcus test, which was also read. In the third session, which lasted approximately 55 minutes, the researcher explained the procedures for the first section of A Comprehension Test of Syntactic Structures, which was constructed by the investigator. The items from this test had been previously recorded by the researcher and were played one item at a time for the students while

they listened with their test items covered. The students then read the items themselves. The sequence then was: listen to test item, read item, and respond; listen to next test item, read item, and respond; and so forth throughout the test. During the fourth session, which lasted approximately 55 minutes, the researcher again explained the procedures and played the second section of the test constructed by the researcher, one item at a time, from the tape recorder while the students listened with their test items covered. Then the students read the items themselves. Again the sequence was: listen to test item, read item, and respond; listen to next test item, read item, and respond; and so forth throughout the test.

For all four sessions the researcher did sample exercises with the students to insure their understanding of what their tasks were. Also, the researcher explained to the students that during any of the sessions if they could not pronounce a word or didn't know the meaning of a word, the examiner would tell them the word and give the meaning of the word. The students did not ask for the pronunciation or meaning of any words. The students were also told that if they needed to hear the recorded test items more than once, they could do so by raising their hands. During the third session where the students were being tested on the recorded items from the

first section of A Comprehension Test of Syntactic Structure, which required them to listen to an item and then read it, several students asked to hear the recorded items more than once. However, this was at the beginning of the session and did not occur as the session progressed. None of the students asked to hear the recorded test items more than once in the fourth session. The four sessions took place within a week. Three make-up sessions were given for students who were absent during any of the sessions.

Hypotheses

The following null hypotheses were constructed from the research questions presented in Chapter I.

1. There is no significant difference in comprehension among eight syntactic structures when presented in a visual mode.

2. There is no significant difference in comprehension among eight syntactic structures when presented in a visual-auditory mode.

3. There is no significant difference between comprehension of syntactic structures when presented in a visual mode and comprehension of syntactic structures when presented in a visual-auditory mode.

4. There is no significant relationship between general verbal ability, as measured by a test of synonyms, antonyms, and word classification, and comprehension of syntactic structures.

5. There is no significant relationship between nonverbal ability, as measured by mathematic computation, and comprehension of syntactic structures.

Method of Analyzing Results

The information recorded on each test was tabulated on a coding form. The information from each test was then keypunched on an IBM card.

The analysis of results was reported in the form of correlations, analysis of variance, and post hoc comparisons. Correlations were used to determine the degree of relationship between variables. The analysis of variance was used to determine differences between groups of scores and within groups of scores. The post hoc comparisons permitted the researcher to compare statistical means to determine the probability that the differences between the means were real differences rather than chance differences.

The responses to the two tests were recorded on the tests themselves. The responses were reported by determining the total correct for statistical analyses.

Summary

The methodology involved in the investigation was described in this chapter.

The population was selected from a junior high school in Kalamazoo County, Michigan. The sample consisted of eighth and ninth grade students reading three and four years below grade level, for whom word recognition was judged not to be a major problem. The

investigator had worked with the population for eight months prior to the collection of data.

The instruments included the Computation subtest, the Word Knowledge subtest, and the Total Reading scores of the Metropolitan Achievement Test, Form F, eight syntactic structures taken from A Test of Sentence Meaning, and structures parallel to the ones selected from A Test of Sentence Meaning.

The statistical procedures were designed in conjunction with the research consultants at Michigan State University. In Chapter IV, the data are presented, analyzed, and organized.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The purpose of this study was to obtain, analyze, and compare data regarding the syntactic structures that affect listening and reading comprehension. A secondary purpose was to determine the relationship between general verbal ability and the comprehension of syntactic structures and between nonverbal ability and comprehension of syntactic structures.

The methodology for the collection and treatment of data was described in the previous chapter. The investigator will present in this chapter the statistical analysis of the findings as they relate to the hypotheses constructed for the study.

Hypotheses and Statistical Tests

Hypotheses 1 and 2 were analyzed by a one-way analysis of variance and Tukey's HSD test to analyze the differences among the means, while Hypothesis 3 was subjected to statistical analysis by an analysis of variance split-plot factor design and Tukey's HSD test to obtain the differences among means. Hypotheses 4

and 5 were tested with a Pearson product-moment correlation between the dependent measures.

The analyses for Hypotheses 4 and 5 were run using the SPSS (Statistical Package for the Social Sciences) at the Michigan State University Computer Center.

The First Hypothesis

Ho 1: There is no significant difference in comprehension among eight syntactic structures when presented in a visual mode.

The hypothesis was analyzed by a one-way analysis of variance and Tukey's HSD test. (See Tables 1 and 2.)

Table 1.--Analysis of variance of comprehension of eight syntactic structures when presented in a visual mode.

Syntactic Structures Presented in a Visual Mode	Mean Squares	df	F Ratio
	25.950397	7	18.5717*
Error	1.397336	245	

*p < .05.

There were significant differences in comprehension among the eight structures when presented in a visual mode ($F = 18.5717$, $df = 7/245$, $p < .05$). The investigator would be justified in rejecting the null

hypothesis. In order to clarify the nature of the differences, a post hoc analysis was run. (See Table 2.) Tukey's post hoc comparisons are shown in Table 2.

Table 2.--Post hoc comparisons among the means of syntactic structures when presented in a visual mode (Tukey's HSD test).

