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Syntax and Silent Reading Comprehension

Penni N. Kimball

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SYNTAX AND SILENT READING COMPREHENSION

THESIS

Submitted to the Graduate Committee of the
Department of Curriculum and Instruction
Faculty of Education
State University College at Brockport
in Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Education

by
Penni N. Kimball

State University College at Brockport
Brockport, New York
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Chapter I

Statement of the Problem

Purpose

Comprehension, the main objective of the reading process, is the result of the interaction of numerous factors, none of which function in isolation. Each factor is a necessary component of the process and is employed either consciously or unconsciously by the reader to attain his goal - understanding the printed page. What role does syntax and one's syntactic skills play in this process?

In beginning reading instruction, the individual components of the reading act are introduced and later developed and refined through successive years of schooling. At present, instruction in syntax is not a part of this program. Does the syntax of a particular sentence or paragraph significantly affect comprehension, or do all students mature naturally in their syntactic skills so that by the time they reach the intermediate grades they have the skills to read any syntax, regardless of complexity, with equal facility? The writer proposes to investigate this question by examining the relationship between syntax and the silent reading comprehension of intermediate grade level students through an instrument
designed specifically for this purpose.

Need for the Study

At one time linguists theorized that the rules governing syntax were fully internalized by the time a child entered school. John Carroll's words are characteristic, "After the age of six there is relatively little in the grammar or syntax of the language that the average child needs to learn . . ." (Carroll, 1961, p. 338).

The majority of the early studies concentrated on the language of pre-school-age children. The results of this body of research consistently point out that the basic rules of syntax are acquired rapidly over a relatively short period of time, but development does not stop there as has been shown by numerous research studies with older children (Strickland, 1962; Loban, 1963; Hunt, 1965; Bormuth, Carr, Manning and Pearson, 1970; O'Donnell, Griffin and Norris, 1967; Chomsky, 1969; Granowsky, 1971).

Further indications in the literature reveal that development takes place in an orderly, sequential fashion (Loban, 1963; Hunt, 1965; Robertson, 1968; Menyuk, 1971). Some researchers conclude that maximum development is reached between the ages of seven (Menyuk, 1971) and ten (Chomsky, 1969); others such as Hunt (1970) state that the process of language development continues into adulthood.
and consequently affects one's mode of oral and written expression.

As the student matures in his ability to manipulate syntax in his oral and written work a question remains concerning the amount of transfer made to the printed page (Fagan, 1971). The use of a particular structure does not necessarily mean that the student fully understands the message conveyed by that same structure in print. If this is true, then there is even less likelihood that he will understand structures not yet mastered in speech or writing. Students comprehend best those structures which they use most frequently (Ruddell, 1965; Smith, 1971).

The development of syntax, then, is sequential with order playing a more important role than age (Chomsky, 1969). Children progress at their own rate and find themselves at different levels of mastery with reading comprehension either keeping pace or falling slightly behind. Yet, neither educators in the classroom nor publishers of prepared reading materials concern themselves to any extent with syntax. Little if any effort is made in the classroom to look at its development or enhance its growth. Little if any effort is made by publishing companies to examine the relationship between the language of reading materials and the language of the child. The level of
complexity goes unchecked and no effort is made to sequentially introduce and reinforce structures (Strickland, 1962; Lutz, 1974). Nor is syntax given much attention in the currently popular readability formulas (Klare, 1974-1975) used as a guideline by both educators and publishing companies.

There is a definite need for all those concerned with education to examine the influence of syntax on reading. Perhaps in this way another stumbling block to reading comprehension can be removed.

**Questions of this Study**

The writer of this paper will investigate the following questions.

1. Once the child enters school, what characterizes the different stages in the development of syntax?
2. If any at all, what are the differences between oral and written development?
3. What are the basic differences between those structures acquired early and those acquired late?
4. Is there a relationship between syntax and silent reading comprehension? If so, what is the nature of that relationship?
5. What aspects of syntax account for one structure being more difficult than another?
6. As many critics maintain, is sentence length a valid measure of complexity or is there a need to examine the individual components of a sentence?

7. Is there sufficient evidence to assume that the development of syntax is completed by the age of ten (the end of the fourth grade) or does it continue to affect comprehension beyond that age?

8. Do above and below grade level readers in the intermediate grades differ significantly in their ability to comprehend various sentence structures when vocabulary and content are controlled?

9. Is there a significant difference between how well these same students comprehend structures on the basis of sex or actual grade level obtained in school?

10. Is there significant evidence in both the literature and the research to warrant concern by educators for the topic of syntax?

**Definition of Terms**

Two definitions of terms are necessary for this study. One definition concerns syntax and the other definition concerns the formula for the analysis of syntactic complexity.

For purposes of this study *syntax* will be defined in the following terms. Phonemes, the individual sounds
of language, are combined into morphemes, the smallest units of speech having grammatical meaning, which are combined into words. Words, which are limited in number, are operated upon by processes, also limited in number, to form an infinite number of sentences. These processes are called syntax.

The formula for the analysis of syntactic complexity is based upon a formula of syntactic complexity conceived by Alvin Granowsky as a part of his doctoral dissertation at the University of Pennsylvania in 1971.

Granowsky began by identifying the basic elements of syntax and rated each one on a scale from zero to four with zero count structures the easiest to comprehend and four count structures the most difficult. The count assigned to a particular structure was arrived at by considering three basic factors: 1) the theory of transformational grammar, 2) experimental data on how children process different syntactic structures and 3) a critical analysis of the language development and performance studies done on the speech and writing of children at different grade levels.

To identify the complexity level of a given sentence the structure of the sentence is compared to the structures outlined in the formula and assigned appropriate counts. A total count is taken as the complexity rating
for a given sentence. To rate an entire passage, the ratings for each of the sentences are added together and then averaged.

An outline of the basic structures considered by Granowsky and their corresponding weights can be found in Chapter 3.

Limitations

There are certain limitations that need to be placed on the formula for the analysis of syntactic complexity. First, the formula excludes certain factors of both syntax and semantics because they are difficult to measure. Second, some unequal factors are rated as equivalent in difficulty to avoid making the formula overly complicated. Third, since no measure of vocabulary is used, the ranking of structures is intended only as a guide.

This study, then, is limited to some extent by the use of Granowsky's formula, with the exception of controls placed on vocabulary accomplished by using Botel's graded word list.

The sample consisted of 97 students at two grade levels in one elementary school this limiting the generalizations and conclusions that can be drawn from the data.

The instrument used to measure silent reading comprehension of various syntactic structures was devised by
this writer. A pilot study was conducted but with too small a group (43 students) to allow for standardization. Sentences tested appeared in isolation, rather than in the context of a paragraph. Therefore, generalizations from the results of this instrument to how well the same students would perform given the same language patterns in whole paragraphs or passages cannot be made.

**Summary**

Research has shown a need to investigate the role played by syntax in the total reading process. To examine this facet of reading, a study will be made of the effect of syntax on the silent reading comprehension of intermediate grade level students using a test instrument created for this purpose.
Chapter II
Review of the Literature

Purpose

The purpose of this study is to examine the effect of syntax on the silent reading comprehension of students in the intermediate grades in order to investigate the role played by syntax in the total reading process.

The research related to this study has been divided into the following four categories:

The Development of Syntax - An Overview
Syntax and Silent Reading Comprehension
Syntactic Factors Contributing to Complexity
Sentence Length as a Measure of Syntactic Complexity

The Development of Syntax - An Overview

Language studies form the basis of any investigation of syntax. Most of the studies concerned specifically with the sequential development of syntax begin by collecting oral and written samples of language. Some samples are collected by taping spontaneous speech (Strickland, 1962) or by collecting routine classroom assignments (Hunt, 1965) while others are obtained through the use of audio-visual aids (Loban, 1963) and a predetermined set of questions (O'Donnell, Griffin and Norris, 1967). These language
samples are then broken down in numerous ways; into communication units or T-units, by sentence patterns, types of subordinate elements that appear, mazes or language tangles to name a few. Patterns and trends both across and between grade levels are examined by linguists and other language specialists and are usually subjected to statistical analyses before conclusions are drawn.

Some researchers like McCaig (1970), are skeptical of the results of such studies. McCaig maintains that researchers confuse competence with performance. Even though a student does not use a particular structure in a given taping session or writing assignment, it does not necessarily follow that the structure in question is not a part of his language repertoire. While this may be true to some extent, the following section of this chapter will show that sufficient data exists to support the current theory of orderly syntactic development, with each step building on the previous one while increasing in complexity.

Factors Affecting the Developmental Stages

The most influential factor in the entire sequence of both acquisition and development is "the communication function that the language serves ..." (Menyuk, 1971, p. 111).

Certain structures, such as the possessive adjective
before a noun and the possessive form of the noun "appear quite early despite the fact that they are, according to linguistic descriptions, structurally quite complex" (Menyuk, 1971, p. 112).

Menyuk (1971) has outlined three additional but less influential considerations that govern the developmental order. The first factor is the number of rules that must be applied to compose a structure. As the number of rules increases so does the age at which the structure begins to frequently appear. The second factor is closely related to the first and concerns the types of operations involved. Just as the ability to employ greater numbers of rules increases with age, so does the complexity of the operations that must be performed.

In other words, the structures that appear in the language of older children can only be derived through the use of increasing numbers of rules and operations. The fewer rules and operations necessary, the sooner the structure appears.

