

AN INVESTIGATION OF THE  
RELATIONSHIPS BETWEEN  
SEMANTICS, SYNTAX, READING  
COMPREHENSION AND  
LITERATURE ACHIEVEMENT

CENTRE FOR NEWFOUNDLAND STUDIES

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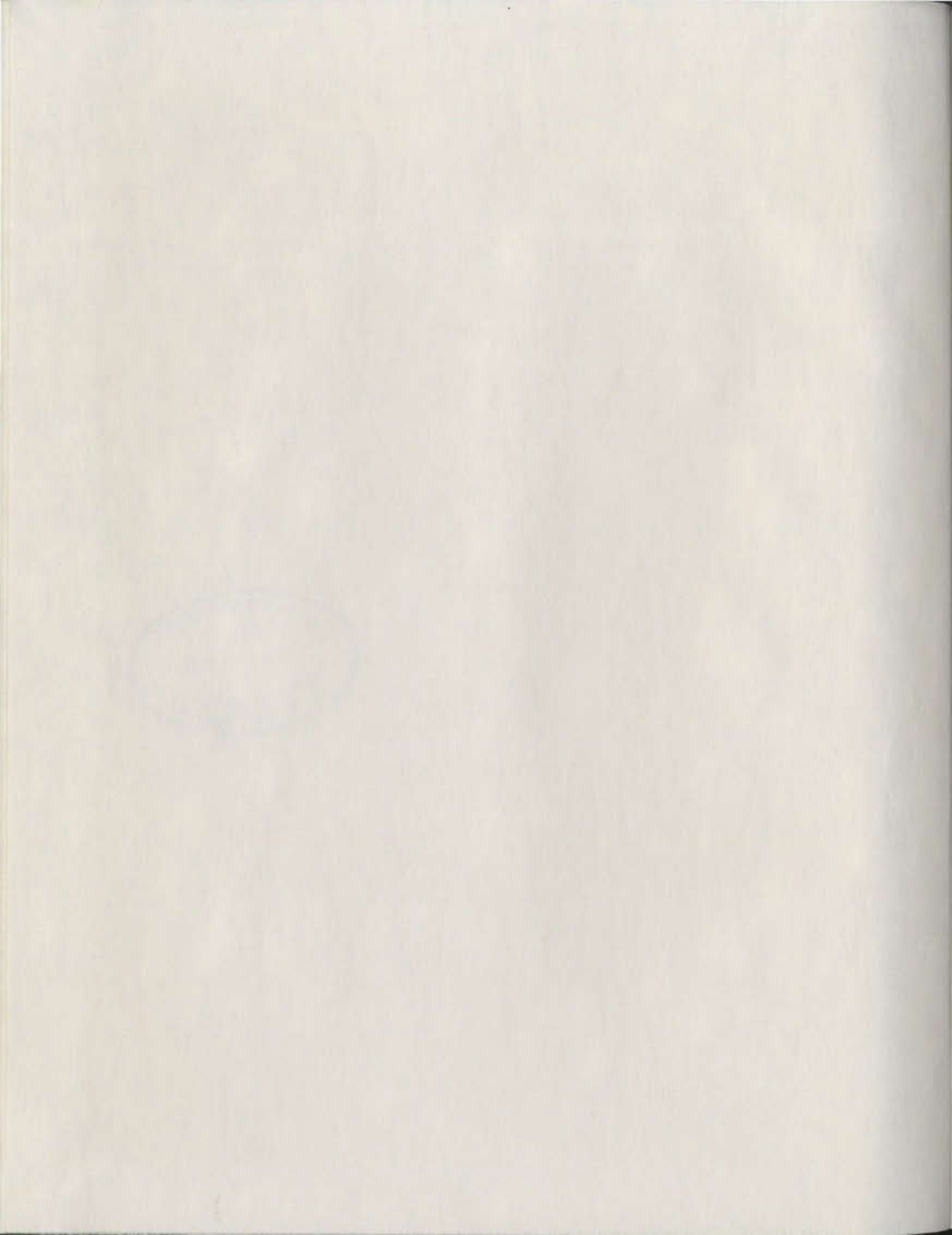
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AN INVESTIGATION OF THE RELATIONSHIPS BETWEEN  
SEMANTICS, SYNTAX, READING COMPREHENSION  
AND LITERATURE ACHIEVEMENT

by

Jacqueline Augusta St. Croix, B.A.(Ed.); B.A.



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of the requirements for the degree of  
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## ABSTRACT

The major purpose of this study was to determine the strength of the relationships between semantics, syntax, reading comprehension and literature achievement at the Junior High School level. The differences between grade eight students' and grade nine students' performances as well as the differences between male students' and female students' performances on the above measures were examined. In addition, the relationship between the age of the subjects and their performances on semantics, syntax, reading comprehension and literature achievement was also studied.

The sample consisted of a total of 256 grade eight and grade nine students from an urban Junior High School. Their knowledge of semantics was determined by their score on the Word Knowledge Test designed by the International Association for the Evaluation of Educational Achievement (IEA). Their knowledge of syntax was determined by their score on the English Language Structure Test (ELST) designed by Shackford. Their reading comprehension was determined by their score on the Reading Comprehension Test (IEA). Their achievement in literature was determined by their score on the Literature Test (IEA).

It was found that significant relationships existed between semantics, syntax, reading comprehension and literature

achievement. However, all correlations were moderate or low with the exception of the correlation between reading comprehension and literature achievement. Although all correlations were statistically significant, they set no strong trends in educational terms.

There were no significant differences between grade eight students' and grade nine students' performances on the semantics or reading comprehension variables. Grade eight students scored significantly higher than grade nine students on the syntax variable and grade nine students scored significantly higher than grade eight students on literature achievement. There were no significant differences found between male and female students' performances on semantics or reading comprehension. Female students scored significantly higher than male students on syntax and literature achievement. Age correlated negatively with semantics, syntax and literature achievement. However, there was no significant relationship between the age of the subjects and their performance on reading comprehension.



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## CHAPTER I

### INTRODUCTION TO THE STUDY

#### Statement of the Problem

The reading process has been viewed from many perspectives. Fries (1963), a leading linguist, spoke of reading as a means of responding to language uses. He suggested that there are three major criteria involved in becoming an effective language user. They were as follows:

Learning to use a language means learning  
a) to recognize the significant patterns of the functioning units that identify the lexical items or "words" and those that identify the grammatical structures, and  
b) to recall instantly the meanings that attach to those patterns, and c) to produce these significant patterns for the recognition of other members of the community.  
(p. xiv)

According to Fries, the reader must be aware of the graphic patterns of language if meaning is to be signalled. That is, the systematic arrangement of words, phrases and sentences provides the foundation for relaying information to the reader. Consequently, knowledge of the structure of language must be emphasized in the teaching of reading skills.

Strickland (1964) purported a similar opinion to that of Fries when she reported that "the more clearly the reader

understands the patterning of his language the better will be his oral reading interpretation and his silent reading comprehension" (p. 50). Thus, when the reader is reconstructing graphic information he must be familiar with the syntax (structure of language--word order, word forms) and semantics (the realm of meaning--word knowledge, interpretation) inherent in the written discourse. For years, this area of decoding information has received focus from linguists [(Chomsky (1957); Smith (1966); Crystal (1976)]; psychologists [Carroll (1964); Lefevre (1964)]; philosophers [(Borsodi (1967); Phenix (1964); Katz (1972))]; and educators [(Goodman (1968); Shackford (1976); Beebe (1976))].

Experts in the above fields have proposed theories concerning the relevance of the knowledge of syntax and semantics to the comprehension of information. These theorists have provided valuable insights about language and reading. Smith (1966) completed extensive work on linguistics and the teaching of English. He examined connecting viewpoints of educators, psychologists and linguists on language and summarized his impressions as follows:

But probably most important of all from the point of view of a rapport between educator, psychologist, and linguistic scientist is the realization that though language may be considered "the vehicle of thought" and "the means of communicating ideas," "thought" and "ideas" depend in a very real way on the nature and structure of the "vehicle." (p. 9)

There are two contexts integrated in language, the semantic or meaning context and the grammatical or syntactic context



which allow the reader access to grasp the intended message. Both components underlie 'thoughts' and 'ideas' in communication.

Goodman (1968) supported Smith's theory concerning the importance of semantics and syntax in comprehension. He referred to these constituents as cue systems that activate a chain of responses resulting in understanding of what is written. Through practice in reading different material, the reader can anticipate the different patterns inherent in his language and hence become a more adept reader. Goodman specifically stressed that "research on reading can contribute to the understanding of one phase or aspect but ultimately research must be related to the whole psycholinguistic process" (p. 26). That is, research on reading will be pointless with the exclusion of the elements semantics and syntax, which form the base from which comprehension is triggered.

Crystal (1976) claimed that "it is not possible to develop a systematic awareness of language functions without a corresponding awareness of the nature of language forms" (p. 78). 'Function' and 'form' refer to the semantic and syntactic elements. Without both there could only be nonsense instead of language. Crystal also insisted that to be an effective teacher of language one must have a basic knowledge of linguistic principles. One can gain valuable knowledge from linguistic experts who have studied and observed language

in different ways. By familiarizing oneself with the available theories of language, the teacher can incorporate helpful suggestions in programs for students.

Katz (1972) indicated a philosophical viewpoint of language incorporating the relevance of syntax and semantics when he wrote, "the logical form of a sentence is identical with its meaning as determined compositionally from the senses of its lexical items and the grammatical relations between the syntactic constituents" (p. xxiv). That is, word order and word knowledge provide the channels through which comprehension is decoded.

One can deduce from the above theories that knowledge of syntax and semantics comprise a large proportion of the processes involved in reading. However, several unanswered questions remain concerning these primary constituents. In particular, research has not established whether the impact of syntax and semantics on reading at different age and grade levels is the same or different. Specifically, there is no conclusive evidence involving the strength of the relationship between these variables. Information on questions such as these could provide valuable insights into the reading processes.

An examination of past research revealed that most studies dealt with young children and the reading processes (Goodman (1968); Ruddell (1968); Chomsky (1969)). Yet, if reading is an ongoing process it is essential that the

reader be observed at different stages of development. Thorndike (1973), in his research on reading, and Purves (1973), who investigated literature, both suggested the need for research on Junior High and Secondary School students in the above areas. At these particular levels, graphic information becomes increasingly complex and the reader must draw upon all cues to ensure comprehension and individual interpretation. If not, the reader will be hindered and handicapped in his achievements in literature and other written discourse. Thus, the present investigation attempted to assess the strength of the relationship of syntax and semantics with reading comprehension and literature achievement at the Junior High level.

#### Purposes of the Study

The major purpose of this study, then, was to determine the strength of association between semantics, syntax, reading comprehension and literary appreciation at the Junior High School level. In particular, the following questions were investigated.

- 1) What is the relationship between semantics and reading comprehension?
- 2) What is the relationship between semantics and literature achievement?
- 3) What is the relationship between semantics and syntax?

- 4) What is the relationship between syntax and reading comprehension?
- 5) What is the relationship between syntax and literature achievement?
- 6) What is the relationship between reading comprehension and literature achievement?

The basic model for this study is depicted in Figure

1.

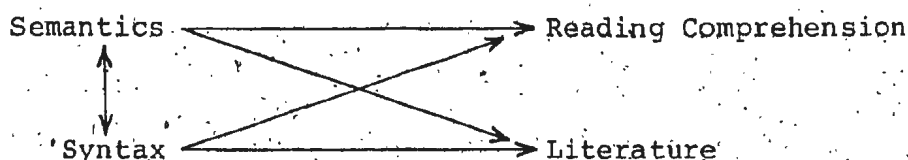


FIGURE 1. A Conceptual Model of the Theoretical Relationships Between Semantics, Syntax, Reading Comprehension and Literature Achievement.

This model was analyzed using the scores of four cognitive tests: 1) semantics, 2) syntax, 3) reading comprehension, and 4) literature achievement. These tests were administered to grade eight and grade nine students.

The model was extended somewhat because of the necessity of controlling for factors which could confound the basic relations, namely, age, grade and sex. Thus, this study consisted of three interrelated sets of variables labelled:

- 1) control variables: grade, sex, age;
- 2) independent variables: semantics, syntax; and
- 3) dependent variables: reading comprehension, literature achievement.



The extension of the basic model necessitated the consideration of three further questions, namely:

- 1) Are there any differences between performances of grade eight and grade nine students on measures of
  - a) semantics,
  - b) syntax,
  - c) reading comprehension,
  - d) literature achievement?
- 2) Are there any differences between performances of male students and female students on measures of
  - a) semantics,
  - b) syntax,
  - c) reading comprehension,
  - d) literature achievement?
- 3) What is the relationship between the ages of the students and their achievements on measures of
  - a) semantics,
  - b) syntax,
  - c) reading comprehension,
  - d) literature achievement?

#### Significance of the Study

In the past two or three decades, concerted efforts have been made to relate linguistic principles to the reading processes. Lefevre (1961) claimed that "gaining access to meaning through reading depends strictly on prior mastery of the language structures that lead to it" (p. 149). Major emphasis in schools, he said, should be placed upon the patterns of language and word analysis. Knowledge of

these fundamentals could be acquired and applied to reading programs through a working awareness of linguistics. In a later study, Lefevre (1964) strongly argued that to be deficient in reading skills is to be deprived of the means to expanding one's horizons and perspectives. He urged teachers to assume the responsibility of providing adequate and efficient instruction for students to develop language mastery.

Goodman (1967) emphasized that the reader uses signals from syntactic and semantic information while reading. He claimed that "the reader predicts and anticipates on the basis of this information, samples from the print just enough to confirm his guess of what's coming, to cue more semantic and syntactic information" (p. 503). That is, as the reader acquires control over language patterns and increases his use of context words, he will also increase his degree of comprehension. Therefore, the ability to utilize syntactic and semantic cues is the key to triggering a chain of responses that results in interpretation of graphic information.

Halliday (1970), a linguist, was concerned with the importance of language structure and language function. He stated his viewpoint as follows:

It is fairly obvious that language is used to serve a variety of different needs, but until we examine its grammar, there is no clear reason for classifying its uses in any particular way. However, when we examine

the meaning potential of language itself, we find that the vast numbers of options embodied in it combine into a very few relatively independent 'networks' and these networks of options correspond to certain basic functions of language (p. 142).

According to Halliday, meaning or interpretation is derived from the way language is structured. In his theory, he pointed out that the reader must concern himself with a deeper understanding of how the systematic arrangement of language forms operates.

Bierwish (1970) also emphasized the relevance of syntax and semantics in language analysis. He stated that "certain syntactic properties must also be incorporated in the representation of word meanings" (p. 177). In a sentence, the meaning is dependent upon the pattern of a group of words. Each lexical unit designates a particular function. For example, a 'verb' could indicate a required 'noun' or 'noun phrase' to follow. Thus, meaning is derived from the organization and arrangement of syntactic elements.

Bormuth et al. (1970) conducted a study on children's comprehension of between-and-within sentence syntactic structures. Two hundred and forty grade four students participated in the study. A written paragraph of four or five sentences illustrating two different sentence structures was given to each subject. Below the paragraph a question was posed regarding the nature of the syntactic structure of the sentences. These researchers concluded on the basis of their analysis of the data that "large proportions of

the students were unable to demonstrate a comprehension of the most basic syntactic structures by which information is sequenced in language" (p. 357). In their discussion, they advised that success in the educational system cannot be attained without a firm understanding of syntactic structures.

Isakson and Miller (1976) undertook a study on sensitivity to syntactic and semantic cues in good and poor comprehenders. They affirmed the advantages of decoding meaning of individual words and deemed this to play a dominant role in the reading process. These investigators deduced that "good reading comprehenders are sensitive to language constraints in sentences" (p. 787). That is, as the reader immerses himself in language forms and functions, he will become more receptive to cues inherent in graphic information.

Wisher (1976) surveyed the effects of syntactic expectation, during reading, for college students. This study focused on the subjects knowing the syntactic structure of a sentence before reading it. For example, a particular verb would designate a noun phrase and function words would suggest an expected pattern to follow. Two groups of 12 subjects each read 60 sentences. Each sentence contained 14 words. Group 1 read sentences that contained a constant pattern: noun phrase, prepositional phrase, verb/noun phrase, and relative clause. Group 2 read sentences of mixed patterns. The purpose of this experiment was to enhance the expectation

of syntactic structure in group 1 and to reduce it in group 2. Before each sentence was read, five single-digit numbers were displayed for 500 msec each. The student had to remember these numbers while comprehending the sentence. Results indicated a significant difference between achievements of group 1 and group 2. Group 1 performed considerably better than group 2. Wisher concluded from these observations that "the ability to anticipate structure and meaning is vital to reading" (p. 601). As the reader matures, he is still required to use these signals but at a more advanced level.

As indicated in the introduction, many studies on research in reading have been concerned with the primary and elementary grades. Although it is important to study these decoding processes in the initial stages, it is also imperative that the reader be observed throughout later years of schooling. Thorndike (1973) suggested that "the skills of attending to and following directions so as to be testable in a group setting are poorly established at young ages" (p. 13). Hence, adolescents, who are undergoing various stages in their maturity of reading ability, would provide valuable subjects for analysis of reading comprehension ability and literature achievement. These subjects were focused upon in this study.

Unlike reading, little research has attempted to examine the relationships of syntax and semantics with literature achievement. Yet, comprehension of literature

requires a more stringent effort on the part of the reader. Literary discourse is transmitted through the medium of language and, therefore, the reader must utilize syntactic and semantic resources to infer meaning. Fries (1963) in speaking of the application of linguistics to literature explained that "part of the many signals of the meanings that literary art communicates with particular force consists of special uses of linguistic material for effects that fulfill the literary purpose" (p. 214). The literary artist has to incorporate the linguistic principles of semantics and syntax in his writings. For the most part, a reader cannot cope with the language of literature if he does not possess the knowledge of linguistics associated with graphic data.

Phenix (1964), a noted philosopher, presumed the art of literature to be the most forceful art in the conveyance of meaning. His major thesis was that "objects of knowledge, in the art of literature, are particular verbal patterns designed to serve specific literary purposes" (p. 181). Sharing a similar opinion to that of Fries, Phenix reminds the reader that it is impossible to interpret or appreciate literature if one lacks understanding of the patterns that comprise the written material. Literature has a sophisticated style but the author must avail of grammatical and vocabulary rules to relay his message. So, too, the reader must employ these means to understand the intended theme.

