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RELATIONSHIPS BETWEEN SELECTED ORAL LANGUAGE
FACTORS AND READING PROFICIENCY

by

Fatima Sampaio Silva

A Dissertation Submitted to the Faculty of the

DEPARTMENT OF ELEMENTARY EDUCATION

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For the Degree of

DOCTOR OF PHILOSOPHY

In the Graduate College

THE UNIVERSITY OF ARIZONA

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THE UNIVERSITY OF ARIZONA

GRADUATE COLLEGE

I hereby recommend that this dissertation prepared under my
direction by Fatima Sampaio Silva
entitled RELATIONSHIPS BETWEEN SELECTED ORAL LANGUAGE FACTORS
AND READING PROFICIENCY
be accepted as fulfilling the dissertation requirement for the
degree of Doctor of Philosophy

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Aug. 29, 1977
Date

As members of the Final Examination Committee, we certify
that we have read this dissertation and agree that it may be
presented for final defense.

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TABLE OF CONTENTS

	Page
LIST OF ILLUSTRATIONS	vii
LIST OF TABLES	viii
ABSTRACT	ix
1. THE STUDY	1
Purpose of the Study	2
Hypotheses to Be Tested	3
Significance of the Study	4
Definitions of Terms Used	5
Limitations of the Study	9
2. REVIEW OF RELATED LITERATURE	11
Linguistic Competence of Children upon Entering School	12
Developmental Trend in Children's Oral Language	
Production	13
Interrelationships of Oracy and Literacy Skills	15
Oral Language Related to Reading Proficiency	16
Components of Linguistic Maturity Related to Reading	18
Units of Language Which Convey Meaning	19
Importance of Syntax and Semantics to Reading	20
Reading as an Active Language Process	21
Reading as a Process of Deriving Meaning from the	
Written Language	23
Assessment of Reading Proficiency by Analyzing the	
Deviations from the Text That Children Make in Oral	
Reading	24
3. PROCEDURES	27
Population	27
Collection of Oral Language Data	28
Analysis of Oral Language Data	30
Oral Language Protocol of Subject 11	32
Measures	33
Collection of Reading Data	33
Analysis of Reading Data	35
Analysis of the Retelling	42

TABLE OF CONTENTS--Continued

	Page
Retelling Transcript of Subject 11	43
Retelling Outline for the "Missing Necklace" and Retelling Score for Subject 11	44
Statistical Procedures for Treating the Data	46
4. RESULTS AND DISCUSSION	48
The First Hypothesis	48
The Second Hypothesis	53
The Third Hypothesis	55
The Fourth Hypothesis	58
The Fifth Hypothesis	62
Ancillary Findings Related to Oral Language	64
Oral Language	65
Reading	67
Summary of Results	75
Hypotheses Testing	75
Ancillary Findings	76
Oral Language	76
Reading	77
5. CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH	78
Conclusions and Implications	78
Recommendations for Further Research	81
LIST OF REFERENCES	83

LIST OF ILLUSTRATIONS

Figure	Page
1. Simplified model of message reconstruction in early reading	23
2. Marked worksheet of subject 11	38
3. Coding sheet of subject 11	41

LIST OF TABLES

Table	Page
1. Classification of oral language and reading variables . .	47
2. Pearson correlations among oral language and reading variables	49
3. Means and standard deviations for the total sample on oral language and reading variables	52
4. Pearson correlations among the five oral language variables: AVUNIT, AVMOV, AVSUB, AVCL and AVTYP	60
5. Mean percent of M_1 , M_2 , M_3 , M_4 and M_5 produced by subjects in the two situations of oral language collection .	66
6. Mean percent of adverb clauses, noun clauses and adjective clauses produced by subjects in the two situations of oral language collection	66
7. Pearson Correlations among age, sex and the five oral language variables: AVUNIT, AVMOV, AVSUB, AVCL and AVTYP	66
8. Pearson Correlations among the three reading variables: CMPLOSS, GRWEAK and RETELL	68
9. Mean percent of miscue correction, unsuccessful correction and non-correction made by subjects grouped into reading levels	70
10. Syntactic acceptability and mean percent of miscue correction by subjects grouped into reading levels	72
11. Semantic acceptability and mean percent of miscue correction by subjects grouped into reading levels	72
12. Mean percent of types of miscues made by subjects grouped into reading levels	74
13. Mean percent of substitution miscues which did not involve change in part of speech	74
14. Ranges and means of MPHW of subjects grouped into reading levels	74

ABSTRACT

As a natural outgrowth of the belief that the four language arts are interrelated, there has been an increasing interest in determining the contribution of oral language competence to success in reading. Yet the most systematic investigations regarding oral language and reading were concerned with middle and upper grade children and all of them assessed reading by means of standardized tests. Hence, there is need to study the influence of linguistic competence on beginning reading and to use new instruments for judging reading proficiency.