The third factor governing over-all development applies to the context in which the rules and operations function. The broader the context, the easier the processes are to learn and use. For example, the processes governing whole sentences or clauses are learned and used before those that operate within sentences and clauses.
Early Acquisition and Development

A child's first intelligible utterances are usually no more than single words accompanied by the use of intonation and stress to convey meaning. Modifiers are added and sentences take on the form of isolated predicates. Different types of sentences emerge and their basic elements begin to go through the process of expansion. Base component rules appear along with transformational rules and, to a lesser extent, phonological rules. At this point the child learns to generalize. Once an operation, rule, or set of operations and rules is used to form a basic sentence type, it is employed again and again to generate other sentence types. At the same time, previously learned rules and operations undergo changes and expansion. Subject-predicate constructions appear and parts of speech take on meaning as the constraints of context are recognized and dealt with.

Menyuk (1969) summarized the developmental changes that occur in the sentences of children between the ages of four and seven as follows: 1) further expansion of base structure nodes (increase in class membership), 2) observation of selectional constraints on the co-occurrence of members of a class (observation of syntactic properties and combinational rules of lexical items), and 3) application of the syntactic operations of addition,
deletion, substitution and permutation to underlying sentences, as well as to items in a single underlying string" (Menyuk, 1969, p. 151).

The Development of Syntax in School-Age Children

As Menyuk observes, the development of syntax is not complete by age seven (Menyuk, 1969, p. 151). Through the years, new structures are added to the language repertoire while others go through a series of refinements. Unnecessary words are discarded and repetition is avoided as thoughts are transformed from wordy single expressions into interrelated, concise units. This gradual growth in grammatical complexity is clearly shown in the studies that follow.

One of the first major research projects undertaken to examine the development of syntax in school-age children was done by Ruth Strickland in 1962. The spontaneous speech of 575 students in grades one through six was collected and examined on the basis of several factors including "the syntactic structure of sentences and the frequency of occurrence of certain patterns of syntax" (Strickland, 1962, p. 6).

Several patterns appeared with such frequency that Strickland considered them to be basic units that function as the building blocks to language. At the same time, all of the students in the study, regardless of grade level,
demonstrated a facility for combining and expanding multiple patterns in numerous ways.

A closer look at the language of the sixth grade students revealed that silent reading comprehension, oral reading, and listening comprehension were all related to the structure of the child's oral language. Those classified as being above average in any one of these areas used common patterns of structure more frequently, a larger percentage of moveables and subordinate elements while producing sentences of greater length than those in the low or below average group.

The results of the longitudinal study completed by Loban (1963) show a high degree of correlation to Strickland's study. Loban's sample consisted of basically the same age group, the only exception being the inclusion of kindergarteners. Oral language samples were collected at regular intervals over a seven year period and in each successive year an increase was found in the number of words spoken and the incidence of subordination.

The volume of meaningful language produced increased gradually up until fifth grade. At that point, all students showed a marked increase in the number of communication units employed to express thoughts with the group labeled high in language ability far surpassing both the random and the low language ability groups.
The occurrence of mazes or meaningless speech showed a steady decrease in the first four years for all groups but the low group progressed at a much slower rate while actually increasing the average number of words used in a given maze. This pattern continued in grades four through six with the low and high groups moving farther apart rather than parallel to one another in both number of mazes and words per maze. It became evident that "the low group experienced more difficulty in using and controlling the patterns of syntax . . ." (Loban, 1963, p. 42) while the high language ability group demonstrated a facility for expressing themselves through the use of increasingly complex structures.

As in the Strickland study, all students were able to use and combine common patterns, but the high language ability students demonstrated a greater flexibility within patterns; this factor was so prominent in the data that it was interpreted as a measure of language maturity.

It was shown, then, that the "complexity of grammatical structure is associated not only with chronological age but also with proficiency in language . . . with the high group using more adverbial dependent clauses, second-order subordination and subordination which includes infinitives and verbal phrases " (Loban, 1963, p. 64).

These same findings were confirmed by Loban in a later
study of first, second, third, tenth, eleventh and twelfth graders (Loban, 1970). "At all levels the group superior in language development used more transformations than the random group and almost two times as many as the low group" (Loban, 1970, p. 625).

It seems that "as they mature, the low group increases its ability to use dependent clauses whereas the high group shifts to that tighter coiling of thought accompanied by infinitive clauses, participial, prepositional and gerund phrases, appositives, nominative absolutes and clusters of words in cumulative sentences" (Loban, 1970, p. 625).

Just as oral expression increases in length and complexity with maturity, so does written expression. Hunt demonstrated this trend in his study with forty-five fourth, eighth and twelfth graders (Hunt, 1965). The writing samples collected were analyzed in terms of T-units, the smallest possible units that still retain the elements of a sentence. A 40% increase was found in average T-unit length across grade levels with the number of main clauses steadily decreasing and the number of subordinate clauses steadily increasing.

The writing of the youngest subjects was characterized by a tendency to "repeat the same noun rather than consolidate structures" (Hunt, 1965, p. 114). Older
students did just the opposite. They were inclined to "employ a larger number of . . . sentence combining transformations in the production of nominals and their T-units were characteristically further removed from . . . kernel sentences" (Hunt, 1965, pp. 120 - 121).

Growth in syntax is evident both in speech and writing but they do not necessarily coincide, with the development in one area influencing or building on the development of the other. Research, in fact, has shown that significant differences do exist in the ability of children to handle syntax in writing and syntax in speech (O'Donnell, Griffin and Norris, 1967).

After studying the oral and written expression of students in kindergarten, first, second, third, fifth and seventh grade, noticeable periods of accelerated growth were found. In oral expression this happened between kindergarten and the end of first grade with a second spurt occurring between the end of fifth and the end of seventh grade. Progress was evident between the end of first and fifth, but it was of a more gradual nature. For the most part, growth in written expression was slow and gradual with the exception of fifth grade, the one year in which there were noticeably greater advances.

When the children's command of syntax in oral and written expression was compared against one another within
a grade level, third graders demonstrated greater control in speaking over writing while fifth and seventh graders demonstrated far greater control in writing over speaking (O'Donnell, Griffin and Norris, 1967).

As the preceding studies have clearly demonstrated, the development of syntax, on both the oral and written level, is not complete by the time a child enters school. Progress is sequential and continual with distinct differences existing between high language ability students and low language ability students. The extent that these differences affect reading comprehension will be examined.

Syntax and Silent Reading Comprehension

Most children learn to speak long before they learn to read or write. Therefore, oral language skills are tapped very early by educators to lay a foundation on which to build the more complex skills of written communication. Initial teaching is restricted at first to the auditory and verbal modes of communication. Once print is introduced, the auditory and verbal modes of communication become the avenues of reinforcement. The entire concept of the educational process is founded on this concept of proceeding from the known to the unknown. As of yet, the educator has failed to recognize the need to employ this procedure in the presentation of syntactic
skills.

The child uses definite patterns in his oral expression and later, his written expression; patterns that undergo developmental changes through the years. Yet, the child's mode of expression is virtually ignored in the creation of reading materials (Strickland, 1962). Subsequently, the child's silent reading comprehension is affected.

Syntax Does Affect Comprehension

The syntax of the sentence is as much a carrier of the message as are the individual words. When the reader experiences difficulty with the syntax of a sentence or passage, comprehension is interfered with and at least part of the author's message is lost.

Support for this can be found by examining the effect of basic transformations on silent reading comprehension. Through the testing of five categories of transformations on fourth, fifth and sixth graders several structures were found to be responsible for increasing the difficulty level of the material; the most prominent were the appositive, the 'ing' nominalization, the genative pronoun, the negative and the common elements of deletion. The nature of these transformations appeared to be far more limiting than the number of transformations contained in a given
passage (Fagan, 1971).

A similar study (Gough, 1965) tested the listening comprehension of different transformations. Subjects were asked to verify sentences after listening to them and the speed of verification was used as an index of the ease of understanding. Active sentences were verified faster than passive sentences and affirmative sentences faster than the negative.

Another supportive study tested fourth graders' silent reading comprehension of twenty-five sentence structures, sixteen intersentence structures and fourteen anaphoric structures, all judged to be basic elements of the language. The researchers involved reported that, "By far the most startling result of this study was the fact that large proportions of the students were unable to demonstrate a comprehension of the basic syntactic structures by which information is signaled in language" (Bormuth, Carr, Manning and Pearson, 1979, pp. 354 - 355).

The syntax of the sentence, then, does influence the reader's ability to comprehend written communication and some structures are apparently more difficult than others. As will be shown in the following section, the level of difficulty is largely dependent on where the student is developmentally.
The Developmental Nature of Comprehension

The reader relies on three sources of cues as he reads; 1) graphic symbols, 2) semantics and 3) syntax (Goodman, 1965). Even the poorest readers to some extent make use of these constraints on language (McDonnell, 1975).

At the same time, the student's ability to utilize these cues depends on his present stage of development. An understanding of the various syntactic structures in print develops as progress is made in both speech and writing. But, it cannot be assumed that a structure is automatically understood in print because it appears in other modes of communication.

Carol Chomsky (1969) supports this conclusion in her investigation of kindergarteners, first, second, third and fourth graders. Using these subjects, Chomsky measured the comprehension of four syntactic constructions considered to be common in adult usage but largely absent from the speech of five year olds.

The testing was done by an interviewer who either asked the child a question or instructed him to manipulate a set of objects. The format for questioning was standard for all test situations and a tight check was placed on semantics to prevent it from being an interfering variable.
and the comprehension of syntactic structures is no exception. Wylie (1974) demonstrated this finding in his study with first and second graders. Thirty-three direction giving sentences were written at different levels of syntactic complexity. These were read to students who responded by making the appropriate marks in a test booklet. Four weeks of oral interaction games followed and then a post-test was given. There was a measurable decrease in the percentage of errors made by all of the groups in the sample.