The above theories and studies indicate the importance of a knowledge of semantics and syntax to reading comprehension and literature achievement. It was suggested in the introduction that it is not sufficient to know that a relationship between these variables exists; rather one must be able to determine the strength of association between these variables. Experts such as Fries (1963); Phenix (1964); Halliday (1970) and Goodman (1968) have proposed theories, but there are few studies researching the association of these components in regular classrooms. A more precise knowledge of the relationship of the variables semantics, syntax, reading comprehension and literature achievement at the Junior High level should be of some assistance to teachers in the utilization of different methods of teaching suitable for the different types of students involved.

One of the few collaborative attempts to directly examine Junior High School students' achievements in word knowledge, reading comprehension and literature was made by the International Association for the Evaluation of Educational Achievement (IEA)\* in 1965. Thorndike, as Chairman of the Reading Comprehension Committee, and Purves, as Chairman of the Literature Committee, conducted feasibility studies

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\*The IEA Council has its international headquarters at the Institute of International Education, University of Stockholm. This Institute studied achievements in various subject areas in several countries.



concerning an analysis of these curricula. On the basis of their findings they devised and tested instruments to measure achievements in word knowledge, reading comprehension and literary appreciation in fifteen countries. Although the countries varied in educational approaches, the results indicated that achievement in literature was dependent on the quality of the input as evidenced by reading comprehension and word knowledge scores (Thorndike, 1973: 175). However, no attempt was made to relate knowledge of syntax to any of the above areas.

A recent study by Shackford (1976) is of primary significance to the present study because it dealt with syntax and its relation to reading comprehension at the Junior High School level. Shackford designed an instrument to measure student knowledge of syntax (word order, word form and word structure) which was then correlated with the Advanced Form of the Stanford Reading Test. Shackford's findings support the conclusions that knowledge of syntax is an important factor in reading comprehension.

Beebe (1976) conducted a study to determine to what extent substitution miscues affected the comprehension scores of grade four boys as they orally read a selected passage. In her suggestions for further research, she recommended that a study be undertaken

in which the syntactic-semantic variable could be disaggregated into its two constituent elements, and the dependent

variable, reading comprehension, measured in two ways, namely, 1) as a decoding score, as measured, say, on a standardized reading achievement test; and 2) as an encoding score. (p. 109)

Beebe also pointed out that a study on the effects of syntax and semantics as it related to subject areas as Literature, Science, and Mathematics would be an attempt to find answers to basic questions concerning the effects of these variables. Thus, as research is limited on the Junior High age groups in the areas of semantics, syntax, reading comprehension and literature achievement, the present investigation may have practical significance.

#### Definition of Terms

For the purposes of this study, the following definitions were stipulated.

Semantics referred to the realm of meaning which is primarily found by observing the correspondence between the lexical units (word knowledge) and the referents they designate (Nida, 1975: 64).

Knowledge of Semantics referred to the score that a student received on the Word Knowledge Test designated by the IEA\* (see Appendix A).

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\*The International Association for the Evaluation of Educational Achievement devised achievement tests in all content areas of schooling which were validated and found reliable in several countries.

Syntax referred to the methodology of putting together the words used in making sentences, in making linguistic propositions, not merely so as to be orderly in manner, but also to communicate clearly that which it is intended to communicate (Borsodi, 1967: 47).

Knowledge of Syntax referred to the score that a student received on the English Language Structure Test (ELST) devised by Shackford (1976) (see Appendix B).

Achievement in Reading Comprehension referred to the scores obtained on the Reading Comprehension Test (IEA Instrument) (see Appendix C).

Achievement in Literature referred to the scores obtained on the Literature Test (IEA Instrument) (see Appendix D).

Junior High School Student referred to a student in either grade eight or grade nine.

#### Limitations of the Study

In this study there were limitations in: 1) measuring techniques; 2) grade level; and 3) timing.

The first limitation stemmed from the fact that the instruments used in the study dealt with specifics. For example, word order represented syntax and word knowledge represented semantics. In the broad areas of semantics and syntax, other subtopics need to be investigated but were

beyond the scope of this study.

The grade level of the subjects provided a limitation. Other grade levels, such as ten and eleven, would have also provided valuable information.

The third limitation concerned the time factor allotted for administering the tests. In a Junior High School, periods of 40 minutes are scheduled for each class. Many students felt pressed to finish within this limited time period. Ideally, it would be fitting to have longer intervals but this was not possible, given the set organization of schedules.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

The review of related literature presented below deals with the following variables: 1) semantics and reading comprehension; 2) syntax and reading comprehension; 3) semantics, syntax and literature achievement; and 4) other factors related to semantics, syntax, reading comprehension and literature achievement--grade, age, and sex differences.

#### Semantics and Reading Comprehension

Research indicates an interrelationship of semantics and syntax in the comprehension process. Chomsky (1957), an established linguist and educator, completed extensive work on semantics and syntax. He pointed out that

There is no aspect of linguistic study more subject to confusion and more in need of clear and careful formulation than that which deals with the points of connection between syntax and semantics. (p. 94)

In his theory of transformational grammar he explained that semantic meaning (deep structure) is dependent upon certain rules (syntax). That is, meaning is derived from the structure of language. Gruber (1976) maintained a similar view to that of Chomsky when he wrote that "we will consider

semantics not only the description of the use of words .... We will also maintain that semantic notions are of a decided use in syntax" (p. 3).

Kerfoot (1965) and Groff (1976) expressed similar viewpoints regarding the importance of semantic meaning. They stated that knowledge of word meanings is fundamental to an understanding of written discourse. In particular, if the reader is familiar with various word lists, he will become more alert in making guesses from the context of passages. That is, the reader will be able to anticipate meaning faster when he has already been exposed to the different synonyms, antonyms and other subcategories of words used by an author.

Postman and Weingartner (1966) declared semantics as the most important branch of linguistics. These authors suggested that the language user must be allowed to engage in semantic inquiries about his language. Comprehension will only be achieved if the reader can relate to the language forms of the text. Meaning is embedded in words and the reader must try to expand his knowledge of words if he is to understand an author's message and relate it to his situation.

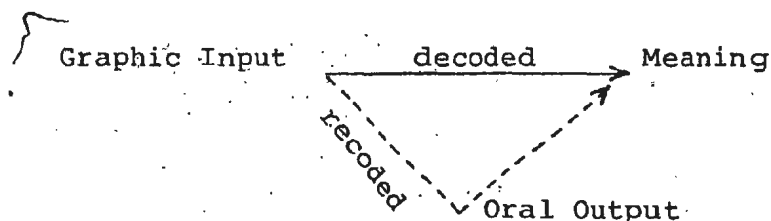
Benjamin (1970) in his detailed theory of semantics and language, claimed that "semantic meaning occurs when individual words in a given context work together as designators to name and talk about the world" (p. 52).

The integration of words makes communication possible. Comprehension occurs when the individual possesses the conceptual framework that triggers a response from language structures and forms. The reader then, can transfer the author's message to his mind and decide its relevance to his situation.

Goodman (1978, 1970) in his research on reading, spoke of meaning (semantics) as a "signal" which comes from the way language is structured. He wrote

In speaking or in writing, meaning in the mind of the originator creates a deep language structure (a set of base forms) and activates a set of rules which transform that structure and generate a signal, either graphic or oral. The process is encoding--a structured signal has been produced.... Meaning as a language user formulates it, literally causes an automatic chain of events which results in a language code. (1970: 11)

According to Goodman, meaning is the ultimate outcome from reading. However, the reader must engage in the complicated process (in the beginning stages) of analyzing the graphic patterns and forms before he can become proficient in decoding (comprehending) and recoding (restructuring) information that he reads. The following diagram illustrates these processes (1970:18):





Leech (1974) regarded semantics as the central focus of communication. He stated that "the only words for semantic relatedness in general use in our language are synonyms (words of same meaning) and antonyms (words of opposite meaning)" (p. 99). Knowledge of these categories of words enables the reader to comprehend meaning in language. Also, the individual will be able to transfer information more rapidly to his brain if he is familiar with the various groups of words that comprise the text he reads. Leech strongly suggested that words should be analyzed on different dimensions and be applied in different contexts so that the reader can experience the wide uses for words and hence advance his retaining vocabulary.

Nilsen and Nilsen (1975) reported that semantics or "underlying meaning of words is the key to the understanding of the fields of languages, philosophy, anthropology, psychology, folklore and education" (p. 1). Word knowledge provides the foundation of synthesizing complex material. These authors refer to synonymy and antonymy as part of the semantic continuum which allows one to progress to higher degrees of abstraction. With a limited vocabulary the individual is also limited in deciphering new information. This slows down the comprehension process and provides stumbling blocks for interpretation. In the real world, the individual is expected to express ideas in many ways and the only way to do this is through the use of words.

Nida (1975), in her theory of semantic structures advocated that

Language consists not merely of symbols and arrangement of symbols; it also possesses the capacity to define its own meaning by employing paraphrases which can more explicitly designate the underlying semantic features. This potentiality for internal explication (that is, internal to the language structure) is basic to all paraphrase and definition. (p. 26)

That is, the reader comprehends meaning by the process of reference. He observes a correspondence between the lexical units (words) used by an author and the referents they designate and on the basis of these correspondences meaning is acquired. Nida explained that one learns the meaning of a word through the frequent use of similar and opposite terms. Therefore, if one is to comprehend the written discourse, he must have a working knowledge of semantics.

Clark (1976), a noted linguist, has undertaken extensive work in the area of semantics and comprehension. He based his theory on the relativity of semantics to inferring meaning. He declared that the first priority was to "characterize what it is that a person knows of the meaning of a sentence once he has comprehended the sentence" (p. 11). Is it that the reader recognizes the meaning of each word in the sentence? Or is it that the reader can relate meaning from the context in which the sentence occurs? Within a passage one sentence cannot be treated in isolation from other sentences. Frequently a reader will try to analyze

a sentence out of context instead of putting it into perspective. Comprehension involves the reader being able to synthesize an entire passage or passages for a given theory of idea. An author may have one central purpose in writing an article which means that the reader must pick up clues from the structure of the text. He must read all the information and make a personal judgment on its relativity. At an elementary level, the reader will analyze individual words and sentences but at an advanced level he is expected to achieve semantic maturity in structuring the writer's message into his own matrix.

Schlesinger (1977) stated that

Just as production of an utterance cannot be the result of applying a rule to the I-marker as a whole, so comprehension is not the result of applying a rule to the utterance as a whole. Rather, comprehension results from a convergence of a number of operations carried out on segments of the utterance or units of analysis. The sequence in which these units are processed depends on their relative saliency and on the results of previous processing, which may instigate an active search. (p. 141)

According to Schlesinger, comprehension involves no set formula because there are a variety of 'operations' entailed. Among these operations, is the semantic aspect which facilitates a restructuring of ideas from the graphic codes into memory. In addition, the individual must possess prior knowledge of the words used by the author if he is to derive meaning. There is no reading and, therefore, no comprehension if the individual has a deficient vocabulary. One must apply his

available knowledge to that of the author and then the sequence of ideas will be triggered.

Lamb (1977) also emphasized the value of studies of vocabulary, word association, word recognition and recall of word strings to the development of semantic growth in the reader. He claimed that

Semantics cannot really be separated from other areas; meanings directly influence sounds and their relationships (phonology), the ability to manipulate words or parts of words (morphology), and the way the words are arranged in utterances or sentences (syntax). Comprehension of meaning is of major significance, whether the message is oral or written. (p. 17)

The area of semantics, then, is intertwined with phonology, morphology and syntax. It is through these transactions that the reader gains semantic insights. Meaning is the end result that can only be accomplished through an understanding of the above processes. However, it can be approached through indepth studies of word associations throughout each phase of school life.

#### Syntax and Reading Comprehension

Fries (1963) stressed the importance of syntax to reading when he wrote that "learning to read means developing a considerable range of habitual responses to a specific set of patterns of graphic shapes" (p. 121). As an adult reader, one can unconsciously respond quickly to these patterns.

but the beginning reader in his developmental stages must make himself aware of the systematic arrangements of his language. This goal is achieved, according to Fries, through practice in activities displaying different patterns. The reader must be exposed to word order, punctuation marks and grammatical signals indicating tense, stress and intonation. Fries emphasized that there are three stages in learning to read for comprehension. They are as follows:

The first stage in learning the reading process is the "transfer" stage. It is the period during which the child is learning to transfer from the auditory signs for language signals, which he has already learned, to a set of visual signs for the same signals.... This first stage is complete when within his narrow linguistic experience the child can respond rapidly and accurately to the visual patterns that represent the language signals in this limited field, as he does to the auditory patterns that they replace.

The second stage covers the period during which the responses to the visual patterns become habits so automatic that the graphic shapes themselves sink below the threshold of attention, and the cumulative comprehension of the meanings signalled enables the reader to supply those portions of the signals which are not in the graphic representation themselves.

The third stage begins when the reading process is so automatic that the reading is used equally with or even more than live language in the acquiring and developing of experience--when reading stimulates the vivid imaginative realization of vicarious experience. (p. 132)

According to Fries, one cannot comprehend language if he is not familiar with the structure (syntax) of the written material. It is the language patterns that

elicit meaning.

Keislar (1964) during a conference on perceptual and linguistic aspects of reading said that "syntactic structure determines to a great extent the nature of the larger perceptual units involved in the reading process" (p. 46). He stressed that research should be undertaken to examine this important factor more fully because it could provide a basis for more effective instructional methods for students who encounter problems at various stages in their reading development. Hildreth (1964) extended Keislar's argument when she reported that "the young reader constantly learns more about both vocabulary and sentence sense as he continues to read and to comprehend increasingly difficult material" (p. 172). Exposure to complex material, according to Hildreth, will help the reader use syntactic information to derive meaning. It is futile to explain language patterns without illustrations and practice exercises.

Supporting the aforementioned views of Fries, Keislar and Hildreth, Botel (1964) also viewed syntax as a primary element in reading comprehension. He said that "if we do not understand more about the nature and significance of the structures that carry meaning, we will not fully understand the meaning itself" (p. 192). He declared that the structures of language permit meaning to be relayed and, therefore, the reader must act upon the syntactic signals present (word order, word form and presence of punctuation markers) to



transfer meaning from print.

Borsodi (1967) emphasized that one cannot refute the value of knowledge of syntax to communication. He pointed out that

Words are one kind of symbol, sentences one kind of syntax and language one kind of system of communication. Knowledge, as distinct from feelings...has no existence unless formulated in symbols, syntaxes and systems. (p. 9)

Syntax enables the writer to relay his ideas and consequently the reader must be familiar with these language patterns if he is to grasp the intended message.

Ferguson (1971), in speaking of the application of linguistics to language use, claimed that language teachers must have a basic knowledge of the structure of language if they are to impart language learning. He reported that frequently students receive insufficient instruction in language analysis. From his observations of teachers versed in applied linguistics, he found that positive results evolved from their application of their knowledge to the teaching situation.

Bellugi (1973) recognized the importance of syntax to comprehension when she stated that "it is our knowledge of the rules of combination, the syntax of the language, that governs how we construct and understand an infinite number of sentences from a finite vocabulary" (p. 111). She suggested that one's ability to reorganize and restructure words and sentences is the foundation for comprehension.

That is, comprehension concerns responding to and applying a knowledge of language structures. An idea cannot be expressed without the systematic patterns of syntax and neither can it be comprehended without this language structure.

Menyuk (1976) referred to syntax as the bridge between meaning and sound. In a paper presented at the International Symposium on Child Language Acquisition she reported that "as children acquire the meaning of a linguistic relation they simultaneously form hypotheses about the syntactic rules used to express this meaning" (p. 1). She stated that students must be given adequate exposure to different language patterns if they are to retain information in short-term memory and later transfer it into long-term memory. According to Menyuk, the syntactic stage (structuring stage) must precede the semantic stage (interpretative stage) if the child is to reconstruct and comprehend information.

Elly et al. (1976) researched the role of grammar in secondary school English curricula. An experiment was designed in which three carefully matched groups of students studied three different English programs for a period of three years. Two of the groups studied two Oregon curricula, one with, and the other without Transformational grammar. The third group studied a traditional English course, using P.R. Smart's textbook series 'Let's Learn English' which

focused on traditional grammar concepts. All students were of average ability in language arts. They participated in the above programs and were observed from the beginning of their third year in February 1970 to their fifth year in November 1973. A test was given in November 1973 to determine the relative effectiveness of the programs.

Results indicated that all students performed equally well. The authors concluded that a well prepared program using any of the previously mentioned types of courses would be adequate in giving students a basis for analyzing language structure. They stated that emphasis on grammatical rules and syntax (word order) should not be neglected at the secondary school level.

Lamb (1977), in speaking of linguistic perspectives on reading comprehension, expressed the view that

The arrangement of words in a sentence almost certainly affects the ease with which the meaning of the sentence can be comprehended, passive sentences are more difficult to comprehend than active sentences, and questions present more comprehension problems than statements.  
(p. 39)

The rules of syntax, if mastered by the reader, will provide greater ease of comprehension. The reader must adapt to the physical stimuli presented in graphic form in the same way as he must adapt to oral stimuli.

Stewart (1978) conducted a study of syntactic maturity of students ranging from grade ten in high school through university. All students were given a passage that

contained short, choppy sentences and were asked to read it carefully. Following the reading of the passage, they were required to combine sentences and/or change the order of words and delete words that were repeated too often, without omitting the ideas given. The sample contained 126 subjects from grades ten, eleven and twelve, as well as 176 university students enrolled in the beginning years of a Faculty of Education. Each sample of writing was analyzed in terms of the number of words included, number of clauses it contained and the number of T-units used. (A T-unit refers to one main clause plus all the subordinate clauses attached to or embedded within it).

The results indicated that syntactic maturity continues to develop during and beyond the high school through university levels. Stewart deduced the following:

It is obvious that the entire question of the nature of syntactic maturity and the measurement of its development through the high school and university years should be examined and subjected to much more investigation with present studies replicated and refined and new approaches attempted. (p. 46)

#### Semantics, Syntax and Literature Achievement

Research is limited on the areas of syntax and semantics as they relate to literature achievement. The following review illustrates the few attempts to discuss

and apply linguistic factors to literature.

Carroll (1964), a psychologist, reported that

Comprehension is improved by teaching the reader not only to recognize words faster, but also to respond more quickly to the grammatical signals in a piece of prose and to attain a wider and richer vocabulary. (p. 65).

Literature, according to Carroll, is written according to a particular style that follows the rules of semantics and syntax. If the reader follows the patterns of language used in a story, play, or novel he will acquire a more sophisticated grasp of the functions and forms in which language exists.