Structures		5	4	8	3	7	2	1	6
		4.028	3.361	3.167	2.250	1.972	1.944	1.889	1.778
5	4.028		0.667	0.861*	1.778*	2.056*	2.084*	2.139*	2.250*
4	3.361			0.194	1.111*	1.389*	1.417*	1.472*	1.583*
8	3.167				0.917*	1.195*	1.223*	1.278*	1.389*
3	2.250					0.278	0.306	0.361	0.472
7	1.972						0.028	0.083	0.194
2	1.944							0.055	0.166
1	1.889								0.111
6	1.778								

*p < .05.

Key:
1 = Prepositional phrase modifiers
2 = Complex sentences with two relative clauses
3 = Relative clauses modify objects of prepositions
4 = Relative clauses modify direct objects
5 = Elliptical structures
6 = Recognition of transformation of nominalizations into active verbs
7 = Included clauses as modifiers, subjects or complements
8 = Passive voice in simple sentences

Examination of Table 2 would indicate that comprehension of elliptical structures was significantly different from comprehension of all of the other structures except relative clauses that modify direct objects. Also, comprehension of relative clauses that modify

direct objects was significantly different from comprehension of all of the other structures except elliptical structures and structures containing the passive voice in simple sentences. Comprehension of the structures containing the passive voice in simple sentences was significantly different from comprehension of all of the other structures except the relative clauses that modify direct objects and elliptical structures. Comprehension of the other five structures was not significantly different from each other.

The Second Hypothesis

Ho 2: There is no significant difference in comprehension among eight syntactic structures when presented in a visual-auditory mode.

The hypothesis was analyzed by a one-way analysis of variance and Tukey's HSD test. (See Tables 3 and 4.)

Table 3.--Analysis of variance of comprehension scores of eight syntactic structures when presented in a visual-auditory mode.

Syntactic Structures Presented in a Visual-Auditory Mode	Mean Squares	df	F Ratio
	25.857143	7	22.2675*
Error	1.161224	245	

*p < .05.

There were significant differences in comprehension among the eight structures when presented in a visual-auditory mode ($F = 22.2675$, $df = 7/245$, $p < .05$). The investigator would be justified in rejecting the null hypothesis. In order to clarify the nature of the differences, post hoc analysis was run. (See Table 4.) Tukey's post hoc comparisons are shown in Table 4.

Table 4.--Post hoc comparisons among the means of syntactic structures when presented in a visual-auditory mode (Tukey's HSD test).

Structures		5	4	8	3	1	2	7	6
		4.222	4.194	3.611	3.028	2.500	2.417	2.250	2.222
5	4.222		0.028	0.611	1.194*	1.722*	1.805*	1.972*	2.000*
4	4.194			0.583	1.166*	1.694*	1.777*	1.944*	1.972*
8	3.611				0.583	1.111*	1.194*	1.361*	1.389*
3	3.028					0.528	0.611	0.778	0.806*
1	2.500						0.083	0.250	0.278
2	2.417							0.167	0.195
7	2.250								0.028
6	2.222								

*$p < .05$.

Key:
1 = Prepositional phrase modifiers
2 = Complex sentences with two relative clauses
3 = Relative clauses modify objects of prepositions
4 = Relative clauses modify direct objects
5 = Elliptical structures
6 = Recognition of transformation of nominalizations into active verbs
7 = Included clauses as modifiers, subjects or complements
8 = Passive voice in simple sentences

Examination of Table 4 would indicate that of the structures when presented in a visual-auditory mode, comprehension of elliptical structures was significantly different from all of the structures except relative clauses that modify direct objects and structures containing passive voice in simple sentences. Relative clauses that modify direct objects were also significantly different from all of the structures except elliptical structures and structures containing passive voice in simple sentences. Comprehension of structures containing passive voice in simple sentences was significantly different from all of the structures except elliptical structures and relative clauses that modify direct objects and objects of prepositions. Comprehension of relative clauses that modify objects of prepositions was significantly different from structures containing transformations of nominalizations into active verbs. Comprehension of the remaining structures was not significantly different from each other.

The Third Hypothesis

Ho 3.0: There are no significant differences among combined comprehension scores of eight syntactic structures when presented in visual and visual-auditory modes.

Ho 3.1: There is no significant difference between comprehension of syntactic structures when presented in a visual mode and comprehension of syntactic structures when presented in a visual-auditory mode.

Ho 3.2: There is no significant interaction between comprehension of syntactic structures when presented in a visual mode and comprehension of syntactic structures when presented in a visual-auditory mode.

The hypotheses were statistically treated using an analysis of variance split-plot factor design and Tukey's HSD test to analyze the differences among the means of the syntactic structures. (See Tables 5 and 6.)

Table 5.--Analysis of variance table for significant differences between comprehension of syntactic structures when presented in a visual mode and comprehension of syntactic structures when presented in a visual-auditory mode.

Syntactic Structures	Mean Squares	df	F Ratio
Combined comprehension scores of syntactic structures when presented in visual and visual-auditory modes	50.907738	7	32.4257*
Error	1.569983	245	
Differences between syntactic structures when presented in visual and visual-auditory modes	37.006944	1	24.4114*
Error	1.728373	35	
Interaction between syntactic structures when presented in visual and visual-auditory modes	.899802	7	.9102
Error	.988577	245	

*p < .05.

There were significant differences in comprehension among eight syntactic structures when presented in visual and visual-auditory modes ($F = 32.4257$, $df = 7/245$, $p < .05$). The null hypothesis was rejected. There was a significant difference between comprehension of syntactic structures presented in a visual mode and comprehension of syntactic structures presented in a visual-auditory mode ($F = 21.4114$, $df = 1/35$, $p < .05$). The null hypothesis was rejected. There was no significant interaction between comprehension of syntactic structures presented in a visual mode and comprehension of syntactic structures presented in a visual-auditory mode ($F = .9102$, $df = 7/245$, $p < .05$). The null hypothesis could not be rejected.