Just as syntax is developmental on an oral and written level, so it is developmental on the basis of comprehension. Students find themselves at different stages and thus vary in their ability to handle structures in print. Development responds to the teaching of this skill as does any other skill related to the reading process.

Syntax and Semantics

Some researchers contend that the preceding conclusions and generalizations are founded on weak evidence (Lesgold, 1974; Pearson, 1974 - 1975). They believe that the real issue is semantics, not syntax. Pearson, for one, maintains that sentence length and complexity make no difference to readers in the middle grades because as information is read, it is stored in semantic chunks. In
his opinion, "the more subordinated, longer sentence forms elicit better comprehension because they are communicating more complex semantic relations than shorter ones" (Pearson, 1974 - 1975, p. 189).

Lesgold, (1974), on the other hand, feels that semantics is an uncontrolled variable which has a strong influence on the results of studies of syntax. If semantics is not controlled, a test paragraph may contain only one semantically correct answer or it may contain imagery factors which aid understanding. The amount of processing necessary to get at the deep structure of sentences may vary from one passage to another thus influencing comprehension. If any of these conditions exist, the resulting conclusions are subject to considerable question.

Like Pearson, Lesgold maintains that semantics is more influential than syntax when both variables are tightly controlled. It is his belief that a structure understood in simple semantics would not be understood when placed in the context of more complicated semantics.

Contrary to these opinions, the majority of language studies concerned with the influence of syntax on silent reading comprehension do control semantics. This is accomplished by using graded vocabulary lists and a measure of concept difficulty and concept load. Some linguists (Chomsky, 1969) interviewed students before testing to
ensure that the level of semantics used did not confuse the subject or inhibit responses.

Furthermore, limited evidence can be found in the research that shows syntax to be either equally as influential as semantics (Guthrie, 1973) or more so (Silver, 1973-1974).

Through the use of sentence selection tests Guthrie found that the comprehension of verbs and function words was dependent upon syntactic cues while the comprehension of nouns and modifiers was a function of semantic cues. This supports the theory that both semantics and syntax act as cueing systems used by the reader to aid comprehension.

Another study was done by writing sentences that were violated semantically, others that were violated syntactically and an equal number violated both semantically and syntactically. Using second and fourth graders, it was concluded that while the two factors were interrelated, syntax had a greater effect on oral reading performance than semantics. This conclusion was drawn from the data which showed syntactic violations to be significantly more disruptive than semantic violations and equally as disruptive as syntactic and semantic violations combined (Silver, 1973–1974).

The answer probably lies somewhere between the
generalizations made by Pearson and Silver. Many language experts would agree (Goodman, 1965; McDonnell, 1975) that both semantics and syntax affect silent reading comprehension with neither more influential than the other. Since both play a role in comprehension, the measurement of one requires the control of the other.

Factors Influencing the Ease of Reading

The syntax of print does affect silent reading comprehension. The extent of this influence depends on the language maturity level of the reader. A theory has been proposed which suggests that students understand best in print the structures they use most frequently in speech (Ruddell, 1965; Reid, 1970).

The individual does not interact with print in a vacuum. Rather, he brings his background to the reading act which includes an entire set of language expectancies. As he reads, he expects sentences to parallel his knowledge of language (McDonnell, 1975). If the patterns he encounters are unfamiliar, his ability to make predictions is decreased to the point where understanding becomes a difficult, if not impossible, task (Goodman, 1967).

Because syntax is developmental, changes occur and consequently the reader's expectancies change as found in Smith's study (1971). Smith wrote test passages patterned
after paragraphs written by fourth, eighth, and twelfth graders and skilled adults, the resulting context considered typical of these age groups. Using the cloze technique, students in grades four through twelve were tested. "The older subjects (grades ten, eleven and twelve) consistently read all levels of writing significantly better than did the younger subjects (grades four, five and six)" (Smith, 1971, p. 55). "Elementary grade subjects read the fourth grade level of writing best but the eighth grade level of writing soon became easier to read. Even the twelfth grade and skilled adult writing was easier to read than the fourth grade writing for all high school students" (Smith, 1971, p. 57). Here were mature readers making numerous incorrect predictions on syntax far below their own level of language competence.

Smith hypothesized that the difference in performance could be attributed to language habits. In other words, the student comprehends best the structures he is accustomed to using and what "the student normally produces (i.e. the syntactic level at which he writes) either influences or is influenced by the syntactic level at which he reads" (Smith, 1971, p. 58). It may very well be "that the productive level determines the best receptive level" (Smith, 1971, p. 59).

The reader's familiarity with a given structure then,
does appear to influence comprehension, but it is not the only factor to be considered. The level of complexity involved in a syntactic structure or pattern further determines the difficulty level of the reading material.

**Syntactic Factors Contributing to Complexity**

It follows from the preceding discussion that one of the factors contributing to the difficulty level of syntactic structures in print is the separation of reading material from language. But, the lack of experience with a structure does not account for all the levels of complexity that exist.

Chomsky (1969) has outlined four conditions that increase the difficulty of both acquisition and comprehension. They are as follows:

1) "when the true grammatical relations which hold among the words in a sentence are not expressed directly in its surface structure

2) the syntactic structures associated with a particular word is at variance with a general pattern in the language

3) a conflict exists between two of the potential syntactic structures associated with a particular verb

4) restrictions on a grammatical operation apply
under certain limited conditions only" (Chomsky, 1969, pp. 6 - 7).

Selected words added to the basic sentence structure also increase complexity if they increase ambiguity (modal), add concepts (lexical items), or result in additional processes (passives). Both the words used and the sentence structure itself determines how much information the reader must carry before resolution and for how long. An increase in any one of these factors results in more complicated structures and thus more difficult reading (Dawkins, 1975).

**Sentence Length as a Measure of Syntactic Complexity**

Though syntax is accepted as a factor of silent reading comprehension, controversy still remains over how to measure it. The critics of syntactic complexity formulas maintain that such formulas are unnecessarily complicated. All one needs to do is count words per sentence to arrive at an index of difficulty.

In support of this are the results of one study in which both a complexity formula and word count measures were applied to twenty Newberry Award winning books. Overall sentence length turned out "to be a valuable estimator of syntactic complexity as measured by the syntactic complexity formula" (Miller and Hintzman, 1975, p. 756).
The fact also remains that "longer sentences usually appear at higher levels and consequently include more adjectives, deleted words, dependent clauses and adverbial additions, all resulting in increased complexity" (Glazer, 1974, p. 467).

Still, sentence length does not account for many of the factors contributing to difficulty level. For instance, longer sentences may be easier to comprehend than shorter ones (Dawkins, 1975). An example of this would be thoughts joined by connectives. To break up such a sentence into smaller units would actually reduce understanding because the resulting language would be both choppy and unnatural. It has been pointed out in earlier sections of this chapter that the inclusion of unnatural and thus unfamiliar structures in the text interferes with the reader's ability to understand the writer's message.

Sentences of equal length, regardless of whether they are long or short, may also vary in linguistic difficulty. Take for example the following two sentences: 'The girl sings.' and 'Singing is fun.' The first sentence represents "one of the most common constructions found in the language of young children" (Glazer, 1974, pp. 466 - 467). The second sentence contains a nominalized subject, a structure that does not appear until much later. The two sentences, then, will be read with varying degrees of
success by young students, the first being relatively easy and the second presenting a definite comprehension problem.

Adhering to sentence length as a measure of complexity causes sentences to be classified as either long or short sentences. If this is done, the sequential development of syntax is lost. Some structures have repeatedly been shown to occur at an earlier or later stage than others. Later appearing structures generally function to condense information rather than increase the number of words needed to express a thought. In this way, more content is carried in fewer words. Such a structure, using sentence length as a measure, would seem less linguistically complex than one that is repetitive, employing greater numbers of words to say the same thing.

A syntactic complexity formula is a necessary tool of both the educator and the researcher. Without it, meaningful differences in complexity go unmeasured and unaccounted for. Thus, any precise account of the impact of syntax on reading remains unattainable.

**Summary**

By the time a child enters school, he has acquired a sufficient knowledge of the basic rules of syntax to allow him to communicate in an intelligible manner. The
acquisition of syntax, though, does not stop there but
continues to develop over the school years in an orderly,
sequential fashion. As growth occurs in the syntactic
complexity of oral expression, it is closely paralleled
by growth in written expression.

Yet, it cannot be assumed that all of the syntactic
structures in the child's repertoire are fully understood
when presented in print. Nor can it be assumed that un-
familiar and unusual syntactic patterns will be readily
comprehended when they are first encountered in reading.
Growth in understanding the syntax of printed language
follows a gradual, sequential process just as it does in
writing and speaking. This process is influenced by
the complexity of the structures and the degree to which
they resemble the common elements of oral and written
communication.

In the past, readability formulas have placed little
emphasis on syntactic complexity and have employed sentence
count measures as the sole consideration of this compon-
ent of the reading process. A greater awareness of the
impact of syntax on comprehension is becoming apparent in
the literature. To measure syntax simply by using a sen-
tence count as an index fails to reveal individual struc-
tures that are highly complex and thus difficult to read
and comprehend.
Therefore, researchers are beginning to realize the necessity for using formulas that measure the syntactic complexity of sentences and paragraphs in order to obtain a true measure of syntactic difficulty.
Chapter III
The Research Design

Purpose
This research study is concerned with the degree of influence syntax has on silent reading comprehension in the intermediate grades and whether or not above and below level readers differ significantly in their ability to comprehend syntactic structures in increasingly complex sentences.