Spencer and Gregory (1965) emphasized through their analysis of linguistics and style in literature the following theory:

It is the relationship between the substance and form of a piece of language on the one hand and the extra linguistic circumstances in which it occurs on the other, which gives what is normally called 'meaning' to utterances. (p. 68)

These authors stated that style (substance and form) in literature is related to and dependent upon the patterns and word meanings in language. The student must bring prior knowledge of these structures to literature if he is to understand the message. The reader cannot cope with literary discourse if he is not already familiar with the basics of word order and word knowledge.

Rodger (1969) wrote that

We arrive at a valid interpretation of literature when we have achieved a high degree of reconciliation between our sense of worldly or situational probability and the linguistic facts of the text as a whole. (p. 91)

He suggested that the reader must rely on syntactic and semantic information if he is to interpret meaning from literature. As the author must pursue knowledge of the structure of language to present his argument, so the reader must respond accordingly.

Corder (1969) also viewed literature as a sophisticated form of language. Its meaning, he said, arises from "a system of rule-governed relationships" (p. 140). The reader must recognize the patterns or structures used by the literary artist before he can attempt comprehension. This can be accomplished if the teacher helps pupils examine and code the various modes of style used by a particular author. Then, the reader can transfer his own ideas to those of the author successfully.

Chatman (1974) reiterated the following thesis:

The central problem in the teaching of literature is to bridge the gap: to show students how to expand and refine their disturbingly narrow grasp of potential structures, to develop a whole new syntactic and lexical musculature for dealing with the complexities of Milton, Shakespeare and Pope. (p. 283)

He suggested that the key to becoming a competent and self-dependent reader lies in becoming immersed in the language patterns used by authors.



Nilsen and Nilsen (1975) emphasized the importance of linguistic knowledge to literary appreciation when they claimed that

Only by knowing the regular patterns of sentences and the regular meanings of words is it possible for the writer in the first place and the reader in the second place to get at the appropriate meanings. (p. 10)

Since literature is open to individual interpretation, the reader must draw upon the syntactic structures and lexical units to transfer the intended message into his own matrix.

#### Other Factors Related to Semantics, Syntax, Reading Comprehension and Literature Achievement

The literature dealing with the effects of grade, age and sex on semantics, syntax, reading comprehension and literature achievement are discussed in the following sections.

#### Grade and Age Differences

Research is very limited concerning the direct effect of grade and age on semantics, syntax, reading comprehension and literature achievement.

Robertson (1968) studied the reading connectives among fourth, fifth, and sixth graders. Students were tested on 17 individual connectives. Her results indicated that there was a significant relationship between the understandings

a child has of connectives and his sex, mental age, and the abilities in listening, reading, and written language. She also found that the place of residence (whether urban, small town or rural areas) had a significant effect upon pupil test scores. The major deduction of Robertson's research was that

Although children acquire language structures using connectives early in life, they gain mature understandings of them gradually through their school years. Children use clauses in speech before they go to school but they do not develop a sufficient understanding of the meanings of connectives in print for a number of years after that. Therefore, children should be given systematic training through the reading program so they may develop more facility at an earlier age in understanding increasingly complex communications from the printed page. (p. 416)

Chomsky (1969) investigated the acquisition of syntax in children from ages five to ten. She hypothesized that mastery of complex syntactic structures is not complete at this age level but is developed more fully in later years. Her sample contained 40 children, eight each from kindergarten through fourth grade enlisted in an elementary school in Massachusetts. During an interview, four groups of grammatical constructions (each of which increased in complexity) were presented to the examinees. The primary purpose of the task was to select sentences with no contextual or semantic clues to influence the subject's interpretation. The only basis for the correct interpretation was the subjects' knowledge of the structure. Chomsky found

that "a construction such as 'John asked Bill what to do' was still imperfectly learned by some children even at age ten" (p. 120). She concluded that

Contrary to the commonly held view that a child has mastered the structures of his native language by the time he reaches the age of 6, we find that active syntactic acquisition is taking place up to the age of 9 and perhaps even beyond. (p. 121)

Shackford (1976) examined Junior High School students' knowledge of grammatical structure (syntax--word order) and its relation to reading comprehension. She designed the English Language Structure Test (ELST) to measure knowledge of syntactic structure. The ELST and the Stanford Reading Test were administered to 202 grade seven and grade eight students. Results indicated that eighth-grade students performed significantly better than seventh grade students on both the ELST measure and the reading comprehension test ( $p < .05$ ). It was concluded that the older a student, the more likely he is to be competent in language arts.

Bierly (1977) completed a developmental study of the influence of semantic and phonological variables on linguistic comprehension. In her study she examined the effect of the semantic variable of contrastive gender of the pronoun and the phonological variable of contrastive stress of the pronoun on reading comprehension. She observed four eight-year-olds' comprehension of pronominal reference of syntactic structures containing the nonidentity pronominal

reference. Four types of items were generated: 1) those containing syntactic information; 2) those containing syntactic and semantic information; 3) those containing syntactic and phonological information; and 4) those containing syntactic, semantic and phonological information. A multi-variate analysis of variance examining differences between item types indicated that the semantic variable enhanced comprehension, while the phonological variable did not. Bierly stated that a semantic strategy will aid comprehension even at the young age of eight.

Dillon (1978) undertook a research study examining the semantic development of selected lexical items through the process of equivalence formation in elementary children. The sample comprised 100 subjects, 50 from each of the two different language groups--English and Spanish. The 50 subjects of each group consisted of five different grade levels: kindergarten, grade two, grade four, grade six, and an adult group of elementary classroom teachers. All examinees were interviewed individually in their first language by a native speaker of that language. "An equivalence formation task ('How are these two words most alike?') was used to tap the subjects' semantic structuring" (p. 9). Subjects were required to isolate separate features of their personal meanings of the words given, in order to match or contrast them with separate features of other lexical items. "For example, 'ball' and 'apple' are alike because both are round

or because both can be thrown" (p. 9).

Dillon's results indicated that "semantic development of individual lexical items does continue throughout the elementary school years and beyond" (p. 15). He stressed throughout his discussion that vocabulary development must be enhanced during all years of schooling. In his implications for further research, he added that it is important that further studies on semantic growth be undertaken at the secondary school level. Such a study, Dillon suggested, would add scope to the development of semantic growth.

#### Sex Differences

Stroud and Lindquist (1942) conducted a study on sex differences in school achievements. They tested 50,000 pupils enrolled in grades three through eight in more than 300 schools in Iowa on the following: reading comprehension, vocabulary, word study skills, basic language skills and math skills. These investigators found that females achieved significantly better than males in all areas except math.

Stoodt (1972) researched the relationship between understanding grammatical conjunctions and reading comprehension. The sample consisted of 95 grade four students from three socio-economic levels in Mansfield, Ohio, Public Schools. Subjects were administered two tests for comprehension of conjunctions as well as the Stanford Achievement Test to measure reading comprehension. Results showed that "girls

achieved higher than boys on these measures" (p. 503).

Allen (1977) also found that significant differences occurred between males and females when he compared their performances on reading and language skills. He observed these achievements between male and female students in the fourth, eighth and twelfth grades. In his discussion, he reported that the fact that girls performed better than boys in language arts could be attributed to their early maturation, interest in reading, sex role expectations and school environment.

#### Summary

In the main, the review of related literature indicates that there is a relationship between semantics, syntax, reading comprehension and literature achievement. Also, factors such as grade, age and sex were related to these variables.

Many theorists such as Chomsky (1957), Kerfoot (1965), Postman and Weingartner (1966), and Benjamin (1970) reported that semantic meaning is fundamental to reading comprehension. They claimed that knowledge of word meanings allows the reader to transfer the author's message into personal meaning. Goodman (1970), Leech (1974), Nilsen and Nilsen (1975) and Clark (1976) stressed that comprehension will only result if the reader becomes engaged in analyzing the graphic

patterns and forms of the written discourse. That is, the reader must decode and restructure information from the interrelationships of words, sentences and paragraphs.

Fries (1963), Keislar (1964), Borsodi (1967), Bellugi (1973), Menyuk (1976) and Lamb (1977) stated that meaning comes from the way language is structured. That is, the arrangement of language patterns in systematic form (syntax) allows the reader to understand an author's message. A study by Stewart (1978) indicated that syntactic maturity continues through high school and university levels. He said that further investigations into this area were necessary because they could provide a basis for new approaches to language development.

Research was limited in the areas of syntax and semantics as they relate to literature achievement. However, theorists such as Carroll (1964), Enkvist et al. (1965), Rodger (1969), Chatman (1974) and Nilsen and Nilsen (1975) suggested that the reader must use semantic and syntactic information if he is to interpret literature. The reader, then, must recognize the patterns or structures as well as word meanings used by the literary artist before he can comprehend meaning.

In addition, literature on grade, age and sex as they relate to semantics, syntax, reading comprehension and literature achievement was reviewed. Robertson (1968), Chomsky (1969), Shackford (1976), Bierly (1977) and Dillon (1978) studied the effects of semantics and syntax on the

comprehension of written material at different grade and age levels. They reported that language development is not complete at any particular grade or age level; rather it is an ongoing process. That is, children acquire language competency as they become exposed to material with varying levels of difficulty.

Researchers such as Stroud and Lindquist (1942), Stoodt (1972) and Allen (1977) found that female students performed better than male students in all areas of language arts. Allen (1977), in particular reported, that the fact that girls performed better on linguistic skills than boys could be due to factors such as their early maturation, interest in reading, sex role expectations and school environment.



## CHAPTER III

## HYPOTHESES, SAMPLE AND DATA

The purpose of this chapter is threefold: 1) to present the hypotheses of the study; 2) to describe the sample; and 3) to describe the variables and the instruments used to measure them.

Hypotheses

The hypotheses for the present study are outgrowths of the problems posed in Chapter I, and, for the most part, stem from the theoretical discussion in Chapter II. They were expressed in the null form and were tested at the .05 level of significance.

Hypothesis 1

H<sub>1</sub>: There will be no significant differences between the mean scores of grade eight students and grade nine students on the following variables:

- a) knowledge of semantics;
- b) knowledge of syntax;
- c) reading comprehension;
- d) achievement in literature.

### Hypothesis 2

H<sub>2</sub>: There will be no significant differences between the mean scores of male students and female students on the following variables:

- a) knowledge of semantics;
- b) knowledge of syntax;
- c) reading comprehension;
- d) achievement in literature.

### Hypothesis 3

H<sub>3</sub>: There will be no significant relationship between the age of the subjects and their performance on the following variables:

- a) knowledge of semantics;
- b) knowledge of syntax;
- c) reading comprehension;
- d) achievement in literature.

### Hypothesis 4

H<sub>4</sub>: There will be no significant relationship between knowledge of semantics and knowledge of syntax.

### Hypothesis 5

H<sub>5</sub>: There will be no significant relationship between knowledge of semantics and reading comprehension.

Hypothesis 6

H<sub>6</sub>: There will be no significant relationship between knowledge of semantics and achievement in literature.

Hypothesis 7

H<sub>7</sub>: There will be no significant relationship between knowledge of syntax and reading comprehension.

Hypothesis 8

H<sub>8</sub>: There will be no significant relationship between knowledge of syntax and achievement in literature.

Hypothesis 9

H<sub>9</sub>: There will be no significant relationship between reading comprehension and achievement in literature.

The Sample

Two hundred and fifty-six students from an urban Junior High School comprised the sample for this study. Four classes of grade eight students and four classes of grade nine students participated in the testing. Since it was necessary for all subjects to have mastered the skills of reading and writing, only those students enrolled in regular classes took part in the study. Thus, pupils within these grade levels who were retarded in educational placement were excluded.

At the onset of the testing 293 students constituted the sample. However, 37 subjects were eliminated because the following criteria were imposed: 1) a student who was absent for two or more tests was dropped; and 2) a student who failed to complete one of the measures that constituted the dependent variables (reading comprehension or literature) was excluded from the sample.

The mean age of the students within the sample was 14.5 years. There were 136 grade eight subjects and 120 grade nine subjects. Within the sample, the distribution by sex was 127 males and 129 females.

#### Variables and Instrumentation

Four instruments were used to collect the data for this study: a word knowledge test, an English language structure test; a reading comprehension test; and a literature test. Each instrument is discussed in detail later in this chapter.

The testing was implemented on three consecutive days during the second last week of March 1979. Three examiners in addition to the investigator performed the task of administering the above tests. Each test was given to all grade eight classes at the same time, then to the four grade nine classes simultaneously. The order in which the tests were administered was:

Day 1: Reading comprehension test  
(time 40 minutes)

Day 2: English language structure test  
(time: 40 minutes)

Day 3: Literature test (time: 35 minutes)  
Word knowledge test (time: 12 minutes)

#### Word Knowledge Test

This instrument was devised by the IEA Council to test students' knowledge of 40 selected word pairs where the words of a pair must be judged to be either synonyms or antonyms. Reliability measures were estimated using the Kuder-Richardson Formula 20. The coefficients obtained across the three industrialized nations of England, New Zealand and the United States were as follows: England, .83; New Zealand, .82; and the United States, .74 (Thorndike, 1973: 58).

A reliability estimate was also computed on the 172 Newfoundland students who completed all of the items on the word knowledge test. Cronbach's Alpha coefficient\* of .69 was calculated using the Statistical Package for the Social Sciences (SPSS Program). This reliability may be due to the fact that the number of subjects within this study was considerably smaller than the sample used by the IEA.

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\*When tests are scored such that the answer is either right or wrong it should be noted that the Kuder-Richardson Formula and Cronbach's Alpha Formula are the same statistic.

For the purposes of this study, the word knowledge test was used to measure students' semantic resources. The scoring procedure for this measure entailed: a correct response was assigned 1; an incorrect response was scored 0; and no response was rendered 9. However, since there were only two choices in the answer a student could possibly guess and be correct. Thus, in tabulating the final score a formula for correction for guessing was used to adjust for the possibilities of chance. Purves (1973) specified a general formula for correction for guessing as  $C = R - \frac{W}{k-1}$  where C equals the corrected score; R equals the number of correct responses; W equals the number of incorrect responses; and k equals the number of choices given (p. 94). Table 1 presents the descriptive statistics illustrating the mean, standard deviation, skewness and kurtosis of the corrected word knowledge test.

#### English Language Structure Test (ELST)

This test was designed by Shackford (1976) and consisted of twenty-one groups of words which were scrambled in a manner that disguised the meaningful relations of the words to each other. Students were required to unscramble each group of words to produce a meaningful sentence. An inter-item consistency was computed by the Kuder-Richardson formula 20 to be ".889" which was interpreted to indicate that

TABLE 1

Mean, Standard Deviation, Skewness, and Kurtosis for the Study Sample (N = 256)

	Mean	Standard Deviation	Skewness	Kurtosis
CWK <sup>1</sup>	15.02	8.03	.30	-.03
SYNTAX <sup>2</sup>	14.01	4.42	-.36	-.52
CREAD <sup>3</sup>	12.29	4.19	-.32	-.39
CLIT <sup>4</sup>	8.70	3.86	-.44	-.50

Note: <sup>1</sup>CWK = Corrected score for Word Knowledge  
<sup>2</sup>SYNTAX = Score obtained on the English Language Structure Test  
<sup>3</sup>CREAD = Corrected score for Reading Comprehension  
<sup>4</sup>CLIT = Corrected score for Literature

the reliability of the ELST was adequate" (p. 67).

The present investigator applied Nunnally's (1970) variation of the Kuder-Richardson Formula 20 to calculate an inter-item consistency coefficient of .82.

In this study, the ELST was used to measure students' knowledge of syntax. Subjects received a score of 1 for a correct response; a score of .5 for having produced a sentence containing substitutions or deletions; a score of 0 for failure to make a comprehensible sentence; and a 9 for no response. No correction for guessing was necessary since choices were absent.

The English Language Structure Test was pretested to verify its potential for grades eight and nine students because it was originally designed for pupils in grades seven and eight within a different school environment. The researcher conducted the pilot study on eight students from an urban Junior High School. Two boys and two girls from a low average achieving grade eight class and two boys and two girls from a high achieving grade nine class completed the ELST. Results indicated that students within the domain of modest achievers scored below 60% and subjects from the top range ranked above 75%. No student obtained a mark above 90% and thus it was concluded that this instrument could be used as a viable measure for estimating syntactic ability in grades eight and nine. The results for the syntax measure are given in Table 1.



### Reading Comprehension Test

This test, devised by the IEA Council, was piloted and validated in several countries. The reliability coefficients using the Kuder-Richardson Formula 20 obtained for the following nations were: England, .89; New Zealand, .88; and the United States, .89 (Thorndike, 1973: 54).

A coefficient of .69 was computed using Cronbach's Alpha Formula on the 245 subjects who completed all of the reading comprehension test in Newfoundland. The discrepancy between coefficients may have occurred primarily because of the differences in sample size. This was confounded by differences in the number of items used on the test which was administered to Newfoundland students. For the purposes of this study, only 20 items were used instead of the original 52 items used by the IEA Council. The decision to use only 20 items was made because of time restraints placed upon the researcher by the school involved.

The format of the content of this test consisted of three passages that were presented to the pupils with 20 multiple choice questions. Criteria for scoring the reading comprehension test followed the pattern described in the aforementioned word knowledge section. Since students had four items from which to choose an answer, the formula for correction for guessing ( $C = R - \frac{W}{k-1}$ ) was applied. Test results demonstrating the mean, standard deviation, skewness and kurtosis are presented for this measure in Table 1.

### Literature Test

This test was also designed by the IEA Council and has been found valid and reliable among ten countries. The reliability coefficients obtained for the following nations were: England, .84; New Zealand, .81; and the United States, .85 (Purves, 1973: 95). For the 244 students who completed all of the literature test in Newfoundland, the computed coefficient was .69. Again, the disparity between coefficients occurred because of the reasons previously discussed in the Reading Comprehension section.

The format of the literature test used in this study consisted of a given story, "The Sea" followed by 17 multiple-choice questions. Criteria for scoring this measure followed the pattern described in the Word Knowledge section. The formula for correction for guessing was applied here since there were four choice items. The mean, standard deviation, skewness and kurtosis for the corrected literature test are given in Table 1.

## CHAPTER IV

### FINDINGS AND DISCUSSION

The purpose of this chapter is twofold: 1) to present the statistics; and 2) to discuss the findings relative to the hypotheses.