Since there were significant differences in comprehension among the eight syntactic structures when the structures used in both modes were combined for analysis, in order to clarify the nature of the differences a post hoc analysis was run.

Tukey's post hoc comparisons for differences among means of combined comprehension scores of syntactic structures when presented in visual and visual-auditory modes are shown in Table 6.

Table 6.--Post hoc comparisons between means of combined comprehension scores of syntactic structures when presented in visual and visual-auditory modes (Tukey's HSD test).

Structure		5	4	8	3	1	2	7	6
		4.125	3.778	3.389	2.639	2.194	2.181	2.111	2.000
5	4.125		0.347	0.736*	1.486*	1.931*	1.944*	2.004*	2.125*
4	3.778			0.389	1.139*	1.574*	1.597*	1.278*	1.778*
8	3.389				.075	1.195*	1.208*	1.278*	1.389*
3	2.639					0.448	0.458	0.528	0.639
1	2.194						0.013	0.083	0.194
2	2.181							0.070	0.181
7	2.111								0.111
6	2.000								

*p < .05.

Key: 1 = Prepositional phrase modifiers
2 = Complex sentences with two relative clauses
3 = Relative clauses that modify objects of prepositions
4 = Relative clauses that modify direct objects
5 = Elliptical structures
6 = Recognition of transformations of nominalizations into active verbs
7 = Included clauses as modifiers, subjects or complements
8 = Passive voice in simple sentences

Examination of Table 6 would indicate that when the comprehension scores from the visual and visual-auditory presentations of syntactic structures were combined, comprehension of elliptical structures was significantly different from all of the other structures except the relative clauses that modify direct objects. Relative clauses that modify direct objects was significantly different from all of the other structures except

elliptical structures and structures containing the passive voice in simple sentences. Comprehension of structures containing the passive voice in simple sentences was significantly different from all of the other structures except elliptical structures, relative clauses that modify direct objects, structures containing the passive voice in simple sentences, and relative clauses that modify objects of prepositions. Comprehension of the remaining structures was not significantly different from each other.

The Fourth Hypothesis

Ho 4.0: There is no significant relationship between general verbal ability, as measured by a test of synonyms, antonyms, and word classification, and comprehension of syntactic structures.

Ho 4.1: There is no significant relationship between general verbal ability, as measured by a test of synonyms, antonyms, and word classification, and comprehension of syntactic structures when presented in a visual mode.

Ho 4.2: There is no significant relationship between general verbal ability, as measured by a test of synonyms, antonyms, and word classification, and comprehension of syntactic structures when presented in a visual-auditory mode.

These hypotheses were statistically evaluated by using the Pearson product-moment correlation between the two dependent measures. (See Tables 7 and 8.)

Table 7.--Correlation values between general verbal ability and comprehension of syntactic structures when presented in a visual mode.

Syntactic Structures Presented in a Visual Mode	General Verbal Ability	
	Correlations	Levels of Significance
Prepositional phrase modifiers	.003	.49
Complex sentences with two relative clauses	.007	.48
Relative clauses that modify objects of prepositions	-.027	.44
Relative clauses that modify direct objects	-.125	.23
Elliptical structures	-.122	.24
Recognition of transformations of nominalizations into active verbs	.011	.47
Included clauses	.048	.39
Passive voice in simple sentences	-.130	.23

The general verbal ability scores did not yield significant correlation coefficients for comprehension of syntactic structures when presented in visual and visual-auditory modes at the .05 level of significance. The null hypotheses could not be rejected.

Table 8.--Correlation values between general verbal ability and comprehension of syntactic structures when presented in a visual-auditory mode.

Syntactic Structures Presented in a Visual-Auditory Mode	General Verbal Ability	
	Correlations	Levels of Significance
Prepositional phrase modifiers	-.153	.19
Complex sentences with two relative clauses	.039	.41
Relative clauses that modify objects of prepositions	-.030	.43
Relative clauses that modify direct objects	-.041	.41
Elliptical structures	.084	.31
Recognition of transformations of nominalizations into active verbs	-.060	.36
Included clauses	-.060	.36
Passive voice in simple sentences	-.117	.25

The Fifth Hypothesis

Ho 5.0: There is no significant relationship between nonverbal ability, as measured by mathematic computation, and comprehension of syntactic structures.

Ho 5.1: There is no significant relationship between nonverbal ability, as measured by mathematic computation, and comprehension of syntactic structures when presented in a visual mode.

Ho 5.2: There is no significant relationship between nonverbal ability, as measured by mathematic computation, and comprehension of syntactic structures when presented in a visual-auditory mode.

These hypotheses were statistically analyzed by using the Pearson product-moment correlation. (See Tables 9 and 10.)

Table 9.--Correlation values between nonverbal ability and comprehension of syntactic structures when presented in a visual mode.

Syntactic Structures Presented in a Visual Mode	Nonverbal Ability	
	Correlations	Levels of Significance
Prepositional phrase modifiers	.457	.03*
Complex sentences with two relative clauses	.216	.10
Relative clauses that modify objects of prepositions	.448	.03*
Relative clauses that modify direct objects	.451	.03*
Elliptical structures	.324	.03*
Recognition of transformations of nominalizations into active verbs	.199	.12
Included clauses	.239	.08
Passive voice in simple sentences	.469	.02*

*$p < .05$.