The Hypotheses
The null hypotheses investigated in this study were as follows:

Main Effects
1. There is no significant difference between the number of questions missed in each of the three levels of increasingly complex syntax.
2. There is no significant difference between the performance of above and below level readers on the test of increasingly complex syntax.
3. There is no significant difference between the performance of males and females on the test of increasingly complex syntax.
Interactions

4. There is no significant interaction between the scores of above and below level readers and the scores of males and females on the test of increasingly complex syntax.

5. There is no significant interaction between the scores of above and below level readers and the number of questions missed in each of the three levels of difficulty on the test of increasingly complex syntax.

6. There is no significant interaction between the scores of males and females and the number of questions missed in each of the three levels of difficulty on the test of increasingly complex syntax.

7. There is no significant interaction among the three variables: 1) the number of questions missed in each of the three levels of difficulty on the test of increasingly complex syntax, 2) the scores of above and below level readers, and 3) the scores of males and females.

Methodology

Subjects

The subjects involved in this study were intermediate
level students attending a suburban school in a predominantly middle to lower class neighborhood.

A total of 101 students participated, 56 fifth graders (32 males, 24 females) and 45 sixth graders (21 males, 24 females). Three fifth grade students (two males, one female) and one sixth grade male were not included in the analysis of data because their scores on the vocabulary section of the Gates-MacGinitie Reading Test fell below the third grade vocabulary level of the test of increasingly complex syntax. Nor were the 24 fifth graders and 19 sixth graders who took part in the pilot study included in the final analysis of data.

**Instruments and Procedure**

An instrument was devised to test the effect of syntactic complexity on silent reading comprehension. The test comprised forty-five sentences, five at each of nine levels of syntactic complexity with Level 1 the easiest and Level 9 the most difficult. These nine levels were later combined into three difficulty levels for purposes of analysis.

Granowsky's formula for the analysis of syntactic complexity formed the basis for construction of all forty-five sentences (Granowsky, 1971, pp. 78 - 94). An outline of Granowsky's formula as adapted for this study
follows.

I. Zero Count Structures
   A. Common sentence patterns
   B. Articles
   C. The following determiners: these, this, that, those
   D. Possessive pronouns
   E. The following words: will, can, so

II. One Count Structures
   A. The following sentence patterns:
      1. Subject-verb-prepositional phrase (Note: The pattern receives a zero count if the prepositional phrase begins with the words on, by, with, from, to, into, in, onto, for.)
      2. Subject-verb-indirect object-object
      3. Subject-verb-object-complement
   B. Noun modifiers
   C. Other modifiers
   D. Coordinates
   E. Prepositional phrases beginning with the words on, by, with, to, into, in, onto, for, from (Note: Prepositional phrases beginning with these words receive a zero count if they directly follow the verb in the subject-verb-adverb sentence pattern.)
F. Infinitives (Note: Infinitives directly following the verb in the subject-verb-adverb sentence pattern receive a zero count.)

G. Adverbial structures at the beginning of sentences
(Note: Adverbials of time receive a zero count.)

H. The following sentence types:
1. Interrogative
2. Imperative
3. Exclamatory
4. Existence-assertion

I. Tag-ends

J. Negatives

III. Two Count Structures
A. Coordinate phrases or word groups having two lexical items

B. Prepositional phrases beginning with prepositions having lexical weight

C. Infinitives plus objects

D. Passives

E. Participles

F. Nominalized subjects - gerund or infinitive

G. Set expressions

H. Comparatives
I. The following paired conjunctions: either, or; both, and

IV. Three Count Structures
A. Dependent clauses
B. Participial phrases
C. Gerund phrases
D. Appositives
E. Nominalized subjects - gerund or infinitive phrases
F. Conjunctive adverbs and other sentence joiners such as yet and still
G. Paired conjunctions not included in two count structures
H. A colon or dash when used to join sentences

V. Four Count Structures
A. Nominalized subject clauses
B. Nominal absolutes
C. Conjunctive adverbs when a semicolon is used

By combining structures, five sentences were written at each of nine levels of difficulty. Each Level 1 sentence contained only one structure that would receive a one count on Granowsky's scale of complexity. Each Level 2 sentence contained only those structures that, added
together, equaled two counts. The structures used in Level 3 sentences added up to three counts. This pattern was followed throughout the remaining levels with the sentences in the last level containing structures that totaled nine, based on the counts assigned in the formula. A breakdown of the sentences and counts can be found in Appendix A.

The vocabulary used in all forty-five sentences was either at or below third grade level (Botel, 1962). By restricting the vocabulary to this level, and excluding those students who earned a 3.5 or below on the vocabulary section of the Gates-MacGinitie Reading Test, vocabulary was prevented from becoming an uncontrolled and possibly influential variable.

A question was written for each sentence limiting vocabulary to third grade or below (Botel, 1962). Twenty two questions were written to test literal comprehension and the remaining twenty three written to test inferential comprehension with both types appearing in each of the nine levels of difficulty. Careful consideration was given to syntax, semantics and content so that answers could not be predicted from the structures used to introduce the questions.

The sentences and questions were combined in a nine page booklet, the front of each page containing five
sentences and the back of each page containing five questions. Because each question tested the comprehension of a single sentence in isolation, rereading of the sentence for the purpose of locating an answer had to be controlled. For this reason, the booklet was organized in such a way that the student read a sentence and then turned to the back of the page for the corresponding question. The next sentence to be read appeared on the following page with the corresponding question on the back. After working from the top of page one to the top of page nine, the student returned to page one for sentence number ten and again worked his way through the booklet to page nine, returning to page one after completing item number eighteen. Students received instruction on how to use the booklet and were told not to turn back to reread a sentence after reading the question.

Each set of five sentences represented a difficulty level and were numbered sequentially throughout the booklet requiring the student to work from the simplest of structures to the most complex.

The booklet was submitted to a committee of reading seminar students and advisors at the State University College at Brockport. Each sentence and question was examined and revisions were made on the basis of the committee's suggestions.
A pilot study was then conducted with 24 fifth graders and 19 sixth graders in a suburban elementary school. Appropriate changes were made following an item analysis of the results which indicated several problem areas. A copy of this test can be found in Appendix B.

A second instrument, the Gates-MacGinitie Reading Test, Survey D, was administered in order to give the writer a measure of individual levels obtained in vocabulary and silent reading comprehension. Vocabulary scores were used to identify those students performing below the level of vocabulary used in the test of increasingly complex syntax while reading scores were used to determine reading levels.

Both the Gates-MacGinitie Reading Test and the test measuring the comprehension of increasingly complex syntax were group administered by the participating teachers. The two instruments were given on different days with the teachers receiving instruction in how to administer and proctor both prior to the actual test sessions.

**Statistical Design**

A three-factor analysis of variance was necessary in order to test the hypotheses of this study. Therefore, the ANOVA 3 computer program at the State University College at Brockport was selected for analyzing the data.
An essential part of this program examined the relationship between above and below level readers and performance on the test of increasingly complex syntax. For this purpose, it was necessary to establish these levels.

The Gates-MacGinitie Reading Test scores and actual grade in school formed the basis for identifying the reading achievement of the subjects as either above or below grade level. The range for each of these levels is presented in Table 1.

Table 1
Scores Determining Reading Levels

<table>
<thead>
<tr>
<th>Score Range</th>
<th>5th Grade Students</th>
<th>6th Grade Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Below</td>
<td>0.0 -- 4.9</td>
<td>0.0 -- 5.9</td>
</tr>
<tr>
<td>Grade Level</td>
<td>Reading Above</td>
<td>6.0 -- 12.0+</td>
</tr>
<tr>
<td></td>
<td>Grade Level</td>
<td>7.0 -- 12.0+</td>
</tr>
</tbody>
</table>

A schematic representation of each of the two ANOVA 3 computer programs used in this study follows in Tables 2 and 3. Only the scores on the comprehension test of increasingly complex syntax of above and below level readers were used and the nine levels of syntactic complexity were
grouped so that Difficulty Level 1 includes Test levels 1, 2 and 3, Difficulty Level 2 includes Test levels 4, 5 and 6 and Difficulty Level 3 includes Test levels 7, 8 and 9. The numbers in each square represent the total number of sentences missed by each of the students at a given Difficulty Level.