#### Descriptive Statistics

The statistical analyses used in this study were: 1) analysis of variance; 2) Pearson product-moment correlations; and 3) partial correlations. An analysis of variance yields an F ratio which indicates the significance of the differences between means of different populations. This statistic was used to compare performances of grade eight and grade nine subjects on measures of semantics, syntax, reading comprehension and literary appreciation as well as the achievements of males versus females on the aforementioned measures.

Pearson product-moment correlations provide a correlation coefficient which indicates the degree to which variation in one variable is related to variation in another. This statistic was used to examine relationships between

the independent variables (age, semantics, and syntax) and the dependent variables (reading comprehension and literary appreciation).

"Partial correlation provides the researcher with a single measure of association, describing the relationship between two variables while adjusting for the effects of one or more additional variables" (Nie et al., 1975: 302). By removing the effect of control variable(s) it is possible to see a new relationship between the independent and dependent variables.

All of the above computations were done using the Statistical Package for the Social Sciences Program (SPSS).

#### Hypothesis 1

There will be no significant differences between the mean scores of grade eight students and grade nine students on the following variables:

- a) knowledge of semantics;
- b) knowledge of syntax;
- c) reading comprehension;
- d) achievement in literature.

### Findings

There were no significant differences between performances of grade eight and grade nine students on measures of semantics or reading comprehension. An F-value of 25.43 ( $p < .001$ ) on the measure of syntax indicated that grade eight students scored significantly higher than grade nine students. However, an F-value of 7.16 ( $p < .01$ ) on the literature measure indicated that grade nine students scored significantly higher than grade eight students. Hence, hypotheses 1 (b) and 1 (d) were rejected and hypotheses 1 (a) and 1 (c) were accepted. Table 2 illustrates the means, standard deviations and F-values for the above measures.

### Discussion

The lack of differences between grade level and the variables of semantics and reading comprehension gives rise to some interesting speculation. It may be that these skills are developed either prior to or terminated in grade eight, suggesting a ceiling effect. At the same time, it could be asked whether the ceiling effect occurred because of the nature of the skills themselves or whether a different program might be developed which could foster these skills more successfully. Also, there is the assumption that the development of reading skills is usually thought to be complete at the elementary level and therefore teaching

TABLE 2

A Comparison of Subject Achievements for Grade 8 and Grade 9 Students (N = 256)

Concept or Dimension Measured	Grade 8 (N = 136)		Grade 9 (N = 120)		F-Value
	Mean	SD	Mean	SD	
CWK <sup>1</sup>	14.35	8.00	15.79	8.03	2.08
SYNTAX <sup>2</sup>	15.33	4.43	12.63	3.97	25.43***
CREAD <sup>3</sup>	11.82	4.39	12.82	3.91	3.67
CLIT <sup>4</sup>	8.10	4.17	9.38	3.38	7.16**

Note: <sup>1</sup>CWK = Corrected score for Word Knowledge  
<sup>2</sup>SYNTAX = Score obtained on the English Language Structure Test  
<sup>3</sup>CREAD = Corrected score for Reading Comprehension  
<sup>4</sup>CLIT = Corrected score for Literature

\*\*Significant beyond the .01 level

\*\*\*Significant beyond the .001 level

reading is not usually considered part of a Junior High curriculum.

Research by Shackford (1976) indicated that the higher the grade level, the better the performance in reading but the above findings are at variance with this viewpoint.

The fact that grade eight students scored significantly higher than grade nine students on measures of syntax is questionable. Due to confusion in the school schedule and administration instructions, grade eight students were permitted more time to complete the test than were those in grade nine. Also, grade nine students showed a definite lack of interest in undertaking the testing. These reasons may explain the differences between grades.

### Hypothesis 2

There will be no significant differences between the mean scores of male students and female students on the following variables:

- a) knowledge of semantics;
- b) knowledge of syntax;
- c) reading comprehension;
- d) achievement in literature.

### Findings

Analyses of variance between performances of males, and females on the above variables indicated that there were no significant differences for measures of semantics or reading comprehension. However, an F-value of 15.03 ( $p < .001$ ) on measures of syntax and an F-value of 10.27 ( $p < .01$ ) on measures of literature illustrated that females scored significantly better than males on both these measures. Based on these findings, hypotheses 2 (a) and 2 (c) were accepted and hypotheses 2 (b) and 2 (d) were rejected. The means, standard deviations and F-values for these measures are reported in Table 3.

### Discussion

Researchers such as Stroud and Lindquist (1942); Stoodt (1972); and Allen (1977) found that females scored significantly better than males on all language arts skills. The above findings indicated that on measures of semantics and reading comprehension, females' performances were not significantly higher than males. These results could be attributed to such factors as: many of the females could be repeaters of a grade and hence they would be low achievers in vocabulary and reading comprehension or the instruments used to measure semantics and reading comprehension might have been too narrow in scope, as they measured specifics instead of general categories.



TABLE 3

A Comparison of Subject Achievements for Male and Female Subjects Within the  
Total Sample (N = 256)

Concept or Dimension Measured	Male Students (N = 127)		Female Students (N = 129)		F-Value
	Mean	SD	Mean	SD	
CWK <sup>1</sup>	14.32	8.13	15.71	7.90	1.93
SYNTAX <sup>2</sup>	12.97	4.65	15.09	3.89	15.03***
CREAD <sup>3</sup>	12.40	3.91	12.17	4.47	.19
CLIT <sup>4</sup>	7.93	3.99	9.45	3.59	10.27**

Note: <sup>1</sup>CWK<sup>1</sup> = Corrected score for Word Knowledge  
<sup>2</sup>SYNTAX = Score obtained on the English Language Structure Test  
<sup>3</sup>CREAD = Corrected score for Reading Comprehension  
<sup>4</sup>CLIT = Corrected score for Literature

\*\*Significant beyond the .01 level

\*\*\*Significant beyond the .001 level

### Hypothesis 3

There will be no significant relationship between the age of the subjects and their performance on the following variables:

- a) knowledge of semantics;
- b) knowledge of syntax;
- c) reading comprehension;
- d) achievement in literature.

### Findings

The Pearson product-moment correlations between age and the scores of language competencies were as follows: semantics,  $-.12$  ( $p < .05$ ); syntax,  $-.45$  ( $p < .01$ ); reading comprehension,  $-.07$  ( $p > .05$ ); and literature achievement,  $-.15$  ( $p < .05$ ). With the exception of the correlation between age and reading comprehension, all other correlations were significant beyond the .05 level. Consequently, hypothesis 3 (a), 3 (c), and 3 (d) were rejected but hypothesis 3 (b) was accepted. Table 4 provides a matrix of these correlations and their levels of significance.

### Discussion

The above findings indicated that there were significant negative relationships between age and semantics; age and syntax; and between age and literature achievement.

TABLE 4

Pearson Product-Moment Correlations, Means and Standard Deviations of Variables in Language Competencies Study (N = 256)

Variable	AGE <sup>1</sup>	CWK <sup>2</sup>	CREAD <sup>3</sup>	CLIT <sup>4</sup>	SYNTAX	MEAN	SD
AGE <sup>1</sup>		-.12	-.07	-.15	-.45	174.25	9.06
CWK <sup>2</sup>	.032		.53	.50	.40	15.02	8.03
CREAD <sup>3</sup>	.120	.001		.58	.33	12.29	4.19
CLIT <sup>4</sup>	.010	.001	.001		.34	8.70	3.86
SYNTAX <sup>5</sup>	.001	.001	.001	.001		14.01	4.42

Note: Correlation coefficients are above the diagonal; levels of significance are below the diagonal. The key to mnemonics is as follows:

<sup>1</sup>AGE = Age of subjects

<sup>2</sup>CWK = Corrected score for Word Knowledge

<sup>3</sup>CREAD = Corrected score for Reading Comprehension

<sup>4</sup>CLIT = Corrected score for Literature

<sup>5</sup>SYNTAX = Score obtained on the English Language Structure Test

However, the correlations between age and semantics and age and literature achievement were extremely low. In educational terms, one could say that there were no significant relationships between these variables. The highest correlation obtained was that of  $-.45$  between age and syntax which seems to suggest a moderate relationship.

Researchers such as Robertson (1968), Chomsky (1969), Shackford (1976) and Dillon (1978) reported that language competency increases with age. However, this research does not support that position.

The results obtained may have occurred because the sample contained a number of students who repeated regular classroom work and were below the average academic record. Also, as mentioned in the discussion of hypothesis 2, the instruments used in the study may not have strong discriminatory powers. These limitations may have contributed to such findings.

#### Hypothesis 4

There will be no significant relationship between knowledge of semantics and knowledge of syntax.

#### Findings

The correlation between measures of semantics and syntax was  $.40$ , significant at the  $.001$  level. This

indicates a moderate relationship between these variables. Hence, hypothesis 4 was rejected.

A scatter diagram of this relationship is presented in Figure 2. The vertical axis contains the semantics measure and the horizontal axis contains the syntax measure. This scattergram was done by the computer using the SPSS program.

When referring to the above correlation, it must be noted that grade nine students did not have sufficient time to finish the syntax test. Thus, measurement error is possible. To overcome this difficulty, Nunnally's formula for correction for attenuation was applied. It was as follows:

$$\bar{r}_{12} = \frac{r_{12}}{r_{11} r_{22}} \quad \text{where}$$

$r_{12}$  = correlation actually obtained between two tests

$r_{11}$  = reliability of first test

$r_{22}$  = reliability of second test

$\bar{r}_{12}$  = estimated correlation

(Nunnally, 1970: 552)

The resulting  $\bar{r}_{12}$  was .53. This seems to present a more realistic picture of the correlation. Maybe, if the testing situation was better, the actual correlation between semantics and syntax would be higher than .40.

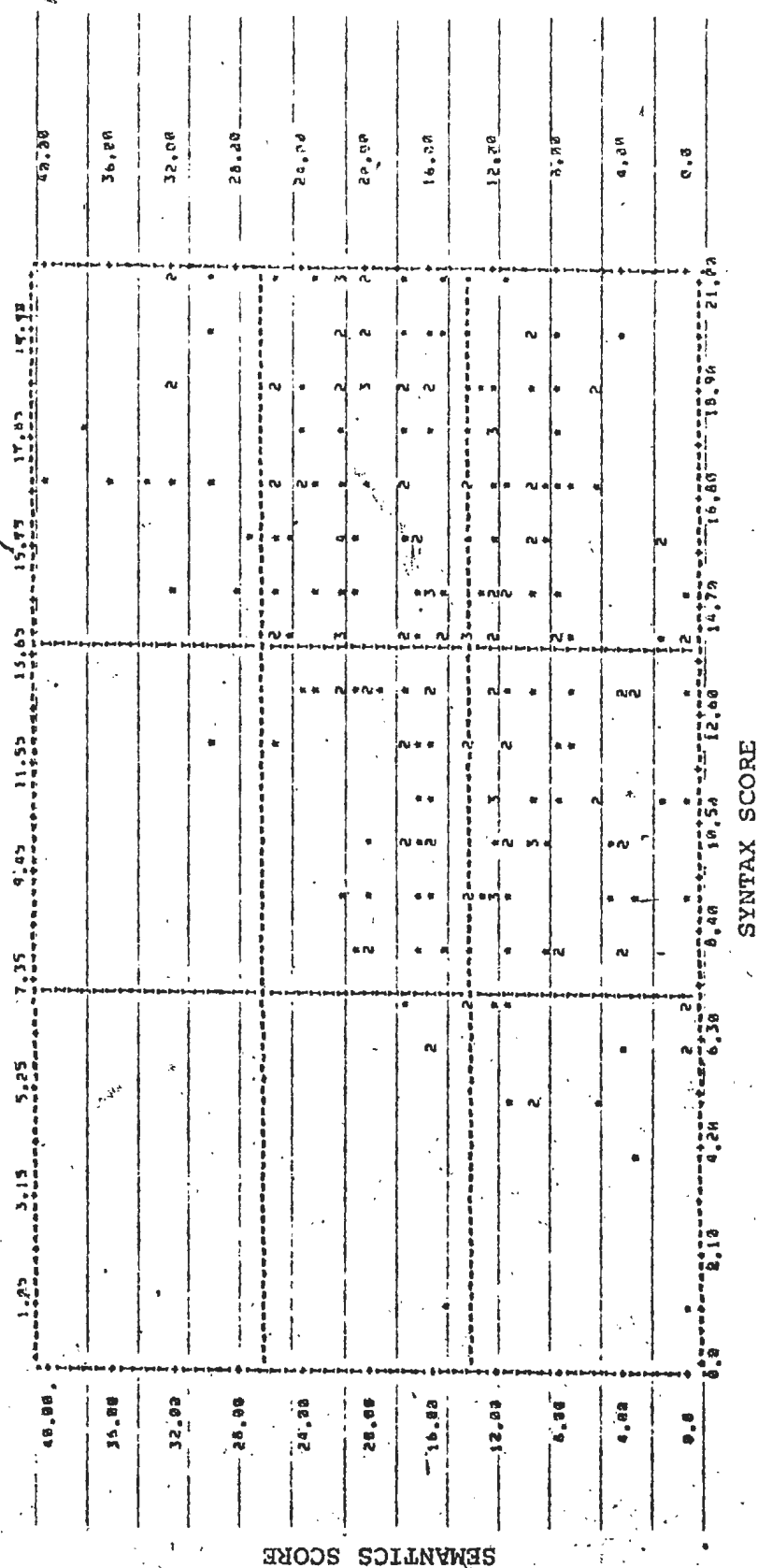


FIGURE 2. Scattergram of Relationship Between Semantics and Syntax.

### Discussion

Although the correlation between semantics and syntax was moderate, it suggested that the skills of semantics and syntax were related. This supports the findings of such distinguished experts in language theory as Chomsky (1957); Botel (1964); Halliday (1970); Katz (1972); and Crystal (1976) who purported that knowledge of semantics is necessary for an understanding of syntactic structure and vice versa.

### Hypothesis 5

There will be no significant relationship between knowledge of semantics and reading comprehension.

### Findings

The Pearson product-moment correlation between semantics and reading comprehension was .53, significant at the .001 level. On the basis of this finding, hypothesis 5 was rejected. One may conclude that those students who achieved the higher scores on the semantic measure also achieved higher scores on reading comprehension. Figure 3 presents a scattergram of this relationship.

### Discussion

The above finding supports the viewpoints of Kerfoot (1965); Postman and Weingartner (1966); Goodman, 1968, 1970);

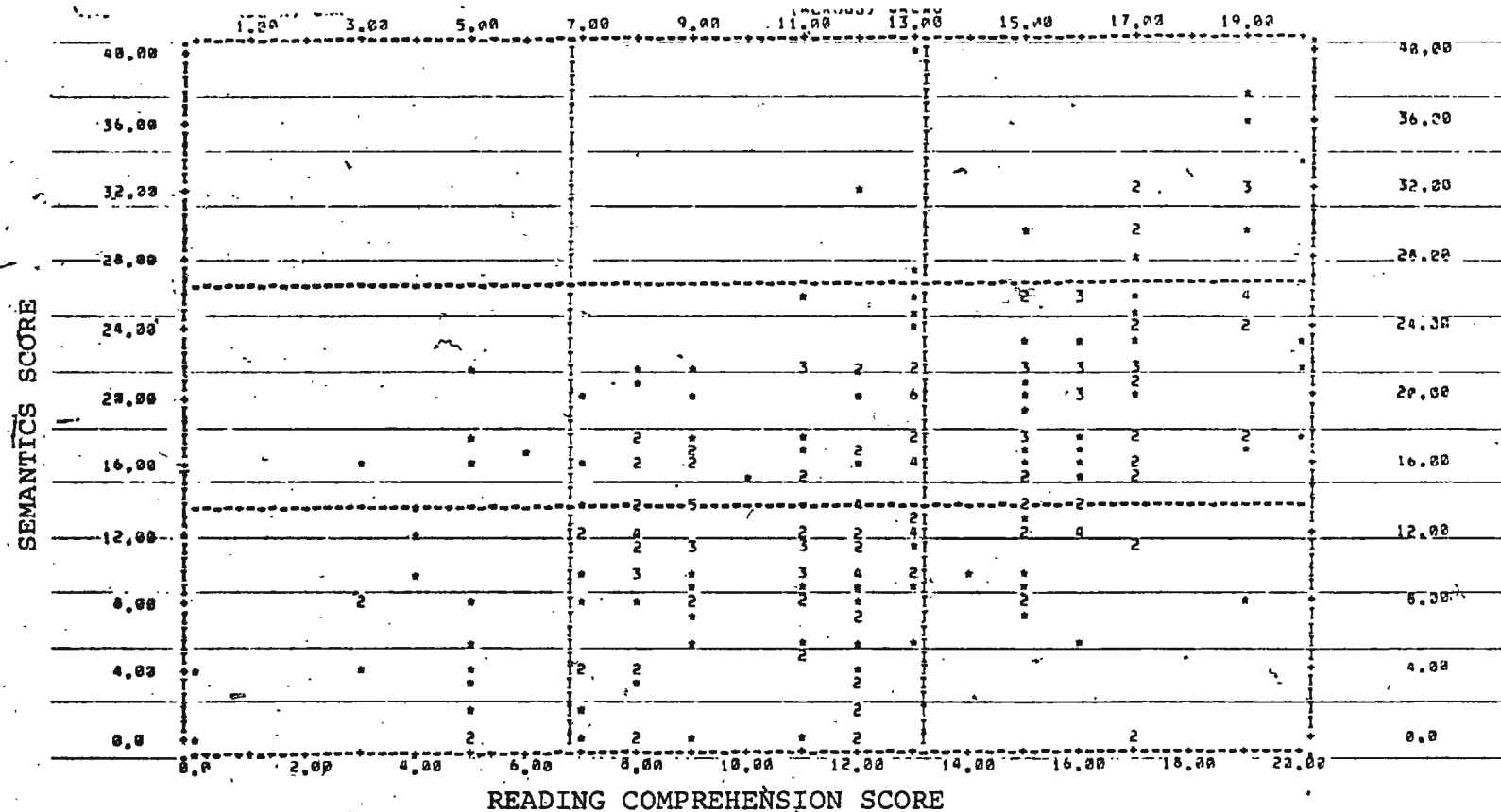


FIGURE 3. Scattergram of Relationship Between Semantics and Reading Comprehension



Leech (1974); Nilsen and Nilsen (1975); and Clark (1976). It is evident, then, that semantic resources must be drawn upon if the reader is to successfully comprehend written information. Thus, if a student demonstrates poor knowledge of semantics he will most likely perform at a low comprehension level.