Table 10.--Correlation values between nonverbal ability and comprehension of syntactic structures when presented in a visual-auditory mode.

Syntactic Structures Presented in a Visual-Auditory Mode	Nonverbal Ability	
	Correlations	Levels of Significance
Prepositional phrase modifiers	.429	.05*
Complex sentence with two relative clauses	.138	.21
Relative clause modifies object of preposition	.184	.14
Relative clause modifies direct object	.328	.03*
Elliptical structures	.201	.12
Recognition of transformation of nominalization into active verbs	.069	.35
Included clauses	.280	.05*
Passive voice in simple sentences	.355	.02*

*$p < .05$.

The nonverbal ability scores yielded significant correlation coefficients for comprehension of the following syntactic structures when presented visually: prepositional phrase modifiers, relative clauses as modifiers of objects of prepositions, relative clauses as modifiers of direct objects, elliptical structures, and syntactic structures containing the passive voice in

simple sentences. These correlation coefficients were at the .03 and .02 levels of significance. Also, the nonverbal ability scores yielded significant correlation coefficients for visual-auditory comprehension of the following syntactic structures: prepositional phrase modifiers, complex sentences with two relative clauses, relative clauses that modify direct objects, included clauses, and syntactic structures containing the passive voice in simple sentences. These correlation coefficients were at the .05, .03, and .02 levels of significance. In these cases the investigator would be justified in rejecting the null hypotheses. However, the comprehension of the other syntactic structures presented in a visual and visual-auditory mode did not exhibit correlation coefficients sufficient to reject the null hypotheses.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this study was to obtain, analyze, and compare data regarding the syntactic structures that affect listening and reading comprehension in a selected group of disabled readers. A secondary purpose was to determine the relationship between general verbal ability and comprehension of syntactic structures and nonverbal ability and comprehension of syntactic structures.

The preceding chapters described the theoretical framework of the problem, a discussion of the related literature and research, an explanation of the methodology, and a presentation and analysis of the data generated by this study.

The present chapter is organized as follows: (1) Major Results and Discussions, (2) Implications, and (3) Recommendations.

Major Results and Discussions

Ho 1: There is no significant difference in comprehension among eight syntactic structures when presented in a visual mode.

1. There were significant differences in comprehension among eight syntactic structures when presented in a visual mode. Comprehension scores for the elliptical structures of coordination were significantly different from comprehension scores of all of the other structures except relative clauses that modify direct objects. Elliptical structures were selected for this study because findings by Marcus (1969) showed that in a table of rank difficulty based on percentage of total correct responses, these structures were the least difficult to comprehend. The investigator's data are supportive of Marcus' (1969) findings, although a different population was used. Comprehension of relative clauses that modify direct objects was significantly different from comprehension of all of the other structures except elliptical structures and structures containing the passive voice in simple sentences. This structure was also one of the easiest structures to comprehend in Marcus' study. This structure was selected for the study because the researcher had observed low-achieving readers experiencing difficulty with relative pronouns acting as objects of the preposition within the relative clause, especially in cases where the relative pronoun preceded the pronoun he such as: The policeman captured the robber whom he had seen leave the bank. Some of the students questioned the need for the relative pronoun

whom in the sentences because they said, "Most people don't talk like that." However, comprehension of the relative clauses that modify direct objects was significantly different from five other structures. Comprehension of the structures containing the passive voice in simple sentences was significantly different from comprehension of all of the other structures except the relative clauses that modify the direct objects and elliptical structures. The structures containing the passive voice in simple sentences were selected because in his study Marcus (1969) found that a higher percentage of disadvantaged students answered this test item correctly and he didn't know if this had occurred by chance. The population used in this study was comprised of a large percentage of disadvantaged students who also answered this item correctly. These data are supportive of the findings by Marcus (1969). Comprehension of the other five structures was not significantly different. These structures were selected because they were found by Marcus (1969) to be the most difficult.

Ho 2: There is no significant difference in comprehension among eight syntactic structures when presented in a visual-auditory mode.

2. There were significant differences in comprehension among eight structures when presented in a visual-auditory mode. The same structures that were

significantly different from the other structures when presented visually were also significantly different when presented in a visual-auditory mode. Elliptical structures, relative clauses that modify direct objects, and structures containing the passive voice in simple sentences were not significantly different from each other, but were significantly different from the other five structures. However, syntactic structures containing the passive voice in simple sentences when presented visually were significantly different from relative clauses that modify objects of prepositions. When these structures were presented in a visual-auditory mode, there were no significant differences in the comprehension scores of the two structures. This may indicate that the intonation clues which were provided in the visual-auditory presentation of syntactic structures were the elements needed for clarification of meaning. Comprehension of the other structures was not significantly different from each other. It may be that intonation did not give the clues needed for the other structures because the clues needed for meaning were within the structures and not understood by the students.

Ho 3: There is no significant difference in comprehension of syntactic structures when presented in a visual mode and comprehension of syntactic structures when presented in a visual-auditory mode.

3.0. There were significant differences in the comprehension of syntactic structures when presented in visual and visual-auditory modes. Post hoc comparisons of the differences in means of the combined comprehension scores of the visual and visual-auditory presentations of syntactic structures are supportive of the findings of the two modes examined separately. Again, the elliptical structures were significantly different from all of the structures except relative clauses that modify direct objects. Relative clauses that modify direct objects were significantly different from all of the structures except elliptical structures and structures containing the passive voice in simple sentences. However, structures containing the passive voice in simple sentences were significantly different from elliptical structures, relative clauses that modify direct objects, and relative clauses that modify objects of prepositions.