Table 2
ANOVA 3 - Program #1
Fifth Grade Students

Layer 1 - Fifth Grade Males

<table>
<thead>
<tr>
<th>Difficulty Level</th>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level One</td>
<td>2,1,1,7,3,2</td>
<td>0,2,0,2,2,0</td>
</tr>
<tr>
<td>Level Two</td>
<td>5,7,5,10,4,5</td>
<td>6,1,4,5,3,5</td>
</tr>
<tr>
<td>Level Three</td>
<td>8,11,5,13,7,8</td>
<td>8,7,7,5,5,6</td>
</tr>
</tbody>
</table>

Layer 2 - Fifth Grade Females

<table>
<thead>
<tr>
<th>Difficulty Level</th>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level One</td>
<td>3,3,2,2,7,4</td>
<td>0,0,0,2,0,0</td>
</tr>
<tr>
<td>Level Two</td>
<td>7,4,8,4,6,7</td>
<td>3,4,5,4,4,3</td>
</tr>
<tr>
<td>Level Three</td>
<td>9,7,9,10,10,6</td>
<td>5,9,7,6,3,5</td>
</tr>
</tbody>
</table>
### Table 3

ANOVA 3 - Program #2

Sixth Grade Students

**Layer 1 - Sixth Grade Males**

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Level One</th>
<th>Column 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number of Sentences Missed by Below Level Readers</td>
</tr>
<tr>
<td>Row 1</td>
<td></td>
<td>3, 1, 2, 4, 0, 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0, 0, 3, 0, 0, 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4, 6, 2, 8, 8, 9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7, 3, 5, 5, 2, 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9, 7, 7, 10, 10, 9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9, 4, 6, 5, 7, 5</td>
</tr>
</tbody>
</table>

**Layer 2 - Sixth Grade Females**

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Level One</th>
<th>Column 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number of Sentences Missed by Below Level Readers</td>
</tr>
<tr>
<td>Row 1</td>
<td></td>
<td>2, 1, 2, 1, 2, 6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1, 0, 2, 0, 1, 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4, 2, 2, 6, 2, 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3, 3, 2, 4, 3, 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10, 7, 8, 13, 9, 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2, 6, 7, 7, 4, 5</td>
</tr>
</tbody>
</table>
**Summary**

This study was designed to examine the effect of syntax on the silent reading comprehension of intermediate grade level students. Two test instruments were used for this purpose, the Gates-MacGinitie Reading Test, Survey D and a comprehension test of increasingly complex syntax. Both tests were administered to 101 fifth and sixth grade students in a suburban elementary school.

The results of the Gates-MacGinitie Reading Test were used to determine individual levels of reading achievement. This information was then applied in the ANOVA 3 computer program at the State University College at Brockport to analyze the results of the test of increasingly complex syntax.
Chapter IV
Findings and Interpretations

Purpose
The purpose of the current study is to examine the relationship between syntax and the silent reading comprehension of fifth and sixth grade students and to compare the performance of above and below level readers on a test of increasingly complex syntax.

Analyzing the Findings and Interpreting the Data
The results of the ANOVA 3 computer programs for all seven of the null hypotheses tested in this study are presented in the following tables. These hypotheses were tested at the .01 and .05 levels of significance using the scores of above and below level readers.

The first null hypothesis tested states that there is no significant difference between the number of questions missed in each of the three levels of increasingly complex syntax. The data pertaining to this hypothesis appears in Table 4.
Table 4

Three Factor Analysis of Variance of the Difference
Between the Number of Questions Missed in Each of the Three Levels of Syntactic Difficulty

<table>
<thead>
<tr>
<th>Degrees of Freedom</th>
<th>F Ratio based on Data</th>
<th>Value of F for 60 Degrees of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th Grade Students</td>
<td>2</td>
<td>56.1762</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F .95 3.93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F .99 5.79</td>
</tr>
<tr>
<td>6th Grade Students</td>
<td>2</td>
<td>66.2344</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F .95 3.93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F .99 5.79</td>
</tr>
<tr>
<td>total = 60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On the basis of the data presented in Table 4, the null hypothesis is rejected. There was a significant difference at the .01 level between the number of questions missed in each of the three levels of syntactic difficulty. All students made an increasing number of incorrect responses as the sentences became syntactically more complex. It is evident from the data that Level 1 sentences were the easiest for students to comprehend while Level 3 sentences were the most difficult to comprehend.

The second null hypothesis tested states that there is no significant difference between the performance of above and below level readers on the test of increasingly complex syntax. The data for this hypothesis appears
in Table 5.

Table 5

<table>
<thead>
<tr>
<th></th>
<th>Degrees of Freedom</th>
<th>F Ratio based on Data</th>
<th>Value of F for 60 Degrees of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th Grade Students</td>
<td>1</td>
<td>30.6249</td>
<td>F .95 5.29</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F .99 8.49</td>
</tr>
<tr>
<td>6th Grade Students</td>
<td>1</td>
<td>23.3514</td>
<td>F .95 5.29</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F .99 8.49</td>
</tr>
<tr>
<td>total = 60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The findings given in Table 5 form the basis for rejecting the null hypothesis. There is a significant difference at the .01 level between the performance of above and below level readers on the test of increasingly complex syntax. Below level readers in both fifth and sixth grade selected a larger percentage of incorrect answers than above level readers in either grade. This occurred consistently in each of the three levels of syntactic complexity indicating that below level readers experienced a significantly greater degree of difficulty reading and responding to the test items than above level readers did.
Apparently, students reading above grade level are better able to comprehend various syntactic structures than students reading below grade level.

The third null hypothesis tested states that there is no significant difference between the performance of males and females on the test of increasingly complex syntax. The data concerned with this hypothesis appears in Table 6.

Table 6
Three Factor Analysis of Variance of the Difference Between the Performance of Males and Females on the Test of Increasingly Complex Syntax

<table>
<thead>
<tr>
<th>Degrees of Freedom</th>
<th>F Ratio based on Data</th>
<th>Value of F for 60 Degrees of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th Grade Students</td>
<td>1</td>
<td>.0694275</td>
</tr>
<tr>
<td>6th Grade Students</td>
<td>1</td>
<td>2.18017</td>
</tr>
<tr>
<td>total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The findings as shown in Table 6 fail to reject the null hypothesis. There is no significant difference between the performance of males and females on the test of increasingly complex syntax. Neither the males nor
the females in this study completed a significantly greater number of items correctly or incorrectly than did the opposite sex. This finding was true of both grade levels and demonstrates that sex did not function as a variable affecting performance. These intermediate grade level boys and girls did not differ significantly by sex in their facility for understanding different syntactic structures.

The fourth null hypothesis tested states that there is no significant interaction between the scores of above and below level readers and the scores of males and females on the test of increasingly complex syntax. Table 7 contains the data for this hypothesis.

Table 7
Three Factor Analysis of Variance of the Interaction Between the Scores of Above and Below Level Readers and the Scores of Males and Females

<table>
<thead>
<tr>
<th>Degrees of Freedom</th>
<th>F Ratio based on Data</th>
<th>Value of F for 60 Degrees of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th Grade Students</td>
<td>1</td>
<td>.625076</td>
</tr>
<tr>
<td>6th Grade Students</td>
<td>1</td>
<td>.0720547</td>
</tr>
<tr>
<td>total = 60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The findings presented in Table 7 fail to reject the null hypothesis. There is no significant interaction between the scores of above and below level readers and the scores of males and females on the test of increasingly complex syntax.

The fifth null hypothesis states that there is no significant interaction between the scores of above and below level readers and the number of questions missed in each of the three levels of difficulty on the test of increasingly complex syntax. Table 8 provides the information relating to this hypothesis.

Table 8

Three Factor Analysis of Variance of the Interaction Between the Scores of Above and Below Level Readers and the Number of Questions Missed in Each of the
Three Levels of Difficulty

<table>
<thead>
<tr>
<th>Degrees of Freedom</th>
<th>F Ratio based on Data</th>
<th>Value of F for 60 Degrees of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th Grade Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th Grade Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>total = 60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
An analysis of the data given in Table 8 fails to reject the null hypothesis. There is no significant interaction between the scores of above and below level readers and the number of questions missed in each of the three levels of difficulty in the test of increasingly complex syntax.

The sixth null hypothesis states that there is no significant interaction between the scores of males and females and the number of questions missed in each of the three levels of difficulty on the test of increasingly complex syntax. The data for this hypothesis appears in Table 9.

Table 9
Three Factor Analysis of Variance of the Interaction Between the Scores of Males and Females and the Number of Questions Missed in Each of the Three Levels of Difficulty

<table>
<thead>
<tr>
<th></th>
<th>Degrees of Freedom</th>
<th>F Ratio based on Data</th>
<th>Value of F for 60 Degrees of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th Grade Students</td>
<td>2</td>
<td>0.824738</td>
<td>F 0.95 3.93</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F 0.99 5.79</td>
</tr>
<tr>
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<td>2</td>
<td>2.23425</td>
<td>F 0.95 3.93</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>F 0.99 5.79</td>
</tr>
<tr>
<td>total</td>
<td></td>
<td></td>
<td></td>
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</table>
The findings in Table 9 fail to reject the null hypothesis. There is no significant interaction between the scores of males and females and the number of questions missed in each of the three levels of difficulty on the test of increasingly complex syntax.

The seventh null hypothesis states that there is no significant interaction among the three variables: 1) the number of questions missed in each of the three levels of difficulty on the test of increasingly complex syntax, 2) the scores of above and below level readers and 3) the scores of males and females. Table 10 contains the data pertinent to this hypothesis.

Table 10
Three Factor Analysis of Variance of the Interaction Among the Three Variables: 1) Number of Questions Missed in each Difficulty Level, 2) the Scores of Above and Below Level Readers and 3) the Scores of Males and Females

<table>
<thead>
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<th>Degrees of Freedom</th>
<th>F Ratio based on Data</th>
<th>Value of F for 60 Degrees of Freedom</th>
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<tr>
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<td></td>
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</tr>
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</table>
The data presented in Table 10 fail to reject the null hypothesis. There is no significant interaction among the three variables: 1) the number of questions missed in each of the three levels of difficulty on the test of increasingly complex syntax, 2) the scores of above and below level readers and 3) the scores of males and females.

The fourth, fifth, sixth and seventh hypotheses all dealt with interactions, none of which were significant at the .05 level. Therefore, it can be interpreted that the variables measured function independently of one another. If any of the interactions had been significant and a graph made of the results, the lines for the two or three variables under consideration (those variables being sex, reading levels and difficulty levels) would intersect at the point of interaction. This did not happen. Therefore, any interaction between these factors is solely due to coincidence or chance.