#### Hypothesis 6

There will be no significant relationship between knowledge of semantics and achievement in literature.

#### Findings

The correlation coefficient obtained between semantics and achievement in literature was .50, significant at the .001 level. This necessitated a rejection of hypothesis 6. The scattergram (Figure 4) shows a positive relationship with "outliers" in both directions.

#### Discussion

It was previously stated in the review of literature in Chapter II that knowledge of semantics was related to performance in literature. Researchers such as Fries (1963); Phenix (1964); Carroll (1964); Spencer and Gregory (1965); Rodger (1969); and Purves (1973) put forth strong arguments for the view that knowledge of word meanings (semantics)

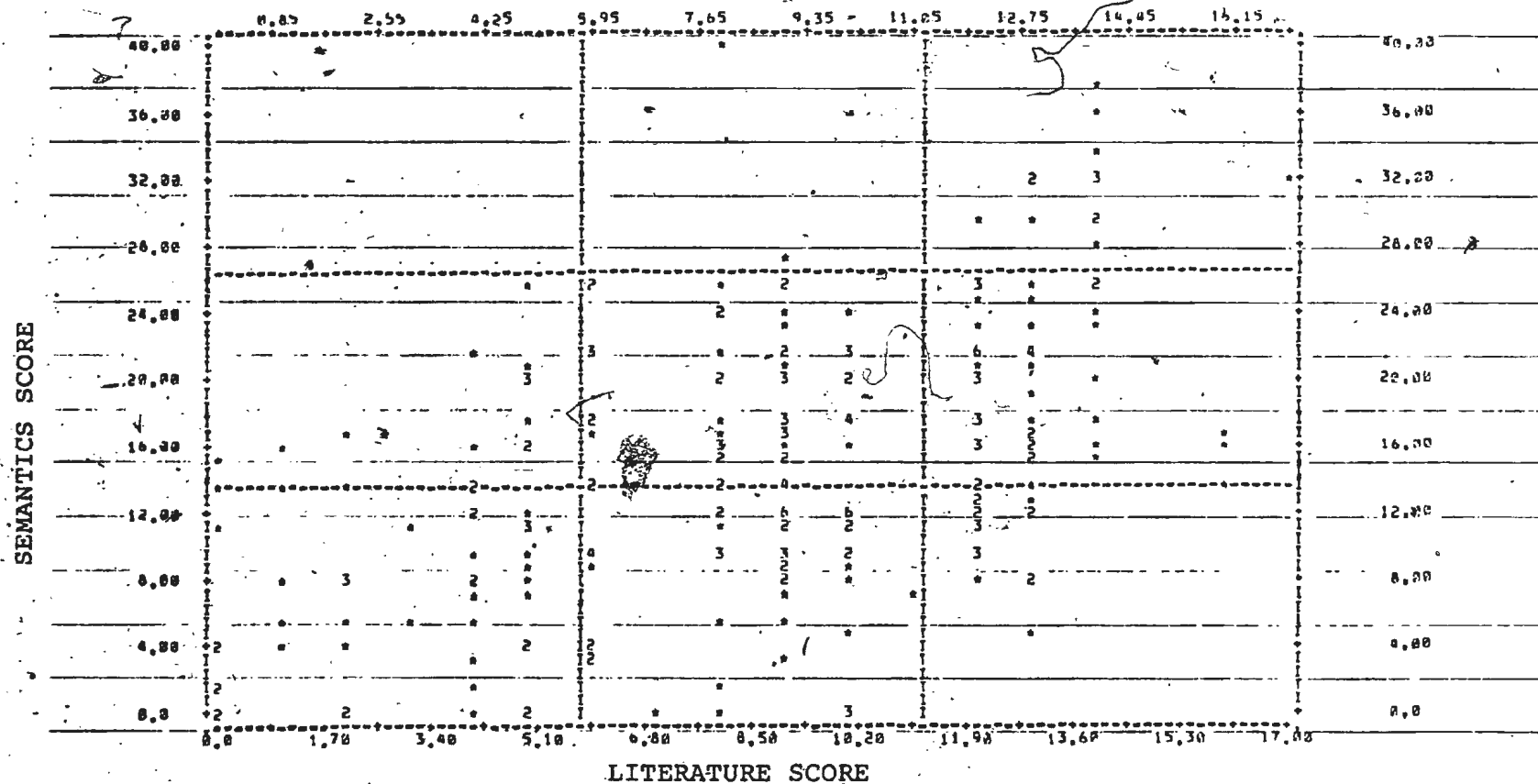


FIGURE 4. Scattergram of Relationship Between Semantics and Literature Achievement.

provide the basis for interpreting literature. The above findings support these theories.

#### Hypothesis 7

There will be no significant relationship between knowledge of syntax/ and reading comprehension.

#### Findings

The Pearson product-moment correlation coefficient between the variables syntax and reading comprehension was .33, significant at the .001 level. Therefore, hypothesis 7 was rejected. Figure 5 illustrates a scattergram of this relationship. It can be seen that the correlation is low.

For reasons previously mentioned in the findings for hypothesis 4, it was advisable to apply Nunnally's formula for correction for attenuation when the syntax measure was associated with reading comprehension. The estimated correlation obtained was .44. This seems to suggest that as the students' knowledge of syntax increases so will their comprehension ability.

#### Discussion

The above finding is in agreement with the theories of Keislar (1964); Hildreth (1964); Borsodi (1967); Ferguson

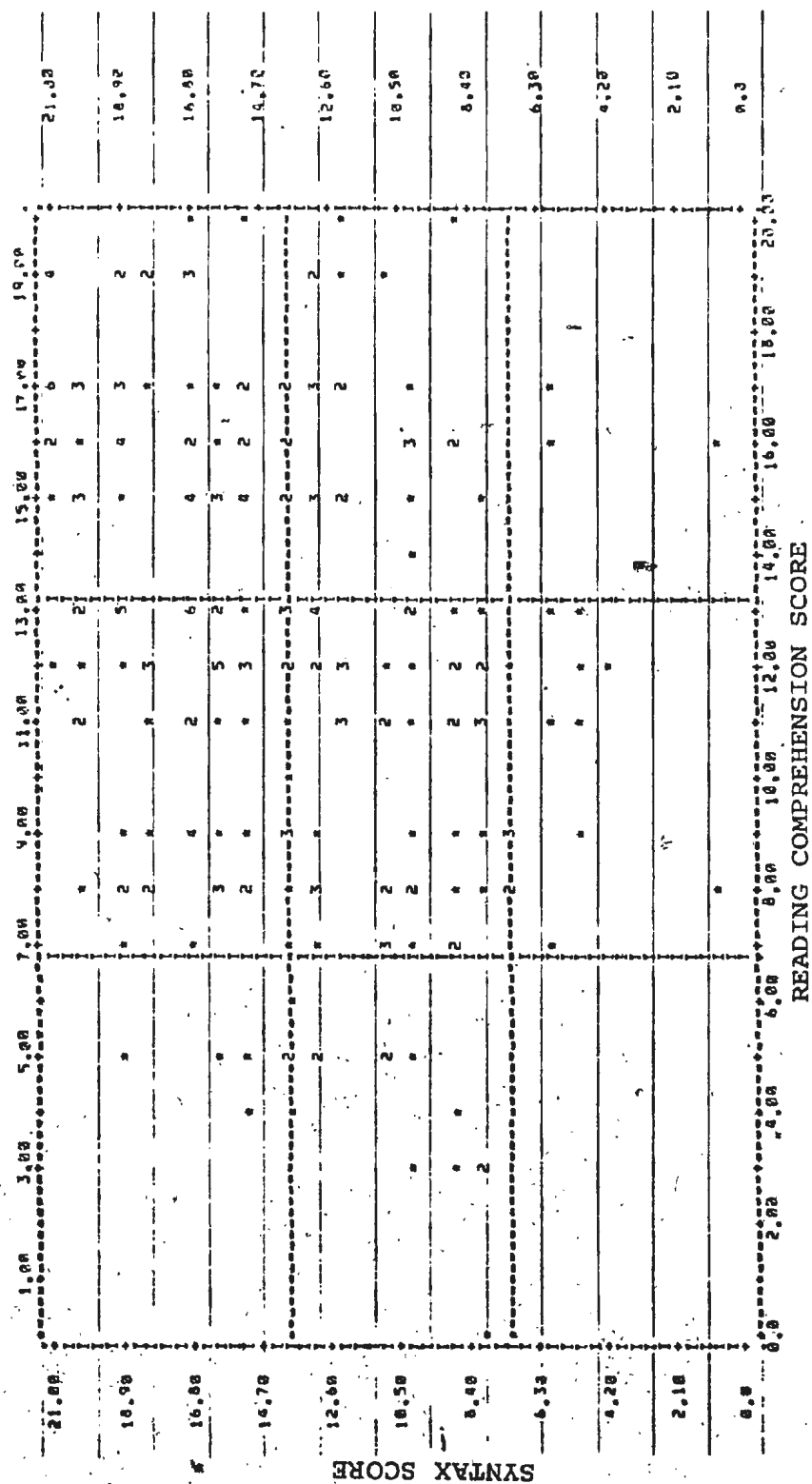


FIGURE 5. Scattergram of Relationship Between Syntax and Reading Comprehension

(1971); Bellugi (1973) and Lamb (1977), who stated that knowledge of syntax is fundamental to reading comprehension. However, the relationship between these variables was low. This could be attributed to the type of the sample used in the study, as well as the instruments used.

#### Hypothesis 8

There will be no significant relationship between knowledge of syntax and achievement in literature.

#### Findings

The correlation coefficient obtained between syntax and achievement in literature was .34, significant at the .001 level. Thus, hypothesis 8 was rejected. The scattergram of this relationship is presented in Figure 6.

Nunnally's formula for correction for attenuation was applied when the syntax measure was associated with the literature achievement measure. A correlation of .45 was found between these variables. This presents a more realistic picture of the relationship.

#### Discussion

Although the above finding suggests that a low relationship exists between knowledge of syntax and achievement in literature, it supports the theory presented in

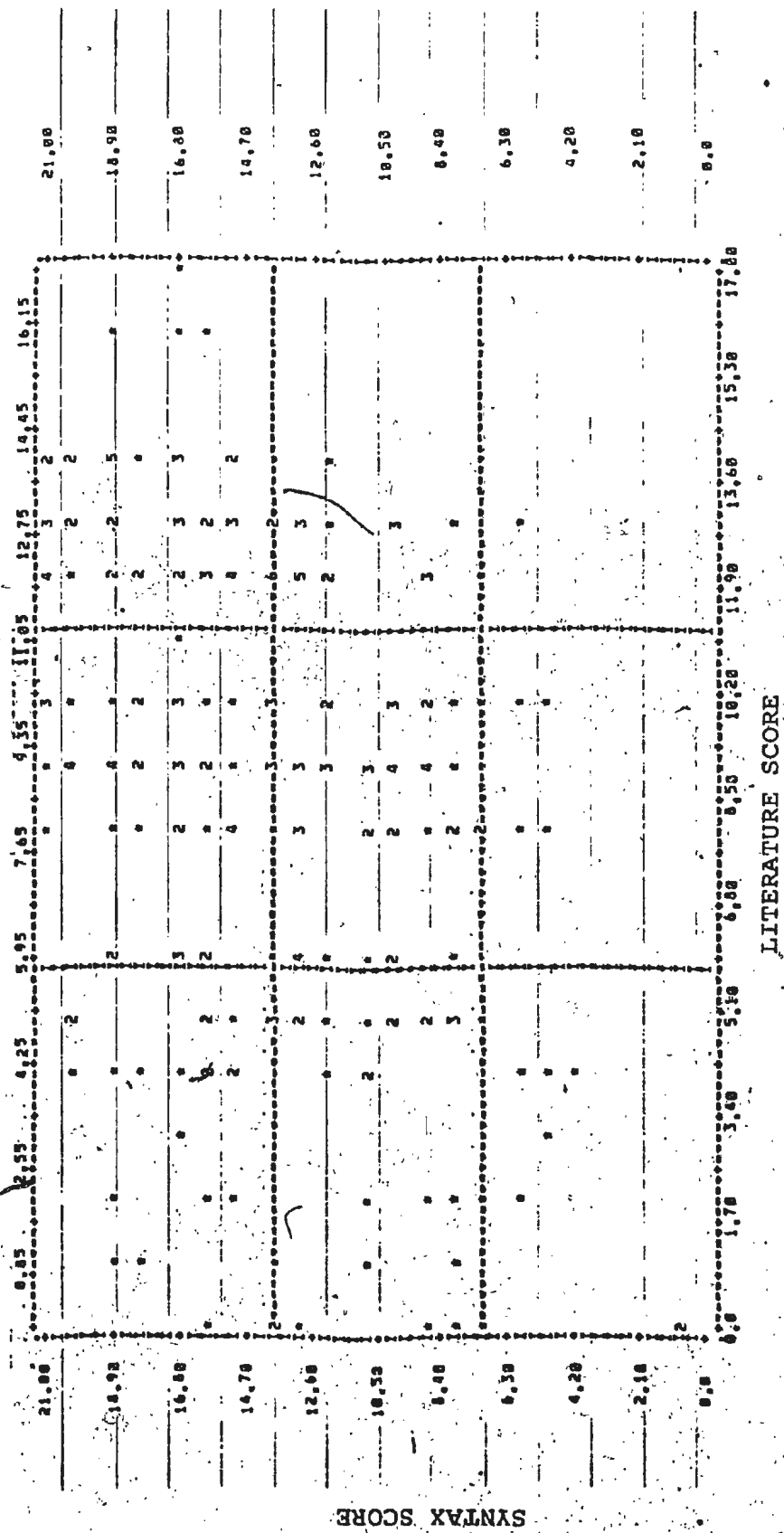


FIGURE 6. Scattergram of Relationship Between Syntax and Literature Achievement

Chapter II. That is, the reader must draw upon his knowledge of syntax when analyzing an author's work.

#### Hypothesis 9

There will be no significant relationship between reading comprehension and achievement in literature.

#### Findings

The Pearson product-moment correlation computed between reading comprehension and achievement in literature was .58, significant at the .001 level. This necessitated a rejection of hypothesis 9 since there was a moderately strong positive relationship between these variables. The scattergram for this relationship is depicted in Figure 7.

#### Discussion

Little research has been completed on the relationship between reading comprehension and achievement in literature. However, the above finding indicates that a significant relationship exists between these achievements. Thus, it could be concluded that a student who performs well in reading comprehension will also perform well in literature achievement.

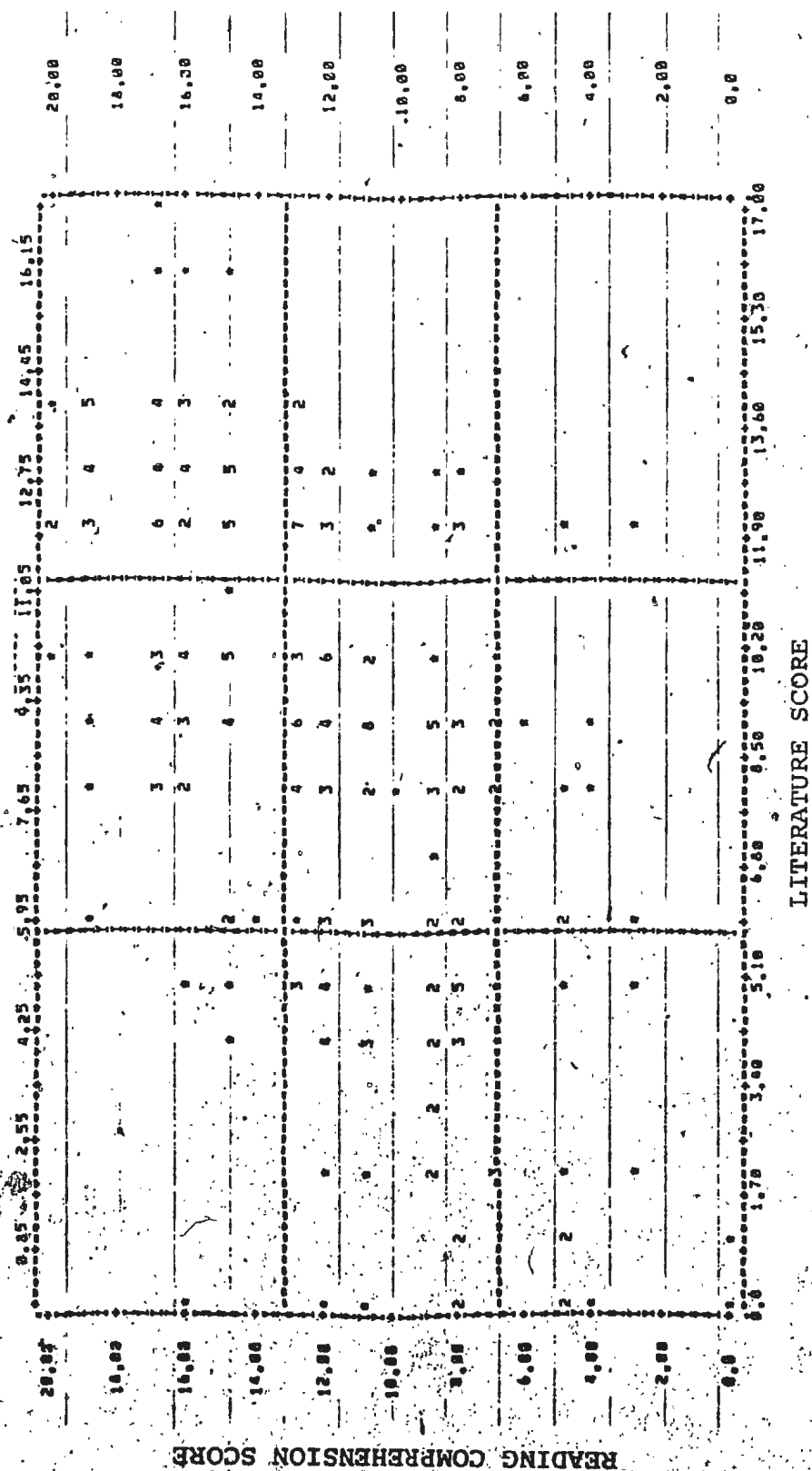


FIGURE 7. Scattergram of Relationship Between Reading Comprehension and Literature Achievement.