3.1. There was a significant difference between comprehension of syntactic structures when presented in a visual mode and comprehension of syntactic structures when presented in a visual-auditory mode. These data are supportive of views by linguists such as Lefevre (1964), who indicated that intonation is a fundamental aspect of reading comprehension. While administering the visual presentation of syntactic structures, some of

the students suggested, "Why don't you just read it to us and let us circle the right answer?" This is indicative of the low-achieving reader who comprehends more by listening than reading and is supportive of findings by Oaken, Wiener, and Cromer (1971). Also, many low-achieving readers seem to prefer listening material for comprehension which provides support for findings by Sticht (1971). Marcus (1969) observed students vocalizing while taking the test on syntactic structures who otherwise did not.

3.2. There was no significant interaction between comprehension of syntactic structures when presented in a visual mode and comprehension of syntactic structures when presented in a visual-auditory mode. Although there was a greater number correct under one condition than the other, the differences were not in the manner in which the students answered because the pattern of responses tended to be the same.

Ho 4: There is no significant relationship between general verbal ability, as measured by a test of synonyms, antonyms, and word classification, and comprehension of syntactic structures.

4. There was no significant relationship between general verbal ability, as measured by a test of synonyms, antonyms, and word classification, and comprehension of syntactic structures when presented in a visual or visual-auditory mode. The task involved in this study to

determine general verbal ability was to find a synonym or antonym for a given word from other words presented, which is an associative task. The task of comprehending syntactic structures requires utilization of movables and elements of subordination.

> Ho 5: There is no significant relationship between nonverbal ability, as measured by mathematic computation, and comprehension of syntactic structures.

5. There were significant relationships between nonverbal ability, as measured by mathematic computation, and the following syntactic structures when presented visually: prepositional phrase modifiers, relative clauses that modify objects of prepositions, relative clauses that modify direct objects, elliptical structures, and structures containing the passive voice in simple sentences.

There were significant relationships between nonverbal ability, as measured by mathematic computation, and the following syntactic structures when presented visually and aurally: prepositional phrase modifiers, complex sentences with two relative clauses, relative clauses that modify direct objects, included clauses, and syntactic structures containing the passive voice in simple sentences.

There were no significant relationships between nonverbal ability, as measured by mathematic computation,

and the other syntactic structures when presented in a visual and visual-auditory mode.

There were five structures out of the eight that showed significant relationships to nonverbal ability when presented in a visual mode and there were four out of eight structures that showed significant relationships to nonverbal ability when presented in a visual-auditory mode. These data are supportive of the suggestion presented in Chapter I that indicated a relationship may exist between nonverbal ability, as measured by mathematic computation, and syntactic structures since both require logical ordering of elements. Although Triggs (1954) found a higher relationship between reading skills and verbal ability than between reading skills and nonverbal ability, he did find a positive relationship between reading skills and nonverbal ability. However, it seems that there may be an even stronger relationship between comprehension of syntactic structures and nonverbal ability.

Although data in this study were subjected to statistical analyses and Marcus' (1969) study used rank order based on percentage of total correct responses to identify difficult and easy structures, there was a verification of the order of difficulty of syntactic structures found in his study. In addition, the findings from this study indicated that auditory input

appears to increase ability to comprehend syntactic structures. Further, there appears to be a closer relationship between nonverbal ability and reading comprehension than has been presupposed.

Implications

The data pertinent to the present study, in the opinion of this researcher, give validity to the theory that the ability to develop effective comprehension in students is dependent upon comprehension of the syntactic structures by which information is transmitted. The results of analyses of comprehension of the eight syntactic structures presented both in visual and visual-auditory modes give additional credence to this theory, which is inherent in Smith's (1971) assertion that syntax affects the transformation of visual symbols into meaning.

The evidence presented in this study seems to indicate that since comprehension of syntactic structures appears to be influential in reading comprehension, it would therefore appear logical that instruction in syntactic structures would enhance reading comprehension. Fagan (1971) suggested that students' ability to readily analyze and comprehend structures would facilitate ease of comprehension of written materials. It would seem from evidence found in this study that syntactic skills

should be emphasized as much as semantic skills in reading instruction and the structures verified in this study from Marcus' (1969) findings appear to be some of the structures that can be utilized in improving reading comprehension.

According to the data pertinent to this investigation, inherent in comprehension of syntactic structures seems to be the utilization of intonation. The comparison between comprehension of syntactic structures presented in a visual mode and a visual-auditory mode provides support for this contention. Lefevre (1964) noted that intonation is basic to meaning derivation of sentences. Also, during the testing sessions where the syntactic structures were presented in a visual mode, students appeared to recognize the need for intonation clues in order to obtain meaning from the syntactic structures and commented, "Why don't you just read it to us and let us circle the right answer?" In addition there was continuous vocalizing by many of the students in an effort to derive meaning from the structures. Marcus (1969), too, found vocalization during testing of syntactic structures, even in students who usually read tests and books silently. This seems to indicate that instructional methods which utilize a visual-auditory mode may result in an even higher increase in reading competence than those using a visual mode only.

Some students also seemed to recognize the need for another clue in assisting them in obtaining meaning, which was that of punctuation. Some of them made statements to the researcher such as, "I know that I could read these sentences if they had some commas." Others nodded their heads in agreement. Marcus (1969) suggested that an instrument be devised which could contain punctuation clues to meaning and would determine a student's ability to comprehend how meaning is affected by punctuation.