A further analysis of the data was made by comparing the mean number of questions missed in each of the difficulty levels for above and below level readers in both fifth and sixth grade. This information is presented in Figure 1.
Figure 1
A Comparison of the Number of Sentences Missed in Each of the Difficulty Levels for Above and Below Level Readers in both Fifth and Sixth Grade

Three major findings are indicated in Figure 1. First, there was an increasing number of items missed by all students as the test became progressively more difficult. Second, there is a difference in performance between above and below level readers. Third, there exists a relationship between the performance of the two groups similar in ability but from different
grade levels.

The two 'above level' reading groups demonstrated the same level of performance for the first two levels of difficulty. The only difference between the two groups occurred in Difficulty Level 3 in which fifth graders made more incorrect responses than sixth graders.

The two 'below level' reading groups did not follow this pattern. Fifth graders missed a greater number of items in Levels 1 and 2 while sixth graders made a greater number of errors in Level 3.

For all students, then, age or grade level attained in school was not a determining factor in performance. While there exists for these students a definite correlation between performance and reading level, no such difference exists for grade level.

By examining the distance between the two groups at each level it becomes evident that the two sixth grade groups were closer in performance on Difficulty Levels 1 and 2 than the two fifth grade groups. The reverse occurred in performance on Difficulty Level 3 where the two sixth grade groups became farther apart in number of questions missed than the two fifth grade groups.

For the first two levels of difficulty, the groups at each grade level parallel one another. This is not
true for Difficulty Level 3 where there is a noticeably greater difference for grade six students than grade five students.

The preceding analysis of data has included only those students reading above and below grade level. It was deemed necessary to further examine the data by making an item analysis on the scores of all 97 readers who participated in this study. The number of items marked incorrectly on each group of five sentences was added together to arrive at the total number of questions missed for each of the nine levels of syntactic complexity as shown in Table 11.

Table 11
Number of Items Missed by Level of Difficulty

<table>
<thead>
<tr>
<th>Level</th>
<th>Fifth Grade</th>
<th>Sixth Grade</th>
<th>Mixed Totals</th>
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<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Total</td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
<td>19</td>
<td>44</td>
</tr>
<tr>
<td>3</td>
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<td>106</td>
</tr>
<tr>
<td>9</td>
<td>115</td>
<td>70</td>
<td>185</td>
</tr>
</tbody>
</table>
Several discrepancies can be found in Table 11. For example, more items were missed on Level 2 than on Level 3. The items in Level 6 appear to have presented greater difficulty than any other level except 9. These differences could be due to the particular syntactic structures of the sentences or to the questions themselves. The deciding factor cannot be determined from the present body of data.

Summary

The findings presented in this chapter reveal that performance on the test of increasingly complex syntax was significantly affected by the three levels of difficulty and the subject's individual reading level, but was not influenced by the sex of the reader.

No significant interactions were found between the three variables considered by the writer: reading levels, sex and difficulty levels.
Chapter V
Conclusions and Implications

Purpose
This study was designed to examine the effect of syntax on the silent reading comprehension of students in the intermediate grades in order to better understand the function and magnitude of this single factor in relation to the total reading process.

Conclusions
The results of this study clearly showed that the syntax of a given sentence did significantly influence the silent reading comprehension of intermediate grade level students. As the syntax became progressively more complex in the test sentences, the subjects experienced greater difficulty comprehending those sentences and selecting the correct answers to the test questions. In other words, an increase in syntactic complexity resulted in a corresponding increase in reading difficulty.

Evidence for this conclusion can be found in the literature. Both Chomsky (1969) and Dawkins (1975) maintain that the more complicated a syntactic structure is, the more difficult it will be to read.

The fact that some children fall behind reading grade expectancies while others excel has been related
to the individual student's facility for handling the numerous skills involved in reading. The findings of this study show syntax to be similarly related. Those students identified as reading below grade level made a significantly greater number of errors than those students identified as reading above grade level. As a group, the below grade level readers experienced greater difficulty at all levels of syntactic complexity indicating a general weakness in the skills necessary to read and comprehend syntactic structures presented in a controlled vocabulary.

Researchers (Loban, 1963; Strickland, 1962; Loban, 1970) have found a similar relationship between the language maturity levels of students identified as being above and below average in language development. It has been shown that students superior in language development use more complex syntactic structures in their oral and written communication than students low in language development.

This research parallels the writer's conclusion that students reading above grade level have a greater facility for reading and comprehending complicated syntax than students reading below grade level.

While ability did affect performance, age and grade level did not. Neither grade performed noticeably better
on the test of increasingly complex syntax than did the other. The development of syntactic skills is a gradual, sequential process. As the child grows in his ability to use more complex structures in his speech and writing, he also grows in his ability to comprehend more complicated patterns when he encounters them in print. Developmental growth, not age, is the factor which determines the level of language maturity.

This conclusion coincides with the findings of Carol Chomsky (1969) who tested the comprehension of various syntactic constructions using students in kindergarten through fourth grade. She found "... a high degree of individual variation ... indicating a strong dependence of acquisition on individual rate of development" (Chomsky, 1969, p. 114).

It can be concluded, then, from this study and the literature, that advancing in age or grade level does not automatically guarantee growth in the area of syntactic skills.

**Implications for Classroom Practice**

Students would benefit from a practical application of the findings of this study. Syntax is an important factor in silent reading comprehension and like other reading skills, can be strengthened through instruction.
To do this, the educator would first need to determine the approximate stage at which the student is presently functioning. This could be accomplished by examining samples of oral and written language. Based on this information, the educator could begin to strengthen syntactic skills by exposing the learner to higher level structures. The experience of taking such structures apart, looking at the various facets and putting them back together will contribute to an increased understanding of them. Instruction in identifying clues to meaning in the context of an entire passage will also aid the student in his next encounter with a given structure and improve his ability to utilize context for increased comprehension of other difficult patterns.

In the past, only two main factors have been stressed as being responsible for comprehension difficulties: vocabulary and concept load. Evidence now supports the need to include a third factor, syntax, and to make students aware of its influence.

At present, a student often fails to recognize and deal with the complexity of various syntactic patterns and structures. If, in the classroom, the reader is shown the relationship between sentence structure and comprehension, he will be better prepared to handle more complex material on his own.
As progress is made, the student should be encouraged to incorporate new structures in his written work. In this way, understanding is reinforced and at the same time, the level of written communication is improved.

Due to the fact that syntax significantly affects silent reading comprehension, consideration needs to be given to the complexity of language when analyzing the readability of materials. While the vocabulary level or concept load may not be beyond the capabilities of the reader, the way in which the words are combined may function as a very real barrier to comprehension.

**Implications for Further Research**

The present study did not measure the comprehension of individual structures or the extent to which context influences readability. Both factors need to be studied further.

The structures that were randomly combined by the writer into test sentences could be tested to determine the specific combinations that create the greatest difficulty for students at given grade levels. Patterns could also be tested within whole paragraphs to discover the degree to which complexity is increased or canceled by other clues in the body of related thoughts.

To further validate the findings of this study,
related research might employ alternate methods to test the comprehension of the sentences in this study or the researcher might create his own set of sentences. Comprehension could be tested by using the cloze technique or through a series of questions given and responded to orally. Sentences could be written using Granowsky's formula (1971) or the theory of transformational grammar.

There is a need for research of this type to consider other grade levels and populations. The relationship between oral and written language and silent reading comprehension also requires further exploration.

Programs for the teaching of syntactic skills have yet to be written and tested, as do diagnostic tests to help the classroom teacher identify individual areas of strength and weakness.

This study has shown syntax to be a meaningful component of the reading process, yet leaves many facets unexplored.

Summary

The purpose of this study was to examine the impact of increasingly complex syntax on the silent reading comprehension of intermediate grade level students. A comparison was made between the performance of above and below
level readers on the test instrument and the sex of the reader was considered as a possible variable affecting the level of performance.

The data were subjected to a three factor analysis of variance and from this it was concluded that syntax does significantly affect silent reading comprehension. It was also found that above level readers experienced less difficulty comprehending a wide range of syntactic structures than did below level readers. The sex of the reader did not significantly affect performance in any way.

Students would benefit from an application of these findings. By being made aware of the existence of syntax and its function and by being exposed to different structures, the student would be better equipped to read for understanding. Further benefit could be derived by taking the complexity of syntax into account when analyzing the readability of the printed page. In this way, a more accurate measure of difficulty is made possible.

Further research remains to be done to examine the comprehension of both individual syntactic structures and combinations of these structures along with a measure of the degree to which the surrounding context influences readability. Different grade levels and populations should be looked at in terms of syntax and its influence
on comprehension. Also, teaching materials for strengthening syntactic skills and diagnostic tests have yet to be created.
Bibliography
Bibliography

Bormuth, J. R. Reading literacy: its definition and
evaluation. Reading Research Quarterly, 1973-1974,
2 (1), 7 - 66.

Bormuth, J. R., Carr, J. W., Manning, J. C., & Pearson,
D. P. Children's comprehension of between- and
within-sentence syntactic structures. Journal of
Educational Psychology, 1970, 12 (5), 349 - 357.