### Partial Correlation Analyses

The major purpose of this study was to examine the relationships between semantics, syntax, reading comprehension and literature achievement. These relationships were established through the Pearson product-moment correlations. Further analyses using partial correlation coefficients enabled the researcher to control for the effects of possible intervening variables. These were done by using the SPSS computer program. "In partial correlation, the control is statistical rather than literal and is based on the simplifying assumptions of linear relationships among the variables" (Nie et al., 1975: 302).

The investigator examined the following relationships: the relationship between semantics and reading comprehension when syntax was partialled out; the relationship between semantics and reading comprehension when the group of syntax, grade, sex and age were partialled out; the relationship between semantics and literature achievement when syntax was partialled out; the relationship between semantics and literature achievement when the group of syntax, grade, sex and age were partialled out; the relationship between syntax and reading comprehension when semantics was partialled out; the relationship between syntax and reading comprehension when the group of semantics,

grade, sex and age were partialled out; the relationship between syntax and literature achievement when semantics was partialled out; and the relationship between syntax and literature achievement when the group of semantics, grade, sex and age were partialled out.

#### Findings (Semantics, Syntax and Reading Comprehension)

The Pearson product-moment correlation between semantics and reading comprehension was .53, significant at the .001 level. When syntax was partialled out, the correlation between the variables was .47, significant beyond the .001 level. The correlation between these variables was further decreased to .43 ( $p < .001$ ) when syntax, grade, sex and age were partialled out.

The correlation between syntax and reading comprehension was .33, significant at the .001 level. When semantics was partialled out, the correlation dropped to .15 ( $p < .05$ ) and with the effects of semantics, grade, sex, and age controlled, the correlation between syntax and reading comprehension was .20 ( $p < .01$ ). Table 5 contains a matrix of these partial correlations.

#### Findings (Semantics, Syntax and Achievement in Literature)

A similar trend occurred between the variables semantics, syntax and literature achievement when controls were used. The Pearson product-moment correlation between

TABLE 5

Raw Correlations and Partial Correlations Between Semantics, Syntax, Reading Comprehension and Literature for the Study Sample (N = 256)

Variable	CWK <sup>1</sup>	SYNTAX <sup>2</sup>
a) <u>Raw correlations</u>		
CREAD <sup>3</sup>	.53***	.33**
CLIT <sup>4</sup>	.50***	.34**
b) <u>Correlations with SYNTAX partialled out</u>		
CREAD <sup>3</sup>	.47***	
CLIT <sup>4</sup>	.43***	
c) <u>Correlations with SYNTAX, GRADE, SEX and AGE partialled out</u>		
CREAD <sup>3</sup>	.43***	
CLIT <sup>4</sup>	.38***	
d) <u>Correlations with CWK partialled out</u>		
CREAD <sup>3</sup>		.15*
CLIT <sup>4</sup>		.18**
e) <u>Correlations with CWK, GRADE, SEX and AGE partialled out</u>		
CREAD <sup>3</sup>		.20**
CLIT <sup>4</sup>		.17**

Note: <sup>1</sup>CWK = Corrected score for Word Knowledge  
<sup>2</sup>SYNTAX = Score obtained on English Language Structure Test  
<sup>3</sup>CREAD = Corrected score for Reading Comprehension  
<sup>4</sup>CLIT = Corrected score for Literature  
<sup>5</sup>AGE = Age of subjects  
<sup>6</sup>GRADE = Grade  
<sup>7</sup>SEX = Sex

\*Significant beyond the .05 level  
 \*\*Significant beyond the .01 level  
 \*\*\*Significant beyond the .001 level

semantics and literature achievement was .50 ( $p < .01$ ). When the effect of syntax was removed the correlation became .43 ( $p < .001$ ). With the partialling out of the effects of syntax, grade, sex, and age, a correlation of .38 ( $p < .001$ ) occurred between semantics and literature achievement.

The correlation between syntax and literature achievement was .34 ( $p < .01$ ) but with the partialling out of the effects of semantics, the correlation was .18 ( $p < .01$ ). When the effects of semantics, grade, sex and age were controlled the correlation between syntax and literature achievement was .17 ( $p < .01$ ).

#### Discussion

It is evident from the above findings, that semantics had a stronger effect, (although it was weak) on reading comprehension and literature achievements than syntax, grade, sex and age. This may have occurred because the syntax measure used in the study might be highly dependent upon word knowledge (semantics). In addition, the grade nine sample of students showed a definite lack of interest in the testing. This may account for a great deal of the variance in results.

To conclude, the above findings indicate that the language arts skills are interrelated. Knowledge of one process enhances capabilities in the other areas.

## CHAPTER V

SUMMARY, CONCLUSIONS, PRACTICAL IMPLICATIONS AND  
RECOMMENDATIONS FOR FURTHER RESEARCH

The purpose of this chapter is fourfold: 1) to present a summary of major findings; 2) to draw conclusions regarding the theoretical implications of the study; 3) to suggest some practical implications; and 4) to make recommendations for further research.

Summary

The major findings of this study may be summarized as follows:

- 1) There was no significant difference between the mean scores of grade eight students and grade nine students on the semantics variable.
- 2) Grade eight students scored significantly higher than grade nine students on the syntax variable.
- 3) There was no significant difference between the mean scores of grade eight students and grade nine students on reading comprehension.
- 4) Grade nine students scored significantly higher than grade eight students on achievement in literature.
- 5) There was no significant difference between the mean scores of male students and female students on the semantics variable.

- 6) Female students scored significantly higher than male students on the syntax variable.
- 7) There was no significant difference between the mean scores of male students and female students on reading comprehension.
- 8) Female students scored significantly higher than male students on achievement in literature.
- 9) There was a significant negative relationship (-.12) between the age of the subjects and their performance on the semantics variable.
- 10) There was a significant negative relationship (-.45) between the age of the subjects and their performance on the syntax variable.
- 11) There was no significant relationship between the age of the subjects and their performance on reading comprehension.
- 12) There was a significant negative relationship (-.15) between the age of the subjects and their achievement in literature.
- 13) There was a significant positive relationship (.40) between semantics and syntax.
- 14) There was a significant positive relationship (.53) between semantics and reading comprehension.
- 15) There was a significant positive relationship (.50) between semantics and achievement in literature.
- 16) There was a significant positive relationship (.33) between syntax and reading comprehension.
- 17) There was a significant positive relationship (.34) between syntax and achievement in literature.
- 18) There was a significant positive relationship (.58) between reading comprehension and achievement in literature.

### Conclusions

The major purpose of this study was to investigate the relationships between semantics, syntax, reading comprehension and literature achievement at the Junior High School level. The review of literature presented in Chapter II revealed that these skills were related. However, there was little conclusive evidence as to the strength of the relationship between these variables at the Junior High level.

The findings of this study indicated that there were significant positive relationships between the above variables. However, most of the correlations obtained were moderate or low. For example, the correlation of .33 between syntax and reading comprehension and the correlation of .40 between semantics and syntax are in fact quite moderate. The highest correlation obtained was .58 between reading comprehension and literature achievement which may be described as a moderately strong relationship. Although these correlations were statistically significant, they set no strong trends in educational terms. Thus, one can only conclude that this study established that there are low to moderate relationships between semantics, syntax, reading comprehension and literature achievement.

### Practical Implications

Given the findings and conclusions of this study it seems obvious that the skills of semantics, syntax, reading comprehension and literature achievement are inter-related. It is evident that both semantics and syntax play a role in reading comprehension and in the ability to interpret literature for students. This data suggests that an increase in semantics, for example, should be accompanied by an increase in ability to utilize syntax, comprehend while reading and to interpret literature. It would seem, then, that the fostering of these linguistic skills is necessary to a student's language progress. Programs enhancing efficient instruction within the areas of semantics, syntax, reading comprehension and literature should help the student increase his language competency and hence become a more effective language user.

The lack of differences between the mean scores of grade eight and grade nine students on measures of semantics and reading comprehension implies that continuing programs in language arts should be developed beyond the grade eight level. As written material becomes more complex, students have to be guided towards developing language mastery. In particular, students who lack the basic language processes must be provided with opportunities through adjustment of instructional methods to improve their weaknesses. Achieve-



ments will not increase with age as demonstrated in the findings, if provisions are not made for students to gain practice in analyzing advanced material.

To conclude, it seems that instruction dealing with strategies for semantics, syntax, reading comprehension, and literature achievement may prove to be beneficial during the Junior High level. Perhaps, teachers need to become more aware of the linguistic performances of their students and based on such findings modify or restructure language programs to better suit the needs of the students.

#### Recommendations for Further Research

The following recommendations for further research are attempts to overcome the limitations of the present study. The first suggestion is related to the data gathering limitation, namely, that the study dealt only with urban Junior High level students. By using students from a rural area the findings would be more generalizable.

The second recommendation relates to the type of instruments used to measure semantics, syntax, reading comprehension and literature. Within these broad areas, and in particular those of semantics and syntax, the instruments focused on word knowledge (one area of semantics) and word order (one area of syntax). A study dealing with the multi-facets of these fields would possibly provide results

different from those of this present study. In addition, it would be beneficial to compare these results with those of the present investigation.

The third recommendation is to design a longitudinal study in which repeated measures on a set of individuals would be obtained on semantics, syntax, reading comprehension and literature over a period of time. For example, a study could be undertaken on these linguistic competencies on various phases of Elementary, Junior High and Senior High levels.

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## APPENDICES

## APPENDIX A

## WORD KNOWLEDGE TEST



## MEMORIAL UNIVERSITY OF NEWFOUNDLAND

Dear Student,

Your school has been selected to represent Newfoundland and Labrador in an international study of language development and usage. Your results will be compared to those of students in England, New Zealand, and the United States on the same test.

Please try your best to answer all the questions in the given time.

## WORD KNOWLEDGE TEST

School \_\_\_\_\_

Student's Name \_\_\_\_\_

Date of Birth \_\_\_\_\_

Grade \_\_\_\_\_

Male/Female \_\_\_\_\_

Word Knowledge TestDirections

In this test words are given to you in pairs. In each pair, the two words have something in common. You must decide whether the words mean nearly the same thing, or nearly the opposite thing, with respect to what they have in common.

If you think the words have the same meaning, blacken in the oval marked "+" on your test paper.

If you think the words have the opposite meaning, blacken in the oval marked "0" on your test paper.

Here is an example:

high    low            +    0

The two words "high" and "low" both refer to height. However, they are nearly opposite in meaning. Therefore, you should blacken in the oval marked "0" on your test paper.

For each of the following pairs blacken in either "+" or "0". You should attempt every item for which you think you know the answer, but do not guess if you have no idea of the answer.



1.	savory	insipid	+	0
2.	informed	unaware	+	0
3.	precarious	stable	+	0
4.	rapid	sluggish	+	0
5.	supple	malleable	+	0
6.	associate	partner	+	0
7.	decoration	ornamentation	+	0
8.	mute	voluble	+	0
9.	prosperity	opulence	+	0
10.	ordered	confused	+	0
11.	prohibited	forbidden	+	0
12.	boastfulness	modesty	+	0
13.	wealthy	impoverished	+	0
14.	adjacent	contiguous	+	0
15.	create	originate	+	0
16.	garrulous	taquid	+	0
17.	expatiate	harangue	+	0
18.	rare	habitual	+	0
19.	benevolent	intolerant	+	0
20.	vague	precise	+	0
21.	wise	judicious	+	0
22.	acquire	dispel	+	0
23.	ancient	antique	+	0
24.	abstruse	explicit	+	0
25.	loosen	relax	+	0

(Please turn over and continue)

26.	despise	scorn	+	0
27.	flagrant	obvious	+	0
28.	gauge	measure	+	0
29.	paltry	exorbitant	+	0
30.	absolute	relative	+	0
31.	everlasting	permanent	+	0
32.	conformity	dissimilarity	+	0
33.	converge	approach	+	0
34.	consecrate	dedicate	+	0
35.	deny	repeal	+	0
36.	variable	inconstant	+	0
37.	bounty	generosity	+	0
38.	delicate	tactful	+	0
39.	repudiate	disavow	+	0
40.	obvious	indisputable	+	0

APPENDIX B

ENGLISH LANGUAGE STRUCTURE TEST (ELST)



## MEMORIAL UNIVERSITY OF NEWFOUNDLAND

Dear Student,

Your school has been selected to represent Newfoundland and Labrador in an international study of language development and usage. Your results will be compared to those of students in England, New Zealand, and the United States on the same test.

Please try your best to answer all the questions in the given time.

## ENGLISH LANGUAGE STRUCTURE TEST

School \_\_\_\_\_

Student's Name \_\_\_\_\_

Date of Birth \_\_\_\_\_

Grade \_\_\_\_\_

Male/Female \_\_\_\_\_



English Language Structure TestDirections

If someone said to you "From He Dog Rescue The Helped To Pond The" you would understand each of the separate words, but the words would not make sense as a group. When these same words are rearranged you can easily understand the speaker's message: He helped to rescue the dog from the pond.

Word order is important in our language. It makes the difference between a jumble of words and a sentence that has meaning.

Each group of words below is a sentence which has been scrambled or mixed up. On the lines provided, rewrite each word group as a sentence. The sentence must make sense. Use correct capitalization and punctuation.

our to summer a Texas last trip family took

---

---

was ago is than his it speed a faster month

---

---

father mountain shot that was by lion my

---

---

sailboats across the speedy raced lake stormy two

---

---

in woman handed bone my green because a the he dog dress  
the barked

---

---

meeting president month's elected at him they last

---

---

pleasant has very evening the been

---

---

a that ago born was kitten new has an hour Jane

---

---

arrives be not car we going our will until new

---

---

of teacher winner election has my the me yesterday's named

---

---

the an easy caught the by for out shortstop ball was

---

---

habits you be learning to reading will useful good

---

---

left pad giant the slowly launching rocket the

---

---

which us answer not we Mr. Smith a could question asked

---

---

we much the all because fun were so stayed day at having  
beach we

race most win voted to boy the likely we Sam the

their mowed the will son be lawn by

entered have painting you the in not contest your

afraid my strangers son of very is

gave uncle me birthday a gift an

early the home door people came next who old live

APPENDIX C

READING COMPREHENSION TEST



## MEMORIAL UNIVERSITY OF NEWFOUNDLAND

Dear Student,

Your school has been selected to represent Newfoundland and Labrador in an international study of language development and usage. Your results will be compared to those of students in England, New Zealand, and the United States on the same test.

Please try your best to answer all the questions in the given time.

## READING COMPREHENSION TEST

School \_\_\_\_\_

Student's Name \_\_\_\_\_

Date of Birth \_\_\_\_\_

Grade \_\_\_\_\_

Male/Female \_\_\_\_\_

## READING COMPREHENSION

Directions

This is a test to see how well you understand what you read. The test is made up of three stories with a number of questions on each. Read the first story and then answer the questions on it. Then go on to the second story and so on until you come to the end of the test.

Each test item starts with a statement or question and then gives you four endings or answers. Pick the best ending or answer and circle the letter corresponding to the answer you have chosen on your test paper.

You may read the stories over again as much as you need to. Try each question in turn. If you don't know the answer, you may leave it and go on to the next. Come back to it later if you have time.

You should answer even if you aren't sure; however, do not guess blindly.

When you finish one story go ahead to the next. Keep on working until you reach the end of the test. If there is any time left, go back and try to do any questions that you skipped the first time through.

Ernenek slipped out of his sleeping bag. On top of his clothes made of small auk's skins, with the feathers inside, he put on other clothes made of bear skin, with the fur on the outside, and pushed the trouser legs into his sealskin boots.

He came out of the narrow tunnel of the igloo on all-fours, pulling the half-asleep dog, who was the leader of the team, by its leash, while the other dogs followed yawning and shaking the rime off their thick fur. They clamoured for food by barking and showing their teeth which had been filed with stones so that they could not gnaw their bridles; they looked more like wolves than dogs with their pointed muzzles and their yellow, glowing eyes.

Ernenek iced the sledge runners, then he harnessed the dogs, unfastened the sledge anchor and climbed onto the sledge. Under the whip, the dogs formed out behind the leading dog, pulling on the traces, which attached them separately to the sledge and yelping behind the white clouds of vapour coming out of their mouths.

It was hot; the temperature must have been about 17 degrees below zero and Ernenek did not have to run behind the sledge to warm himself; he could remain sitting and enjoy the drive.

The icy ocean on which he travelled, frozen to a depth which exceeded a man's height and superficially covered with snow, bore the clear trace of the sledge of his friend who had started before him.

Ernenek did not turn to look at the solitary igloo he was leaving behind, a minute cute hump of ice at the top of the world.

(Please turn over and continue)



1. Ernenek's dogs resembled wolves because they had
  - A. a very sharp sense of smell.
  - B. filed teeth and a small muzzle.
  - C. great strength to pull the sledge.
  - D. pointed muzzles and glowing eyes.
2. We can tell from the passage that auks are
  - A. animals like bears.
  - B. related to seals.
  - C. dogs that pull sledges.
  - D. birds.
3. The dogs' teeth had been filed with stones to make them
  - A. sharp.
  - B. clean.
  - C. smooth.
  - D. blunt.
4. Why did Ernenek ice the runners of his sledge?
  - A. to cool them off.
  - B. to make them slippery.
  - C. so he could harness the dogs.
  - D. to remove the dirt.
5. In describing the dogs, the writer tries to make them seem
  - A. brave.
  - B. strong.
  - C. well-trained.
  - D. savage.
6. In saying that Ernenek's igloo was "at the top of the world," the writer means that it was
  - A. on the icy ocean.
  - B. near the North Pole.
  - C. far from any other home.
  - D. very small and unimportant.
7. We can tell from the fourth paragraph that
  - A. it was a really hot day.
  - B. Ernenek hated to run.
  - C. Ernenek got cold easily.
  - D. Ernenek was used to very cold weather.

(Please turn over and continue)

Paracutin was born in Mexico in February, 1943. At the end of one week, Paracutin was 500 feet high and it is now over 9,000 feet high. Today Paracutin is asleep.

What is Paracutin? It is the only volcano in the world which has been seen from its birth right up to the present day. On February 20, 1943, a peasant and his wife set out to work in their maize fields from the Mexican village of Paracutin. They were surprised to find the earth warm under their feet. Suddenly they heard noises deep in the earth and a small hollow appeared in their field. In the afternoon there was a sudden loud noise and stones were flung high in the air. The peasants ran from the field and turned to watch. They saw the birth of a volcano.