The evidence presented in this study indicates that there appears to be a stronger relationship between some aspects of nonverbal ability and comprehension than has been presupposed by researchers such as Triggs (1954). The correlations between nonverbal ability, as measured by mathematic computation, and comprehension of syntactic structures gives credence to this theory. It would seem from these data that for students whose nonverbal abilities, as measured by mathematic computation, exceed their verbal abilities, instructional methods as they now exist would have to be revised to provide more for these students. The correlations found between nonverbal ability, as measured by mathematic computation, and comprehension of syntactic structures in this study suggest that this may be a promising area of research.

Possibly a relationship exists between the types of cognitive manipulations required by the tasks.

Recommendations

Some recommendations for further research which were generated from this study are:

1. This study should be replicated using other syntactic structures which were not used in this study, but which frequently occur in printed material at the secondary and college levels.

2. A study should be conducted comparing instruction in remedial reading methods, syntactic structures presented in a visual mode, and syntactic structures presented in a visual-auditory mode.

3. More precise investigation should be conducted into the nature of the relationship between nonverbal intelligence and comprehension of syntactic structures.

APPENDICES

APPENDIX A

SAMPLE ITEMS FROM A TEST OF SENTENCE MEANING

APPENDIX A

SAMPLE ITEMS FROM A TEST OF SENTENCE MEANING

READING TEST
Part I

This is a test to find out how well you understand the meanings of different kinds of sentences.

Part I of the test contains two kinds of exercises: There are different directions for each kind of exercise. Read the directions before you begin the exercises. When you work on each exercise, be sure that you read all possible answers before you choose the correct answer or answers.

SAMPLE EXERCISES

Directions for Exercise 1

The underlined sentence can be made into smaller sentences. Choose two sentences that say something true about the underlined sentence. Circle the letters in front of the two sentences you choose.

1. Mary saw the man who ate the pie.

   a. The man saw Mary eat the pie.
   b. The man ate the pie.
   c. The man saw Mary.
   d. Mary ate the pie.
   e. Mary saw the man.

Letters b and e are the correct answers because these two sentences say something true about the underlined sentence. The other sentences do not tell something true about the underlined sentence.

Directions for Exercise 2

Three of the four sentences below have the same meaning. Choose the one sentence that has a different meaning and circle the letter in front of it.

2.

a. Mother gave the baby the bottle.
b. The baby was given the bottle by mother.
c. The baby gave mother the bottle.
d. The bottle was given to the baby by mother.

Letter c is the correct answer, because sentences a, b, and d all have the same meaning, and sentence c has a different meaning.

This is not a timed test. If you have not finished when it is time to stop, you will be able to finish it at another time. Some of the exercises may be difficult, but do not spend too much time on any one exercise. Do not skip any exercises. If you are not sure of an answer, choose the answer that you think is the most correct.

Part I

Directions

The underlined sentences can be made into smaller sentences. For each group of sentences choose two sentences that say something true about the underlined sentence. Circle the letters in front of the two sentences you choose.

1. Jane gave the cooky behind the jar to the boy.

   a. Jane gave the boy the cooky.
   b. The giving of the cooky was behind the jar.
   c. Jane was behind the jar.
   d. The cooky was behind the jar.
   e. The boy was behind the jar.

2. In the morning the doctor drove in his truck to the accident.

   a. The doctor drove in his truck.
   b. The accident was in the morning.
   c. The doctor was in the accident.
   d. His truck was in the accident.
   e. The doctor drove in the morning.

3. He filled a glass from over the sink with milk.

   a. The glass was filled over the sink.
   b. The glass had been over the sink.
   c. He filled a glass with milk.
   d. The milk was over the sink.
   e. The milk and the glass were over the sink.

4. The man from whom she bought the ring threw the small package that was round and shiny into the river.

   a. The package was round, small, and shiny.
   b. The man threw the round, shiny ring into the river.
   c. The man bought the ring from her.
   d. She bought the ring from the man.
   e. She bought the ring and threw the small package into the river.

5. The boys whom the captain chose for the job delivered the letter to the scouts who had discovered the treasure.

   a. The boys delivered the letter.
   b. The captain chose the job and delivered the letter.
   c. The captain chose the boys to be scouts.
   d. The captain chose the scouts for the job.
   e. The scouts discovered the treasure.

6. After lunch the coach who had painted the boat helped the boy whom he paid for his work.

   a. The coach helped the boy paint the boat.
   b. The boy painted the boat for the coach.
   c. The coach helped the boy.
   d. The boy paid the coach for his work.
   e. The coach paid the boy for his work.

7. The mother of the girls who were riding in the bus drove to the side entrance of the school.

   a. The bus drove to the side entrance of the school.
   b. The mother drove to the side entrance of the school.
   c. The girls were riding with their mother.
   d. The girls riding in the bus drove to the side entrance of the school.
   e. The girls were riding in the bus.

8. The men called to the boys whom they helped.

   a. The men called for the boys to help them.
   b. The men called the boys for help.
   c. The boys helped the men.
   d. The men helped the boys.
   e. The men called to the boys.

9. The woman sold the pole to the man with whom her son had gone fishing.

   a. The woman sold the pole to the man.
   b. The man had gone fishing with the pole the woman sold him.
   c. The woman's son used the pole when he went fishing.
   d. Her son had gone fishing with the man.
   e. The woman and her son had gone fishing with the man.

10. John hit the boy who was throwing the rocks.

    a. The boy was throwing the rocks.
    b. The boy who was throwing the rocks hit John.
    c. John hit the boy by throwing rocks.
    d. John hit the boy.
    e. John was throwing the rocks.