Botel, M. Predicting readability levels. Chicago:

Botel, M., Dawkins, J., & Granowsky, A. A syntactic
complexity formula. Assessment Problems in Reading,
Walter H. MacGinitie, Ed. Newark, Delaware: Inter-

Brown, R. & Bellugi, U. Three processes in the child's
acquisition of syntax. Harvard Educational Review,
1964, 34, 133 - 151.

Carroll, J. B. Language development in children. In S.
Saporta (Ed.), Psycholinguistics. New York: Holt,

Chomsky, C. The acquisition of syntax in children from
5 to 10. (Research Monograph No. 57). Cambridge,
Massachusetts: The MIT Press, 1969. Review ED 100 151 // ERIC

Chomsky, N. Current issues in linguistic theory. London:


Granowsky, A., & Botel, M. Background for a new syntactic complexity formula. The Reading Teacher, 1974, 28 (1), 31 - 35.


Hollander, S. K. Reading: process and product. The Reading Teacher, 1975, 28 (6), 550 - 554.


Loban, W. D. The language of elementary school children. 
N C T E Research Report No. 1, Illinois; National 
Loban, W. D. The limitless possibilities for increasing 
knowledge about language. Elementary English, May 1970, 
624 - 630.
Lutz, J. Some comments on psycholinguistic research and 
Mavrogenes, N. A. Using psycholinguistic knowledge to 
improve reading. Journal of Reading, 1975, 18 (4), 
280 - 285.
McCaig, R. A. How not to analyze the syntax of children: 
a critique and a proposal. Elementary English, May 
McDonell, G. M. Relating language to early reading 
experiences. The Reading Teacher, 1975, 28 (5), 
438 - 444.
Menyuk, P. The acquisition and development of language. 
Menyuk, P. Sentences children use. (Research Monograph 
Miller, G. A. Language and communication. New York: 


University of Georgia, Teaching materials 5A. (Experimental Materials), English Curriculum Study Center, Athens, Georgia, 1966.

Appendix A

A Syntactic Analysis of the Test Sentences
A Syntactic Analysis of the Test Sentences

The following sentences served as the basic components of the test instrument used in this writer's research project described in the preceding chapters. The assignment of weights was accomplished by adhering to Alvin Granowsky's formula for the analysis of syntactic complexity. To better comprehend the details of the formula and its application, see Granowsky, 1971, pages 78 through 94.

Level One
One Count Sentences

1. He ran around the corner.
   a) sentence pattern - subject-verb-prepositional phrase = 1

2. He threw her the ball.
   a) sentence pattern - subject-verb-indirect object-object = 1

3. They named him the king.
   a) sentence pattern - subject-verb-object-compliment = 1

4. My idea will make him happy.
   a) sentence pattern - subject-verb-object-compliment = 1

5. The man's hat was new.
   a) man's - possessive noun = 1
Level Two
Two Count Sentences
6. He jumped into the water and swam to shore.
   a) and swam to shore - coordinate phrase with two lexical items = 2
7. They wanted him to eat dinner.
   a) to eat dinner - infinitive plus object = 2
8. He was hit by the ball.
   a) was hit - passive = 2
9. Mary baked John a birthday cake.
   a) sentence pattern - subject-verb-indirect object-object = 1
   b) birthday - noun modifier = 1
                  2
10. The game was won by him.
    a) was won - passive = 2

Level Three
Three Count Sentences
11. Sally quickly gave him the red pail.
    a) sentence pattern - subject-verb-indirect object-object = 1
    b) quickly - adverb = 1
    c) red - adjective = 1
                  3
12. John Smith, the banker, is handsome.
    a) the banker - appositive with determiner = 3
13. The mother and father named the new baby Susan.
   a) sentence pattern - subject-verb-object-compliment = 1
   b) and - coordinate = 1
   c) new - adjective = 1
   
14. All of the boys except Bill's brother played ball.
   a) all of - pre-article = 1
   b) except Bill's brother - prepositional phrase = 1
   c) Bill's - possessive noun = 1
   
15. They told him not to eat the popcorn.
   a) not - negative = 1
   b) to eat the popcorn - infinitive with object = 2
   
Level Four
Four Count Sentences

16. She went home quickly on her bicycle before school.
   a) quickly - adverb = 1
   b) on her bicycle - adverb = 1
   c) before school - prepositional phrase = 1
   d) school - lexical item = 1
   
17. They didn't go to the game because he was there.
   a) didn't - negative = 1
   b) because he was there - adverbial phrase = 3
18. Running behind the store, Jack fell.
   a) running behind the store - participial phrase = 3
   b) behind the store - prepositional phrase = 1

19. That he eats is important.
   a) that he eats - nominalized subject = 4

20. The game finished, Bob went home.
   a) the game finished - nominal absolute = 4

Level Five
Five Count Sentences

21. That night Jimmy's mother and father couldn't sleep.
   a) that night - adverb = 1
   b) Jimmy's - possessive noun = 1
   c) and - coordinate = 1
   d) couldn't - modal plus negative = 2

22. The girl swimming in the pool gladly threw Sally the beach ball.
   a) sentence pattern - subject-verb-indirect object-
      object = 1
   b) swimming in the pool - participial phrase = 2
   c) gladly - adverb = 1
   d) beach - modifier = 1
23. To eat too fast is not good.
   a) to eat too fast - infinitive phrase as a nominalized subject
   b) too - intensifier
   c) not - negative
   \[\text{total} = 3 + 1 + 1 = 5\]

24. The brown buffalo were hunted by the Indians many years ago.
   a) brown - adjective
   b) were hunted - passive
   c) many years ago - set expression
   \[\text{total} = 1 + 2 + 2 = 5\]

25. She would like to take a picnic lunch, but the sky looks stormy.
   a) would - modal
   b) to take a picnic lunch - infinitive phrase plus an object, not used as the subject
   c) picnic - noun modifier
   d) but - coordinate
   \[\text{total} = 1 + 2 + 1 + 1 = 5\]

26. Winning the game, Bob, our captain, jumped for joy.
   a) winning the game - participial phrase
   b) our captain - appositive plus determiner
   \[\text{total} = 3 + 3 = 6\]
27. My friend Tom went home, the work day being over.
   a) my - adjective = 1
   b) friend - adjective = 1
   c) the work day being over - nominal absolute = 4
      ________________
      = 6

28. Little by little the colored leaves piled up between the gate and the garden.
   a) little by little - set expression = 2
   b) colored - adjective = 1
   c) between the gate and the garden - prepositional phrase = 2
   d) and - coordinate = 1
      ________________
      = 6

29. For the cowhands, the peddler brought the cook fresh fruit: apples, peaches and bananas.
   a) sentence pattern - subject-verb-indirect object-object = 1
   b) for the cowhands - prepositional phrase = 1
   c) fresh - adjective = 1
   d) apples - lexical item = 1
   e) peaches - lexical item = 1
   f) bananas - lexical item = 1
      ________________
      = 6

30. Jumping across the line, Bob's frog won the last race.
   a) jumping across the line - participial phrase = 3
   b) across the line - prepositional phrase = 1
   c) Bob's - possessive noun = 1
   d) last - adjective = 1
      ________________
      = 6
Level Seven
Seven Count Sentences

31. Work as hard as my father, but do not get too tired.
   a) sentence type - imperative = 1
   b) as hard as - comparative = 2
   c) but - coordinate = 1
   d) not - negative = 1
   e) too - intensifier = 1
   f) imperative structure of second clause = 1

   7

32. Where is Mary going when she finishes eating her lunch?
   a) sentence type - interrogative = 1
   b) when she finishes - adverbial clause = 3
   c) eating her lunch - gerund phrase = 3

   7

33. Either Sam or John could give the hungry fisherman the name of a good place to eat.
   a) sentence pattern - subject-verb-indirect object-object = 1
   b) either, or - paired conjunction = 2
   c) could - modal = 1
   d) hungry - adjective = 1
   e) good - adjective = 1
   f) to eat - infinitive = 1

   7
34. Many years ago the beautiful princess offered the handsome young lad the key to her heart.

a) sentence pattern - subject-verb-indirect object-object = 1
b) many years ago - set expression = 2
c) beautiful - adjective = 1
d) handsome - adjective = 1
e) young - adjective = 1
f) to her heart - prepositional phrase = 1

35. My friend, the farmer, walked around the barn to find wood for his stove.

a) the farmer - appositive plus determiner = 3
b) around the barn - prepositional phrase = 1
c) to find wood - infinitive plus object = 2
d) for his stove - prepositional phrase = 1

Level Eight
Eight Count Sentences

36. To be a good swimmer, however, is not that important.

a) to be a good swimmer - infinitive phrase as nominalized subject = 3
b) good - adjective = 1
c) however - conjunctive adverb = 3
d) not - negative = 1

8
37. Swinging under the old oak tree should bring a smile to her face.
   a) swinging under the old oak tree - gerund phrase as nominalized subject = 3
   b) under the old oak tree - prepositional phrase = 1
   c) old - adjective = 1
   d) oak - noun modifier = 1
   e) should - modal = 1
   f) face - lexical item = 1

38. What he wants to do is not good, but he will do it anyway.
   a) what he wants to do - nominalized subject = 4
   b) to do - infinitive = 1
   c) not - negative = 1
   d) but - coordinate = 1
   e) anyway - adverb = 1

39. Where are the colored balloons that my aunt sent the children for the birthday party?
   a) sentence type - interrogative = 1
   b) clause pattern - subject-verb-indirect object-object = 1
   c) colored - adjective = 1
   d) that my aunt sent the children for the birthday party - adjective clause = 3
   e) for the birthday party - prepositional phrase = 1
   f) birthday - noun modifier = 1
40. Camping in the woods is more fun than camping in the yard is.
   a) camping in the woods - gerund phrase as a nominalized subject   = 3
   b) more, than - comparative   = 2
   c) camping in the yard is - gerund phrase   = 3