There were great bursts of stone and lava and a little hill began to form. By evening this hill was 100 feet high and hot ashes were falling on the village. At night the glare of the hot lava lit up the countryside. The trees near the village were killed and the villagers had to leave their houses. When the village was abandoned, its name was given to the volcano. The news quickly spread to Mexico City, far to the east. Many sightseers and scientists flocked to the scene. The volcano grew and grew for ten years and hundreds of square miles of forest were destroyed. Then Paracutin went to sleep. In spite of all the explosions, not one person was killed.

(Please turn over and continue)

8. Paracutin was once the name of  
A. a peasant.  
B. a village.  
C. an old mountain.  
D. a Mexican
9. What was destroyed in the eruption?  
A. only a village.  
B. the villagers living close by.  
C. the forests and fields round Paracutin.  
D. two peasants.
10. When the writer says that Paracutin "went to sleep", he means that it  
A. flattened out.  
B. stopped sending out ashes and lava.  
C. will never be a volcano again.  
D. got covered with grass and trees.
11. In this passage the author is trying to  
A. describe an interesting happening.  
B. explain a scientific theory.  
C. make us believe something.  
D. build up suspense.
12. Paracutin is now  
A. erupting.  
B. temporarily inactive.  
C. permanently dead.  
D. flattened.
13. From the story, where does it appear that Paracutin is located?  
A. In eastern Mexico.  
B. In western Mexico.  
C. In northern Mexico.  
D. In southern Mexico.
14. What can we learn about volcanoes from this passage?  
A. New volcanoes may appear in unexpected places.  
B. There have always been volcanoes on the earth.  
C. Volcanoes are active from time to time.  
D. Volcanoes are active for only a few months.

(Please turn over and continue)

During the present century, scientific study of man's surroundings and experience is commonly accepted as the desirable way to determine the truth or falsity of statements, opinions, or beliefs.

This was not always so. During past centuries there was much reliance on authority. The opinions expressed by persons in positions of authority and the written statements in approved documents were frequently accepted and taught as oracles of truth. Those questioning the accuracy or validity of these opinions were in grave danger. Many persons, later recognized as leading contributors to the progress of mankind, suffered torture, imprisonment, and even death because they dared to question beliefs or opinions which we now see to have been demonstrably false.

The scientific method emphasized the inductive rather than the deductive approach to the solution of problems. The inductive method is characterized by observations, measurement, definition, enumeration, classification, and the formulation of conclusions on the basis of objective evidence. On the other hand, authoritarianism utilized the deductive method, namely, reasoning from the major premise to a conclusion, without necessarily making explicit all the elements involved in the final statement or opinion.

In one sense authority and scientific method may be harmonized. It is conceivable that the major premises of an authority may be based on scientific studies which have produced demonstrable truths. Deductions made with these truths as major premises and with strict adherence to the principles of logic should be valid.

(Please turn over and continue)

15. Scientific method has been encouraged  
A. for many centuries.  
B. continuously.  
C. recently.  
D. by authoritarians.
16. "Authority" as used in line 6 of the above article, means  
A. traditional wisdom.  
B. scientific analysis.  
C. inductively determined fact.  
D. superstition.
17. Deductive reasoning assumed the accuracy of  
A. conclusions.  
B. major premises.  
C. facts.  
D. a logical synthesis.
18. A central idea of the preceding article is that  
A. deductive methods are hard to apply.  
B. science and logic are opposed.  
C. facts and opinions are about the same thing.  
D. scientific and authoritarian methods may complement each other.
19. Which of the four paragraphs is primarily concerned with comparison?  
A. 1st  
B. 2nd  
C. 3rd  
D. 4th
20. Which of the four paragraphs is primarily concerned with synthesis?  
A. 1st  
B. 2nd  
C. 3rd  
D. 4th

END OF TEST

## APPENDIX D

## LITERATURE TEST



## MEMORIAL UNIVERSITY OF NEWFOUNDLAND

Dear Student,

Your school has been selected to represent Newfoundland and Labrador in an international study of language development and usage. Your results will be compared to those of students in England, New Zealand, and the United States on the same test.

Please try your best to answer all the questions in the given time.

## LITERATURE TEST

School \_\_\_\_\_

Student's Name \_\_\_\_\_

Date of Birth \_\_\_\_\_

Grade \_\_\_\_\_

Male/Female \_\_\_\_\_



Literature TestDirections

On the next page there is a short story. Read the story carefully and thoughtfully before going on to the questions about it.

Read the questions carefully and answer them as thoughtfully and honestly as you can. The questions are preceded by instructions which you should follow. All your answers should be made on the test paper. You will not need any other paper on which to write.

If you have any questions, ask your teacher.



## THE SEA,

Poor boy. He had very big ears, and when he would turn to the window, they would become scarlet. Poor boy. He was bent over, yellow. The man who cured came by behind his glasses. "The sea," he said, "the sea, the sea." Everyone began to pack suitcases and speak of the sea. They were in a great hurry. The boy figured that the sea was like being inside a tremendous seashell full of echoes and chants and voices that would call from afar with a long echo. He thought that the sea was tall and green.

But when he arrived at the sea, he stood still. His skin, how strange it was there. "Mother," he said because he felt ashamed, "I want to see how high the sea will come on me."

He who thought that the sea was tall and green, saw it white like the head of a beer--tickling him, cold on the tips of his toes.

"I am going to see how far the sea will come on me." And he walked, he walked, he walked and the sea, what a strange thing!--grew and became blue, violet. It came up to his knees. Then to his waist, to his chest, to his lips, to his eyes. Then into his ears there came a long echo and the voices that call from afar. And in his eyes all the color. Ah, yes, at last the sea was true. It was one great, immense seashell. The sea truly was tall and green.

But those on the shore didn't understand anything about anything. Above they began to cry and scream and were saying "What a pity, Lord, what a great pity."

Ana Maria Matute--  
Spanish

Directions: Each of the questions or incomplete statements below is followed by four suggested answers. One of these answers or completions is the best answer to the problem posed in the question. That is, of the four answers, one makes the most sense in the light of the story you have read. Some of the questions are more important than others. These questions are marked with a star (\*). Answer all the questions, but pay particular attention to the starred questions. Read each question carefully, choose your answer and indicate your choice by circling the appropriate letter.

1. Which of the following do the first two sentences indicate about the boy?
  - A. That he was unattractive to look at.
  - B. That he was afraid of the light.
  - C. That he had no money.
  - D. That he was very young.
2. What else do the first four sentences indicate about the boy?
  - A. That he was friendly.
  - B. That he was sickly.
  - C. That he was bad.
  - D. That he was short.
3. Who is the man who cured?
  - A. A doctor.
  - B. A priest.
  - C. The boy's father.
  - D. A friend.
- \*4. Which of the following inferences about the boy's past is supported by the first paragraph?
  - A. He had been told that the sea was dangerous but beautiful because of its seashells.
  - B. He had listened to the seashells and become sick from the habit of doing so.
  - C. He had gone to the sea and brought back many seashells.
  - D. He has listened to a seashell and gotten the idea that the sea was beautiful and mysterious.
- \*5. Which of the following explains "but when he arrived at the sea, he stood still."
  - A. The boy was surprised at the sound of the sea and was angry that the seashell was wrong.
  - B. The boy was surprised at the feel of the sea air and wished he was back at home.
  - C. The boy was surprised at the sight of the sea and felt as if he did not belong there.
  - D. The boy was surprised that the sea had a beach, and he did not like to be tickled.

(Please turn over and continue)

- \*6. Which of the following best explains why the boy first said, "I want to see how high the sea will come on me" (lines 11-12)? ☒
- A. He wanted to cover his body with the sea.
  - B. He wanted to show how tall he was.
  - C. He wanted to trick his mother.
  - D. He wanted to show his mother he was not afraid of the sea.
7. As the boy walked into the sea, which of the following changes occurred?
- A. A change in color, smell and feel.
  - B. A change in depth, feel and sound.
  - C. A change in sound, color and smell.
  - D. A change in depth, sound and color.
- \*8. In the context of the story as a whole, which of the following best explains "Ah, yes, at last the sea was true" (lines 21-22)?
- A. At last the sea was as he had imagined it would be.
  - B. At last the sea was as his mother said it would be.
  - C. At last the sea was as the man who cured said it would be.
  - D. At last the sea was gone, and he was back at home.
9. Which of the following is most likely to have said or thought "Poor boy" (sentence 1)?
- A. The boy himself.
  - B. The person telling the story.
  - C. The sea.
  - D. The "man who cured."
- \*10. When we read "The man who cured came by behind his glasses," we are being asked to look at the man as if we were which of the following?
- A. The man himself.
  - B. The sea.
  - C. The boy.
  - D. The people on the shore.
11. What did "those on the shore" see (line 24)?
- A. The boy swimming.
  - B. The boy drowning.
  - C. The boy walking on the beach.
  - D. The boy playing with seashells.
- \*12. Who is making the comment, "But those on the shore didn't understand anything about anything"?
- A. The boy.
  - B. The person telling the story.
  - C. Either of the above.
  - D. Neither of the above.

(Please turn over and continue)

- \*13. What was it that those on the shore did not understand (line 24)?
- A. Why the sea had changed.
  - B. Why they were on the shore.
  - C. Why they were screaming.
  - D. Why the boy did what he did.
- \*14. Through whose eyes are we seeing the events of the story?
- A. Those of one person--the boy.
  - B. Those of one person--a person telling the story, but not in the story.
  - C. Those of two people--the boy and a person telling the story, but not in the story.
  - D. Those of several people--the boy, his mother, the people on the shore, and the man who cured.
15. Which of the following best describes the feelings of the boy in lines 18 to 23?
- A. Uncertainty.
  - B. Anger.
  - C. Joy.
  - D. Fear.
- \*16. There are many colors in this story: the boy is described as red and yellow, and the sea as green, blue, and violet. Which of the following comments about all the colors is most valid in the context of the story as a whole?
- A. The colors help us to understand that the sea represents everything that the boy is not but would like to be.
  - B. The colors help show us how the sea appears to be two different things for the boy and for his parents.
  - C. The colors help us see that the person telling the story does not like the sea as much as the boy does.
  - D. The colors help us see that the boy cannot understand the difference between what happens to him and what happens to the people on the shore.
- \*17. Which of the following best expresses the difference between what the boy thought and what the others thought at the end of the story?
- A. The boy was ashamed to have lost a dream, and the others pitied his shame.
  - B. The boy was disappointed by what he saw, and the others were sorry that his vacation was spoiled.
  - C. The boy was glad to be cured, and the others were surprised at the change that had taken place.
  - D. The boy was content that his dream was fulfilled, and the others were sorry at his death.

## APPENDIX E

## SCHOOL REPORT



## MEMORIAL UNIVERSITY OF NEWFOUNDLAND

St. John's, Newfoundland, Canada

Department of Curriculum  
and InstructionTelex: 016:4101  
Telephone: (709) 753-1200

August 1979

Mr. \_\_\_\_\_

\_\_\_\_\_ Junior High School

Dear Principal:

In March, I gathered research data from the grade eight and nine classes in your school. It was decided that the teachers of the classes concerned would appreciate having the test results. The following report contains these results along with an explanation of the theoretical background to the study and an interpretation of the data.

I would like to extend my appreciation for the cooperation of both teachers and students in this endeavor.

Yours sincerely,

Jacqueline St. Croix

## Results of the Study

"AN INVESTIGATION OF THE RELATIONSHIPS BETWEEN SEMANTICS, SYNTAX, READING COMPREHENSION AND LITERATURE ACHIEVEMENT"

### Introduction

The scope of this report contains the following information:

- 1) Theoretical Background to the Study
- 2) Definitions of Terms
- 3) Description of Instruments--Word Knowledge Test, English Language Structure Test (ELST), Reading Comprehension Test, Literature Test
- 4) Test Results
- 5) Descriptive Statistics
- 6) Major Findings
- 7) Conclusions
- 8) Practical Implications
- 9) Comparison of Achievements on Word Knowledge, Reading Comprehension and Literature Between Newfoundland, England, New Zealand and the United States
- 10) References

### Theoretical Background to the Study

In the past two or three decades, concerted efforts have been made to relate linguistic principles to the reading process. Goodman (1967) emphasized that the reader uses syntactic and semantic information in reading. "The reader predicts and anticipates on the basis of this

information, samples from the print, just enough to confirm his guess of what's coming, to cue more semantic and syntactic information" (p. 503). That is, as the reader acquires control over language patterns and increases his use of context cues, he will also increase his degree of comprehension. Therefore, ability to utilize syntactic and semantic cues is the key to triggering a chain of responses that results in interpretation of graphic information.

Bierwisch (1970) also stressed the relevance of syntax and semantics in language analysis. He declared that the meaning in a sentence is dependent upon the pattern of a group of words. Each lexical unit designates a particular function. For example, a 'verb' could indicate a required 'noun' or 'noun phrase' to follow.

Wisher (1976) surveyed the effects of syntactic expectation during reading by college students. From his observations, he concluded that "the ability to anticipate structure and meaning is vital to reading" (p. 601). He recognized the barriers young readers had to confront when they lacked the skills of syntactic structure. Thus, if comprehension is to be increased, the reader must draw upon all syntactic and semantic cues. As the reader matures, he is still required to use these signals but at a more advanced level.



During an examination of past research it was noted that most studies dealt with young children and the reading process (Goodman, 1967; Ruddell, 1965; Chomsky, 1969).

Although it is important to study these decoding processes in the initial stages, it is also imperative that the reader be observed through later years as well. Hence, adolescents, who are undergoing various stages in their maturity of reading ability, would provide valuable subjects for analysis of reading comprehension ability and literary appreciation.

Unlike reading, little research has been conducted that examines the effects of syntax and semantics on literature achievement. Yet, comprehension of literature requires a more stringent effort on the part of the reader. Literary discourse is transmitted through the medium of language and therefore the reader must utilize syntactic and semantic resources to infer meaning. One of the few collaborative attempts to directly examine Junior High School students' achievements in word knowledge, reading comprehension and literature was made by the International Association for the Evaluation of Educational Achievements (IEA)\* in 1965. Thorndike, as chairman of the Reading Comprehension Committee, and Purves, as chairman of the Literature Committee,

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\*The IEA Council has its international headquarters at the Institute of International Education, University of Stockholm. This Institute studied achievements in various subject areas in several countries.

conducted feasibility studies concerning an analysis of these curricula. On the basis of their findings, they devised and tested instruments to measure achievements in word knowledge, reading comprehension and literary appreciation in several countries. Although the countries varied in educational approaches, the results indicated that achievement in literature was dependent on the quality of the input as evidenced by reading comprehension and word knowledge scores.

A recent study by Shackford (1976) was of primary significance to this study because it dealt with syntax and its relation to reading comprehension at the Junior High School level. Shackford designed an instrument to measure student knowledge of syntax (word order and word structure) which was then correlated with the Advanced Form of the Stanford Reading Test. Shackford's findings support the conclusions that knowledge of syntax is an important factor in reading comprehension.

Beebe (1976) conducted a study to determine to what extent substitution miscues affected the comprehension scores of grade four boys as they orally read a selected passage. In her suggestions for further research, she recommended that a study be undertaken on the effects of syntax and semantics as it relates to subject areas (i.e., Literature, Science, Math).

One can deduce from the above findings that knowledge of syntax and semantics comprise a large proportion of the processes involved in comprehension and interpretation of written material. However, several unanswered questions remain concerning these primary constituents. In particular, research has not established whether the impact of syntax and semantics on reading and literature at different age and grade levels is the same or different. Specifically, there is no conclusive evidence involving the strength of association between these variables. Answers to questions such as these, could provide valuable insights into the reading process. Therefore, this study was an attempt to clarify the above issues by investigating the effects of syntax and semantics on reading and literature achievement at the Junior High level.

The basic model for this study is depicted in Figure 1.

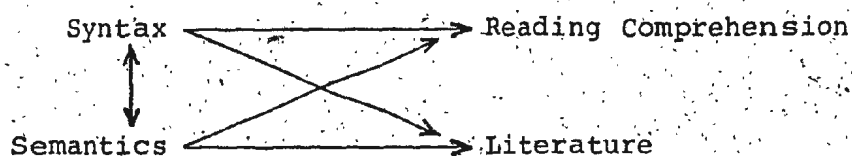


FIGURE 1. A Conceptual Model of the Theoretical Relationship Between Syntax and Semantics Reading Comprehension and Literature Appreciation

This model was analyzed using the scores of four cognitive tests: 1) semantics; 2) syntax; 3) reading

comprehension; and 4) literature achievement. These tests were administered to students working at the Junior High school level. However, the model was extended somewhat, because of the necessity of controlling for factors which could confound the basic relations; namely, grade, sex, and age. Thus, this study consisted of three interrelated sets of variables labelled:

- 1) control variables: grade, sex, age
- 2) independent variables: semantics, syntax,
- 3) dependent variables: reading comprehension,  
literary appreciation.

The extension of the basic model necessitates the consideration of three further questions, namely:

- 1) Are there any significant differences between performances of grade eight and grade nine students on measures of
  - a) semantics,
  - b) syntax,
  - c) reading comprehension,
  - d) achievement in literature?
- 2) Are there any significant differences between performances of male students and female students on measures of
  - a) semantics,
  - b) syntax,
  - c) reading comprehension,
  - d) achievement in literature?
- 3) What is the relationship between the ages of the students and their achievements on measures of

- a) semantics,
- b) syntax,
- c) reading comprehension,
- d) achievement in literature?

#### Definition of Terms

For the purposes of this study, the following definitions were stipulated.

Syntax referred to the methodology of putting together the words used in making sentences, in making linguistic propositions, not merely so as to be orderly in manner, but also to communicate clearly that which it is intended to communicate (Borsodi, 1967: 47).

Knowledge of Syntax referred to the score a student received on the English Language Structure Test designed by Shackford (1976).

Semantics referred to the realm of meaning which is primarily found by observing the correspondence between the lexical units (word knowledge) and the referents they designate (Nida, 1975: 64).

Knowledge of Semantics referred to the score that a student received on the Word Knowledge Test designed by the IEA.\*

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\*The International Association for the Evaluation of Educational Achievement (IEA) devised achievement tests in all content areas of schooling which were validated and found reliable between several countries.

Achievement in Reading Comprehension referred to the score a student obtained on the Reading Comprehension Test (IEA Instrument).

Achievement in Literature referred to the score a student obtained on the Literature Test (IEA Instrument).

Junior High School Student referred to a student in either grade eight or grade nine.