11. The policeman captured the robber whom he had seen leave the bank.

    a. The policeman captured the robber.
    b. The robber had seen him leave the bank.
    c. The policeman had seen the robber leave the bank.
    d. The policeman captured the robber leaving the bank.
    e. The policeman was leaving the bank and saw the robber.

12. Tom hit the boy at whom he was throwing the rocks.

    a. The boy was throwing the rocks.
    b. The boy who was throwing the rocks hit Tom.
    c. Tom hit the boy.
    d. The boy hit Tom.
    e. Tom was throwing the rocks.

13. Anne asked Jane to come at six and Mary at noon.

    a. Ann asked Jane to come at six and at noon.
    b. Anne asked Mary at noon.
    c. Jane was to be at Mary's at noon.
    d. Anne asked Jane to come at six.
    e. Anne asked Mary to come at noon.

14. The store was painted gray and the house white.

    a. The store was painted gray and white.
    b. The house was painted white.
    c. The store and the house were painted gray.
    d. The store was painted white and gray.
    e. The store was painted gray.

15. I like raw carrots, not cooked.

    a. I don't like cooked carrots.
    b. I like raw and cooked carrots.
    c. I like raw carrots.
    d. I like cooked carrots.
    e. I don't like raw carrots.

Directions

Three of the sentences in each group have the same meaning. Choose the one sentence that has a different meaning, and circle the letter in front of it.

16. a. Bob's instructions to her were to arrange for the wedding's quick conclusion.
    b. Bob instructed her to quickly conclude the wedding arrangements.
    c. Bob instructed her to quickly conclude the arrangements for the wedding.
    d. Bob's instructions to her were that the wedding arrangements were to be brought to a quick conconclusion.

17. a. The senator stated to the reporters that the protection of the people should be the government's main job.
    b. The senator's statement to the reporters was that protecting the people should be the main job of the governed.
    c. The senator's statement to the reporters was that the protection of the people should be the main job of the government.
    d. The senator stated to the reporters that protecting the people should be the government's main job.

18. a. Her preparations to perform on stage were concluded because Sam arrived.
    b. Her preparation for her performance on stage were concluded because of Sam's arrival.
    c. She prepared for the conclusion of the performance on stage because of the arrival of Sam.
    d. Because of the arrival of Sam, her preparations to perform on stage were concluded.

19. a. She agreed with whatever he said.
    b. With whatever she said he agreed.
    c. He agreed with whatever she said.
    d. Whatever she said he agreed with.

20. a. It was after they came that she left.
    b. It was after she left that they came.
    c. After she left they came.
    d. They came after she left.

21. a. Everyone knows that he is a liar.
    b. That he is a liar everyone knows.
    c. He is a liar that everyone knows.
    d. Everyone knows he is a liar.

22. a. He gave the candy to the lady.
    b. He was given the candy by the lady.
    c. The lady gave him the candy.
    d. The candy was given him by the lady.

23. a. Some flowers were bought by the boy for the girl this morning.
    b. The boy bought the girl some flowers this morning.
    c. This morning the girl was bought some flowers by the boy.
    d. The girl bought some flowers for the boy this morning.

24. a. The money was sent to us by them yesterday.
    b. Yesterday we were sent the money by them.
    c. We were sending the money with them yesterday.
    d. Their sending of the money to us occurred yesterday.

APPENDIX B

SAMPLE ITEMS FROM A COMPREHENSION TEST OF SYNTACTIC STRUCTURES

APPENDIX B

SAMPLE ITEMS FROM A COMPREHENSION TEST OF SYNTACTIC STRUCTURES

READING TEST

Part I

This is a test to find out how well you understand the meanings of different kinds of sentences.

Part I of the test contains two kinds of exercises. There are different directions for each kind of exercise. Read the directions before you begin the exercise. When you work on each exercise, be sure that you read all possible answers before you choose the correct answer or answers.

SAMPLE EXERCISES

Directions for Exercise 1

The underlined sentence can be made into smaller sentences. Choose two sentences that say something true about the underlined sentence. Circle the letters in front of the two sentences you choose.

1. John saw the girl who ate the cake.

   a. The girl saw John eat the cake.
   b. The girl ate the cake.
   c. The girl saw John.
   d. John ate the cake.
   e. John saw the girl.

Letters b and e are the correct answers because these two sentences say something true about the underlined sentence. The other sentences do not tell something true about the underlined sentence.

Directions for Exercise 2

Three of the four sentences below have the same meaning. Choose the one sentence that has a different meaning and circle the letter in front of it.

2. a. Father gave the baby the toy.
   b. The baby was given the toy by father.
   c. The baby gave father the toy.
   d. The toy was given to the baby by father.

Letter c is the correct answer, because sentences a, b, and d all have the same meaning, and sentence c has a different meaning.

This is not a timed test. If you have not finished when it is time to stop, you will be able to finish it at another time. Some of the exercises may be difficult, but do not spend too much time on any one exercise. Do not skip any exercises. If you are not sure of an answer, choose the answer that you think is the most correct.

Part I

Directions

The underlined sentences can be made into smaller sentences. For each group of sentences choose two sentences that say something true about the underlined sentence. Circle the letters in front of the two sentences you choose.

1. Bill gave the book under the sofa to the girl.

   a. Bill gave the girl the book.
   b. The giving of the book was under the sofa.
   c. Bill was under the sofa.
   d. The book was under the sofa.
   e. The girl was under the sofa.