Level Nine
Nine Count Sentences

41. The story that I heard many years ago was told by a very wise gentleman.
   a) that I heard - adjective clause   = 3
   b) many years ago - set expression   = 2
   c) was told - passive   = 2
   d) very - intensifier   = 1
   e) wise - adjective   = 1

42. My younger brother, who is only four, wants a chipmunk for a pet, but he has no place to keep it.
   a) younger - adjective   = 1
   b) only - adverb   = 1
   c) who is only four - adjective clause   = 3
   d) for a pet - prepositional phrase   = 1
   e) but - coordinate   = 1
   f) no - negative   = 1
   g) to keep it - infinitive   = 1

9
43. The school play being over, Tom, the star, bowed to the smiling children.

   a) the school play being over - nominal absolute = 4
   b) school - noun modifier = 1
   c) the star - appositive plus determiner = 3
   d) smiling - adjective = 1

   9

44. Because the red spotted pony was sick that day, he wouldn't run the race.

   a) because the red spotted pony was sick that day - adverbial clause = 3
   b) inverted order of the adverbial = 1
   c) red - adjective = 1
   d) spotted - adjective = 1
   e) day - lexical item = 1
   f) wouldn't - modal plus negative = 2

   9

45. Here are some of the grasshoppers that Jane caught while she was waiting for Tim to arrive.

   a) sentence type - existance assertion = 1
   b) some of - pre-article = 1
   c) that Jane caught - adjective clause = 3
   d) while she was waiting for Time to arrive - adverbial clause = 3
   e) to arrive - infinitive = 1

   9
Appendix B

The Test of Increasingly Complex Syntax
1. He ran around the corner.

10. The game was won by him.

19. That he eats is important.

28. Little by little the colored leaves piled up between the gate and the garden.

37. Swinging under the old oak tree should bring a smile to her face.
1. What did the boy do?
   a) walked slowly
   b) jumped around the corner
   c) hurried around the corner
   d) felt unhappy

10. The boy was
   a) running
   b) playing with someone
   c) fishing
   d) in bed sick

19. The boy
   a) didn't have any friends
   b) lived alone
   c) had a mother that cared about him
   d) was six years old

28. The wind
   a) blew softly for several days
   b) was very strong
   c) had stopped
   d) blew the leaves all over the yard

37. How will swinging make her feel?
   a) Maybe she will feel happy.
   b) She will feel happy for sure.
   c) Maybe she will feel sad.
   d) She will feel sad for sure.
2. He threw her the ball.

11. Sally quickly gave him the red pail.

20. The game finished, Bob went home.

29. For the cowhands, the peddler brought the cook fresh fruit: apples, peaches and bananas.

38. What he wants to do is not good, but he will do it anyway.
2. What were the children doing?
   a) playing a game
   b) fighting
   c) laughing at a joke
   d) reading a book

11. Where were the children?
   a) at the dinner table
   b) in a library
   c) in a tall building
   d) at the beach

20. Bob
   a) liked to play games
   b) had watched a game
   c) never played with other children
   d) was a good ball player

29. Where did the peddler do his selling?
   a) in the city
   b) in the country
   c) in small towns
   d) on street corners

30. Why was he going to do it?
   a) He wanted to do it.
   b) It was good for him.
   c) It was not good for him.
   d) His mother wanted him to do it.
3. They named him the king.

12. John Smith, the banker, is handsome.

21. That night Jimmy's mother and father couldn't sleep.

30. Jumping across the line, Bob's frog won the last race.

39. Where are the colored balloons that my aunt sent the children for the birthday party?
3. The man
   a) had no name
   b) was a young boy
   c) did not have a ring
   d) became the king

12. Mr. Smith works
    a) on a ranch
    b) with money
    c) in a school
    d) with children

21. Jimmy's mother and father
    a) were worried about something
    b) were having a party
    c) were sleeping
    d) didn't want to go to sleep

30. How many races were there?
    a) three
    b) one
    c) more than one
    d) too many

39. The balloons
    a) have just arrived
    b) have not arrived yet
    c) were never sent
    d) were lost in the mail
4. My idea will make him happy.

13. The mother and father named the new baby Susan.

22. The girl swimming in the pool gladly threw Sally the beach ball.

31. Work as hard as my father, but do not get too tired.

40. Camping in the woods is more fun than camping in the yard is.
4. My idea will make the boy feel
   a) mad
   b) hurt
   c) unhappy
   d) glad

13. What did the mother and father do?
   a) gave the baby a name
   b) went on a trip
   c) bought the baby a doll
   d) had a set of twins

22. Sally
   a) threw the ball
   b) caught the ball
   c) dropped the ball
   d) hit the ball

31. Who should work hard?
   a) you
   b) your father
   c) my father
   d) my neighbor

40. Which is enjoyed more?
   a) sleeping out near home
   b) camping near a river
   c) camping with a friend
   d) sleeping in a forest
5. The man's hat was new.

14. All of the boys except Bill's brother played ball.

23. To eat too fast is not good.

32. Where is Mary going when she finishes eating her lunch?

41. The story that I heard many years ago was told by a very wise gentleman.
5. The man
   a) just bought the hat
   b) looked nice
   c) was fat
   d) did not have enough money

14. Bill's brother
   a) was a fast runner
   b) was too little to play
   c) was a good catcher
   d) liked to play ball

23. What is not good for you?
   a) always being the last to finish
   b) always being the first to finish
   c) eating too much of one food
   d) eating too much food

32. What are Mary's plans?
   a) She will eat.
   b) She will sleep.
   c) No one knows.
   d) She will go out to play.

41. Why was the story told?
   a) to make people laugh
   b) for no reason
   c) to frighten small children
   d) for others to think about
6. He jumped into the water and swam to shore.

15. They told him not to eat the popcorn.

24. The brown buffalo were hunted by the Indians many years ago.

33. Either Sam or John could give the hungry fisherman the name of a good place to eat.

42. My younger brother, who is only four, wants a chipmunk for a pet, but he has no place to keep it.
6. The boy
   a) was a good diver
   b) knew how to swim
   c) was wearing a coat
   d) did not know how to swim

15. They told him
   a) how not to do something
   b) what to do
   c) what not to do
   d) how to do something

24. What did the men do to the animals?
   a) used the skins for their homes
   b) used the meat for food
   c) shot and killed them for food
   d) cooked and ate them

33. Who could help the fisherman?
   a) All of the boys could help.
   b) John couldn't help.
   c) Sam couldn't help.
   d) Each of the boys could help.

42. The boy
   a) lives in a house with other families
   b) already has a pet
   c) has a cage for small animals.
   d) lives in a house with a big yard
7. They wanted him to eat dinner.

16. She went home quickly on her bicycle before school.

25. She would like to take a picnic lunch, but the sky looks stormy.

34. Many years ago the beautiful princess offered the handsome young lad the key to her heart.

43. The school play being over, Tom, the star, bowed to the smiling children.
7. Who was supposed to eat dinner?
   a) He was.
   b) We were.
   c) She was.
   d) They were.

16. She was
   a) late for school
   b) staying at her aunt's house
   c) in a hurry
   d) visiting a friend

25. The girl
   a) has decided to go
   b) does not know if she should go
   c) has decided not to go
   d) thinks it will be a pleasant day

34. The princess promised to
   a) love the lad
   b) like the lad
   c) go away with the lad
   d) speak to the lad

43. The children were smiling because.
   a) they liked Tom
   b) they were happy
   c) they liked the school play
   d) All of the answers above are right.
8. He was hit by the ball.

17. They didn't go to the game because he was there.

26. Winning the game, Bob, our captain, jumped for joy.

35. My friend, the farmer, walked around the barn to find wood for his stove.

44. Because the red spotted pony was sick that day, he wouldn't run the race.
8. The boy
   a) bought an ice cream
   b) hit a home run
   c) was hurt
   d) hit the ball

17. Who was going to be at the game?
   a) two girls
   b) a girl
   c) a boy
   d) two boys

26. Who was playing?
   a) only Bob
   b) the team captain
   c) two teams
   d) everyone but Bob

35. What was the farmer planning to do?
   a) gather eggs in the barn
   b) build a stove
   c) milk the cows
   d) boil some water

44. The pony
   a) had just become sick during the race
   b) had just become sick and could not run the race
   c) had just become sick and did not want to run the race
   d) was sick of racing all the time
9. Mary baked John a birthday cake.

18. Running behind the store, Jack fell.

27. My friend Tom went home, the work day being over.

36. To be a good swimmer, however, is not that important.

45. Here are some of the grasshoppers that Jane caught while she was waiting for Tim to arrive.
9. Who was having a birthday?
   a) nobody
   b) Mary
   c) John
   d) both John and Mary

18. What did Jack do?
   a) He chased someone behind the store.
   b) He ended up on the ground.
   c) He ran through the door.
   d) He walked past the store.

27. Why did Tom leave?
   a) He was mad at someone.
   b) It was time to go home.
   c) He had finished his work.
   d) It was lunch time.

36. It is important
   a) to be a good diver
   b) to be able to do tricks in the water
   c) to be a good swimmer
   d) to be able to stay above water

45. Who else has some grasshoppers?
   a) the girl
   b) the boy
   c) someone
   d) both the girl and the boy
Appendix C

Gates-MacGinitie Reading Test Survey D
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