#### Description of Instruments

In this study the following measures were used:

- 1) Word Knowledge Test; 2) English Language Structure Test;
- 3) Reading Comprehension Test; and 4) Literature Test

#### Word Knowledge Test

This test was devised by the IEA Council to test students' knowledge of word pairs where the words of a pair must be judged to be either synonyms or antonyms. A pool of items were obtained from national committees and analyzed in terms of difficulty. A pilot study was carried out in several countries to decide which items were to be retained or deleted. Reliability coefficients were calculated on the tests. The committee then revised the word pairs and the final draft consisted of forty items.

For the purposes of this study the Word Knowledge Test was used to measure students' semantic resources. The

criteria for scoring this test was as follows: Students were awarded 1 point for a correct response; 0 points for an incorrect response and a score of 9 for no response.

#### English Language Structure Test (ELST)

This test was designed by Shackford (1976) and consisted of twenty-one groups of scrambled words. Students were required to unscramble the words to produce a meaningful sentence.

A pilot study was conducted by Shackford to assess the preliminary form and test procedures. On the basis of the tryout data, the test was revised by a panel of experts. Reliability measures were computed and on this basis the instrument was regarded as being suitable.

In this study, the English language test was used to measure students' knowledge of syntactic structures. Scoring procedures involved 1 point for a correct response; .5 points for producing a sentence with omissions or substitutions; 0 for failure to produce a comprehensible sentence and 9 for no response.

#### Reading Comprehension Test

This test was devised by the IEA Council. It was validated and found reliable among several nations. The format of this test consisted of three passages that were presented to the students with 20 multiple choice questions.

Criteria for scoring the reading comprehension test followed the pattern described in the Word Knowledge Test.

#### Literature Test

This test was also designed by the IEA Council and was found valid and reliable among ten countries. The format consisted of a given story, "The Sea," followed by 17 multiple-choice questions. The criteria for scoring this test was that previously mentioned in the Word Knowledge Test.

#### Test Results

In order to maintain confidentiality and anonymity, student scores were not published.



# DESCRIPTIVE STATISTICS

TABLE 1

A Comparison of Subject Achievements for Grade 8 and Grade 9 Students (N = 256)

Concept or Dimension Measured	GRADE 8 (N = 136)		GRADE 9 (N = 120)		F-Value
	Mean	SD	Mean	SD	
CWK <sup>1</sup>	14.35	8.00	15.79	8.03	2.08
SYNTAX <sup>2</sup>	15.33	4.43	12.63	3.97	25.43***
CREAD <sup>3</sup>	11.82	4.39	12.82	3.91	3.67
CLIT <sup>4</sup>	8.10	4.17	9.38	3.38	7.16**

Note: <sup>1</sup>CWK = Corrected score for Word Knowledge  
<sup>2</sup>SYNTAX = Score obtained on the English Language Structure Test  
<sup>3</sup>CREAD = Corrected score for Reading Comprehension  
<sup>4</sup>CLIT = Corrected score for Literature

\*\*Significant beyond the .01 level  
\*\*\*Significant beyond the .001 level

TABLE 2

A Comparison of Subject Achievements for Male and Female Subjects Within the Total Sample (N = 256)

Concept or Dimension Measured	Male Students (N = 127)		Female Students (N = 129)		F-Value
	Mean	SD	Mean	SD	
CWK <sup>1</sup>	14.32	8.13	15.71	7.90	1.93
SYNTAX <sup>2</sup>	12.97	4.65	15.09	3.89	15.03***
CREAD <sup>3</sup>	12.40	3.91	12.17	4.47	.19
CLIT <sup>4</sup>	7.93	3.99	9.45	3.59	10.27**

Note: <sup>1</sup>CWK = Corrected score for Word Knowledge

<sup>2</sup>SYNTAX = Score obtained on the English Language Structure Test

<sup>3</sup>CREAD = Corrected score for Reading Comprehension

<sup>4</sup>CLIT = Corrected score for Literature

\*\*Significant beyond the .01 level

\*\*\*Significant beyond the .001 level

TABLE 3

Pearson Product-Moment Correlations, Means and Standard Deviations of Variables in Language Competencies Study (N = 256)

Variable	AGE	CWK	CREAD	CLIT	SYNTAX	MEAN	SD
AGE <sup>1</sup>		-.12	-.07	-.15	-.45	174.25	9.06
CWK <sup>2</sup>	.032		.53	.50	.40	15.02	8.03
CREAD <sup>3</sup>	.120	.001		.58	.33	12.29	4.19
CLIT <sup>4</sup>	.010	.001	.001		.34	8.70	3.86
SYNTAX <sup>5</sup>	.001	.001	.001	.001		14.01	4.42

Note: Correlation coefficients are above the diagonal; levels of significance are below the diagonal. The key to mnemonics is as follows:

<sup>1</sup>AGE = Age of subjects

<sup>2</sup>CWK = Corrected score for Word Knowledge

<sup>3</sup>CREAD = Corrected score for Reading Comprehension

<sup>4</sup>CLIT = Corrected score for Literature

<sup>5</sup>SYNTAX = Score obtained on the English Language Structure Test

### Major Findings

The major findings of this study may be summarized as follows:

- 1) There was no significant difference between the mean scores of grade eight students and grade nine students on the semantics variable.
- 2) Grade eight students scored significantly higher than grade nine students on the syntax variable.
- 3) There was no significant difference between the mean scores of grade eight students and grade nine students on reading comprehension.
- 4) Grade nine students scored significantly higher than grade eight students on achievement in literature.
- 5) There was no significant difference between the mean scores of male students and female students on the semantics variable.
- 6) Female students scored significantly higher than male students on the syntax variable.
- 7) There was no significant difference between the mean scores of male students and female students on reading comprehension.
- 8) Female students scored significantly higher than male students on achievement in literature.
- 9) There was a significant negative relationship (-.12) between the age of the subjects and their performance on the semantics variable.
- 10) There was a significant negative relationship (-.45) between the age of the subjects and their performance on the syntax variable.
- 11) There was no significant relationship between the age of the subjects and their performance on reading comprehension.
- 12) There was a significant negative relationship (-.15) between the age of the subjects and their achievement in literature.

- 13) There was a significant positive relationship (.40) between semantics and syntax.
- 14) There was a significant positive relationship (.53) between semantics and reading comprehension.
- 15) There was a significant positive relationship (.50) between semantics and achievement in literature.
- 16) There was a significant positive relationship (.33) between syntax and reading comprehension.
- 17) There was a significant positive relationship (.34) between syntax and achievement in literature.
- 18) There was a significant positive relationship (.58) between reading comprehension and achievement in literature.

### Conclusions

The major purpose of this study was to investigate the relationships between semantics, syntax, reading comprehension and literature achievement at the Junior High School level. The review of literature presented in Chapter II revealed that these skills were related. However, there was little conclusive evidence as to the strength of the relationship between these variables at the Junior High level.

The findings of this study indicated that there were significant positive relationships between the above variables. However, most of the correlations obtained were moderate or low. For example, the correlation of .33 between syntax and reading comprehension and the correlation of .40 between semantics and syntax are in fact quite moderate.

The highest correlation obtained was .58 between reading comprehension and literature achievement which may be described as a moderately strong relationship. Although these correlations were statistically significant, they set no strong trends in educational terms. Thus, one can only conclude, that this study established that there are low to moderate relationships between semantics, syntax, reading comprehension and literature achievement.

### Practical Implications

Given the findings and conclusions of this study it seems obvious that the skills of semantics, syntax, reading comprehension and literature achievement are inter-related. It is evident that both semantics and syntax play a role in reading comprehension and in the ability to interpret literature for students. This data suggests that an increase in semantics, for example, should be accompanied by an increase in ability to utilize syntax, comprehend while reading and to interpret literature. It would seem, then, that the fostering of these linguistic skills is necessary to a student's language progress. Programs enhancing efficient instruction within the areas of semantics, syntax, reading comprehension and literature should help the student increase his language competency and hence become a more effective language user.

The lack of differences between the mean scores of grade eight and grade nine students on measures of semantics and reading comprehension implies that continuing programs in language arts should be developed beyond the grade eight level. As written material becomes more complex, students have to be guided towards developing language mastery. In particular, students who lack the basic language processes must be provided with opportunities through adjustment of instructional methods to improve their weaknesses. Achievement will not increase with age as demonstrated in the findings, if provisions are not made for students to gain practice in analyzing advanced material.

To conclude, it seems that instruction dealing with strategies for semantics, syntax, reading comprehension and literature achievement may prove to be beneficial during the Junior High level. Perhaps, teachers need to become more aware of the linguistic performances of their students and based on such findings modify or restructure language programs to better suit the needs of the students.

Comparison of Achievements on Word Knowledge, Reading  
Comprehension and Literature Between Newfoundland,  
England, New Zealand, and the United States

Introduction

For the purposes of this analysis, students from Newfoundland were compared with students in England, New

Zealand, and the United States who exhibited the following characteristics: 1) they resided in similar urban communities; 2) they attended coeducational schools that encompassed a wide variety of student backgrounds and interests; and 3) the range of school levels within the above nations corresponded to the Junior High grades in Newfoundland.

Since the instruments were specifically designed for fourteen-year-old students, and since students in Newfoundland who participated in the testing ranged from thirteen to seventeen, two groups of comparisons were tabulated. The first comparison dealt with all Newfoundland students and students from England, New Zealand and the United States who were 14 years old. The second comparison concerned students from Newfoundland who were 14 years old and students from the above countries who were 14 years old. An analysis of these findings is presented below.

#### Comparison of all Students

##### Findings--Newfoundland and England

For the corrected word knowledge measure the mean for Newfoundland students was 26.34 and the mean for English students was 24.99. An F-value of 8.25 ( $p < .01$ ) indicated that Newfoundland performances were considerably higher.



than English performances on word knowledge.

Regarding the measure of reading comprehension, Newfoundland students scored significantly higher than did their counterparts in England. The mean for Newfoundland students was 14.21 and the mean for English students was 10.60. The F-ratio between these performances was 127.63 ( $p < .001$ ).

The means for the corrected literature measure were: Newfoundland students, 10.72 and English students, 8.24. An F-value of 71.16 ( $p < .001$ ) between these performances indicated that Newfoundland students performed significantly better than students from England on the literature measure. Table 4 contains the means, standard deviations and F-values of the above comparison.

#### Findings--Newfoundland and New Zealand

An analysis of variance between Newfoundland and New Zealand performances on measures of word knowledge revealed an F-value of 3.39 ( $p > .05$ ). The mean for Newfoundland students was 26.34 and the mean for New Zealand students was 27.15. This indicated that there were no significant differences between the mean scores of Newfoundland students and the mean scores of New Zealand students.

On measures of reading comprehension the mean for Newfoundland students was 14.21 and the mean for New Zealand

TABLE 4

A Comparison of Subject Achievements for all Newfoundland Students and Students in England, New Zealand and the United States who were 14 Years Old

Concept Measured	Newfoundland Students (N = 256)		English Students (N = 630)		F-Value
	Mean	SD	Mean	SD	
CWK <sup>1</sup>	26.34	6.01	24.99	6.48	8.25**
CREAD <sup>2</sup>	14.21	3.16	10.60	4.73	127.63***
CLIT <sup>3</sup>	10.72	3.02	8.24	4.32	71.16***

Concept Measured	Newfoundland Students (N = 256)		New Zealand Students (N = 599)		F-Value
	Mean	SD	Mean	SD	
CWK <sup>1</sup>	26.34	6.01	27.15	5.84	3.39
CREAD <sup>2</sup>	14.21	3.16	12.89	3.82	23.70***
CLIT <sup>3</sup>	10.72	3.02	10.33	3.57	2.36

Concept Measured	Newfoundland Students (N = 256)		American Students (N = 553)		F-Value
	Mean	SD	Mean	SD	
CWK <sup>1</sup>	26.34	6.01	27.83	4.59	14.97**
CREAD <sup>2</sup>	14.21	3.16	6.51	7.02	281.79***
CLIT <sup>3</sup>	10.72	3.02	4.84	5.40	265.89***

Note: <sup>1</sup>CWK = Corrected score for Word Knowledge  
<sup>2</sup>CREAD = Corrected score for Reading Comprehension  
<sup>3</sup>CLIT = Corrected score for Literature

\*\*Significant beyond the .01 level

\*\*\*Significant beyond the .001 level

students was 12.89. An F-value of 23.70 ( $p < .001$ ) showed that the performances of Newfoundland students were superior to those of New Zealand students.

On measures of literature the mean for Newfoundland students was 10.72 and the mean for New Zealand students was 10.33. An F-value of 2.36 ( $p > .05$ ) indicated that there were no significant differences between performances of Newfoundland students and New Zealand students on this measure.

#### Findings--Newfoundland and the United States

For the corrected word knowledge measure the mean for Newfoundland students was 26.34 and the mean for American students was 27.83. An F-value of 14.97 ( $p < .01$ ) indicated that students from the United States scored significantly higher than students from Newfoundland on word knowledge.

Regarding the measure of reading comprehension, Newfoundland students scored significantly higher than their counterparts of the United States. The mean for Newfoundland students was 14.21 and the mean for American students was 6.51. A F-value of 281.79 ( $p < .001$ ) showed that Newfoundland performances on reading comprehension were superior to those of students from the United States.

The means for the corrected literature measure were: Newfoundland students, 10.72 and the American students, 4.84. An F-value of 265.89 ( $p < .001$ ) demonstrated that students

from Newfoundland scored significantly higher than did their counterparts from the United States on measures of literature. Comparisons of test results can be seen in Table 4.

### Summary

A comparison of all students from Newfoundland with students from England who were fourteen years old on measures of word knowledge, reading comprehension and literature achievement indicated that Newfoundland student performances were significantly higher than those of English students. When Newfoundland performances were compared to those of 14-year-old students from New Zealand the findings indicated that there were no significant differences between these groups on measures of word knowledge or literature achievement. However, Newfoundland performances were superior to those of New Zealand students on reading comprehension. Newfoundland performances on measures of reading comprehension and literature achievement were significantly higher than the performances of American students. On word knowledge the American student performances were superior to those of Newfoundland students.

### Comparison of 14-Year-Olds

#### Findings--Newfoundland and England

On the corrected word knowledge measure the mean for Newfoundland students was 26.48 and the mean for English

students was 24.99. An F-value of 5.57 ( $p < .05$ ) showed that Newfoundland performances were significantly higher than the performances of students from England.

On measures of reading comprehension the mean for Newfoundland students was 14.58 and the mean for English students was 10.63. An F-ratio of 79.31 ( $p < .001$ ) indicated that Newfoundland performances were significantly higher than those of students from England.

Newfoundland student performances were also superior to those of English performances on the literature achievement measure. The mean for Newfoundland students was 11.10 and the mean for English students was 8.24. The F-ratio between these performances was 47.80 ( $p < .001$ ). Table 5 presents the means, standard deviations and F-ratios for these comparisons.

#### Findings--Newfoundland and New Zealand

On the corrected word knowledge measure the mean for Newfoundland students was 26.48 and the mean for New Zealand students was 27.13. An F-ratio of 1.30 ( $p > .05$ ) indicated that there were no significant differences between performances on the word knowledge measure.

An F-ratio of 20.78 ( $p < .001$ ) between performances of Newfoundland students and those of New Zealand students indicated that Newfoundland performances were superior to those of New Zealand performances on reading comprehension.

TABLE 5

A Comparison of Subject Achievements for 14-Year-Olds in Newfoundland, England,  
New Zealand and the United States

Concept Measured	Newfoundland Students (N = 120)		English Students (N = 567)		F-Value
	Mean	SD	Mean	SD	
CWK <sup>1</sup>	26.48	5.40	24.99	6.41	5.57*
CREAD <sup>2</sup>	14.58	3.01	10.63	4.66	79.31***
CLIT <sup>3</sup>	11.10	2.80	8.24	4.35	47.80***

Concept Measured	Newfoundland Students (N = 120)		New Zealand Students (N = 598)		F-Value
	Mean	SD	Mean	SD	
CWK <sup>1</sup>	26.48	5.40	27.13	5.83	1.30
CREAD <sup>2</sup>	14.58	3.01	12.90	3.78	20.78***
CLIT <sup>3</sup>	11.10	2.80	10.34	3.55	4.87*

Concept Measured	Newfoundland Students (N = 120)		American Students (N = 469)		F-Value
	Mean	SD	Mean	SD	
CWK <sup>1</sup>	26.48	5.40	27.91	4.47	9.05**
CREAD <sup>2</sup>	14.58	3.01	6.52	7.04	149.97***
CLIT <sup>3</sup>	11.10	2.80	4.85	5.39	151.11***

Note: <sup>1</sup>CWK = Corrected score for Word Knowledge  
<sup>2</sup>CREAD = Corrected score for Reading Comprehension  
<sup>3</sup>CLIT = Corrected score for Literature

\*Significant beyond .05 level  
\*\*Significant beyond .01 level  
\*\*\*Significant beyond .001 level

The mean for Newfoundland students was 14.58 and the mean for New Zealand students was 12.90.

On the measure for literature the mean for Newfoundland students was 11.10 and the mean for New Zealand students was 10.34. An F-value of 4.87 ( $p < .05$ ) demonstrated that Newfoundland performances were significantly higher than those of their counterparts in New Zealand.

#### Findings--Newfoundland and the United States

An F-value of 9.05 ( $p < .01$ ) between performances of Newfoundland students and performances of American students indicated that the performances of the American students were significantly higher than those of Newfoundland students on the word knowledge measure. The mean for Newfoundland students was 26.48 and the mean for the American students was 27.91.

On the reading comprehension measure the mean for Newfoundland students was 14.58 and the mean for the American students was 6.52. An F-value of 149.97 ( $p < .001$ ) indicated that Newfoundland students scored significantly higher than students from the United States on this measure.

On achievement in literature Newfoundland students also scored significantly better than their counterparts in the United States. The F-ratio of 151.11 ( $p < .001$ ) demonstrates this finding. The mean for Newfoundland students was 11.10 and the mean for American students was 4.85. Table 5 presents the above comparisons.

Summary

The major findings for the comparison of 14-year-olds in Newfoundland, England, New Zealand and the United States on word knowledge, reading comprehension and achievement in literature were as follows: 1) Newfoundland scored significantly higher than England on all measures; 2) there were no significant differences between Newfoundland performances and New Zealand performances on word knowledge but Newfoundland performances were significantly higher than those of students from England on reading comprehension and achievement in literature, and 3) students from the United States scored higher than those from Newfoundland on the word knowledge measure but Newfoundland performances were significantly higher than those of students from the United States on measures of reading comprehension and literature achievement.



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