2. In the evening the fireman drove in his truck to the fire.

   a. The fireman drove in his truck.
   b. The fire was in the evening.
   c. The fireman was in the fire.
   d. The truck was in the fire.
   e. The fireman drove in the evening.

3. She filled the plant from over the counter with dirt.

   a. The plant was filled over the counter.
   b. The plant had been over the counter.
   c. She filled a plant with dirt.
   d. The dirt was over the counter.
   e. The dirt and the plant were over the counter.

4. The boy to whom she gave the dog raced down the small path that was long and bumpy behind the house.

   a. The path was long, small and bumpy.
   b. The boy raced down the long, bumpy path behind the house.
   c. The boy gave the dog to her.
   d. She gave the dog to the boy.
   e. She gave the dog and raced down the path behind the house.

5. The girls whom the teacher chose for the job carried the papers to the students who had finished the test.

   a. The girls carried the papers.
   b. The teacher chose the job and carried the papers.
   c. The teacher chose the girls to be students.
   d. The teacher chose the students for the job.
   e. The students finished the test.

6. Before dinner the plumber who had repaired the pipes helped the boy whom he paid for his work.

   a. The plumber helped the boy repair the pipes.
   b. The boy repaired the pipes for the plumber.
   c. The plumber helped the boy.
   d. The boy paid the plumber for his work.
   e. The plumber paid the boy for his work.

7. The father of the boys who were riding in the car drove to the front entrance of the house.

   a. The car drove to the front entrance of the house.
   b. The father drove to the front entrance of the house.
   c. The boys were riding with their father.
   d. The boys riding in the car drove to the front entrance of the house.
   e. The boys were riding in the car.

8. The women shouted to the girls whom they helped.

   a. The women shouted for the girls to help them.
   b. The women shouted to the girls for help.
   c. The girls helped the women.
   d. The women helped the girls.
   e. The women shouted to the girls.

9. The woman sold the gun to the man with whom her son had gone hunting.

   a. The woman sold the gun to the man.
   b. The man had gone hunting with the gun the woman sold him.
   c. The woman's son used the gun when he went hunting.
   d. Her son had gone hunting with the man.
   e. The woman and her son had gone hunting with the man.

10. Jane hit the girl who was throwing the paper.

    a. The girl was throwing the paper.
    b. The girl who was throwing the paper hit Jane.
    c. Jane hit the girl by throwing paper.
    d. Jane hit the girl.
    e. Jane was throwing the paper.

11. The farmer stopped the rider whom he had seen enter the field.

    a. The farmer stopped the rider.
    b. The rider had seen him enter the field.
    c. The farmer had seen the rider enter the field.
    d. The farmer stopped the rider entering the field.
    e. The farmer was entering the field and saw the rider.

12. Sue hit the girl at whom she was throwing the ball.

    a. The girl was throwing the ball.
    b. The girl who was throwing the ball hit Sue.
    c. Sue hit the girl.
    d. The girl hit Sue.
    e. Sue was throwing the ball.

13. John told Jim to leave at seven and Bill at ten.

    a. John told Jim to leave at seven and at ten.
    b. John told Bill at ten.
    c. Jim was to be gone from Bill's at ten.
    d. John told Jim to leave at seven.
    e. John told Bill to leave at ten.

14. The house was painted red and the barn green.

    a. The house was painted red and green.
    b. The barn was painted green.
    c. The house and the barn were painted red.
    d. The house was painted green and red.
    e. The house was painted red.

15. The cat likes raw fish, not boiled.

    a. The cat doesn't like boiled fish.
    b. The cat likes raw and boiled fish.
    c. The cat likes raw fish.
    d. The cat likes boiled fish.
    e. The cat doesn't like raw fish.

Directions

Three of the sentences in each group have the same meaning. Choose the one sentence that has a different meaning, and circle the letter in front of it.

16. a. Mary's directions to him were to prepare for the show's quick ending.
    b. Mary directed him to quickly end the show.
    c. Mary directed him to quickly end the preparation for the show.
    d. Mary's directions to him were that the show's preparations were to be brought to a quick end.

17. a. The president reported to the staff that the employment of the people should be the government's main job.
    b. The president's report to the staff was that employing the people should be the main job of the governed.
    c. The president's report to the staff was that the employment of the people should be the main job of the government.
    d. The president reported to the staff that employing the people should be the government's main job.

18. a. His plans to act on television were concluded because Joe arrived.
    b. His plans for his acting on television were concluded because of Joe's arrival.
    c. He planned for the conclusion of the acting on television because of the arrival of Joe.
    d. Because of the arrival of Joe, his plans to act on television were concluded.

19. a. He responded to whatever she said.
    b. To whatever he said she responded.
    c. She responded to whatever he said.
    d. Whatever he said she responded to.

20. a. It was before we left that they came.
    b. It was before they came that we left.
    c. Before they came we left.
    d. We left after they came.

21. a. Everyone knows that she is a winner.
    b. That she is a winner everyone knows.
    c. She is a winner that everyone knows.
    d. Everyone knows she is a winner.

22. a. She gave the cat to the man.
    b. She was given the cat by the man.
    c. The man gave her the cat.
    d. The cat was given her by the man.

23. a. Some cookies were baked by the girl for the boy this morning.
    b. The girl baked the boy some cookies this morning.
    c. This morning the boy was baked some cookies by the girl.
    d. The boy baked some cookies for the girl this morning.

24. a. The flowers were sent to them by us yesterday.
    b. Yesterday they were sent the flowers by us.
    c. They were sending the flowers with us yesterday.
    d. Our sending of the flowers to them occurred yesterday.

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