This study analyzed the relationship between the oral language structure of six-year-old children and their reading proficiency at the end of the first year of exposure to a planned reading program. Oral language was analyzed by means of the following syntactic and vocabulary variables: the mean length of communication units, the number of movables, the number of subordinate clauses, the number of clauses per communication unit and the type token ratio. Reading was assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

The subjects were selected from one open school setting according to three criteria: being six years old; not having attended that school previously and not having been exposed to a planned reading

program before. From all students enrolled in the school, twenty-five met all criteria and were selected to comprise the population.

Oral language samples were collected during sharing time, and in a private interview between the researcher and the subject. Reading samples were collected by having each subject read one story appropriate to his level. For analysis purposes the subjects were classified into groups according to the stories read. Correlation coefficients were computed among oral language and reading variables.

The findings of the correlational analysis revealed that three oral language variables -- the mean length of communication units, the number of subordinate clauses and the number of clauses per communication units -- correlated significantly ($p < .001$) with the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory. The number of movables did not correlate significantly with the patterns of comprehension but it did ($p < .05$) with the patterns of grammatical relationships and the retelling score. The type token ratio did not correlate significantly with any reading proficiency variable.

Further analysis of oral language and reading samples yielded the following additional results: (1) significant interrelationship among all syntactic variables; (2) high frequency of movables of time; (3) high frequency of adverb clauses; (4) lack of relationship between age, sex and the oral language variables; (5) significant interrelationship among all reading variables; (6) greater rate of correction for syntactically and semantically unacceptable miscues than for fully

acceptable ones; (7) great percentage of unsuccessful correction in the readiness and Level 2 groups; (8) great percentage of substitution miscues in all groups except the readiness one which had a greater percentage of omissions; (9) inverse relationship between the mean number of miscues per hundred words (MPHW) and the reading level of the subjects; and (10) significant correlation between MPHW and the reading variables.

The findings of this study indicate that six-year-old children differ in linguistic competence and this competence is reflected on early reading proficiency. They also prove that even beginning readers naturally use language constraints while reading.

The author suggested the findings hold implications for language arts programs in today's schools. A systematic approach toward oral language assessment of preschool and school age children and a revision of current reading methodology were highly recommended.

CHAPTER 1

THE STUDY

The importance of studying the child's oral language has been brought into sharp focus by many new insights from different fields. First, most of the generalizations drawn from linguistics, especially the belief that language is primarily and fundamentally audio-lingual and the view that the four language arts are distinct but overlapping, point to the need of exploring the child's oracy. Second, current educational trends such as the promotion of language-centered curricula and the concern with the presumed language deficiency of culturally different children are based on the assumption that one's oral language is the foundation upon which literacy should be built. A third reason supporting the importance of oracy is related to the new concept of reading which emerged from research interrelating linguistics with psychology.

Eminent linguists have been contributing to the understanding of reading as a language related process. In his theory of reading, Lefevre (1961) developed the concept that the sentence is the unitary meaning/bearing pattern and stated that, "Gaining access to reading depends strictly on the prior mastery of language structures leading to it" (Lefevre 1961, p. 149). Further insight into the psycholinguistic nature of reading has been provided by K. Goodman's series of studies which already lend support to the concept that "The reader is

a user of language who processes three kinds of information -- grapho-
phonic, syntactic and semantic as he reacts to the graphic display on
the page" (K. Goodman 1969, p. 9). Language facility is included by
K. Goodman (1965) as one of the cues comprising the cue system in
reading; therefore, reading as a psycholinguistic process highlights
the importance of the child's oral language.

Even though the relationships between oral language and reading
have been studied for some time now, there is still uncertainty con-
cerning which aspects of oral language, if any, are measurably related
to reading proficiency. Besides the assessment of reading by the com-
monly used standardized tests does not reveal much about reading as an
extension of language. It is possible that the understanding of the
complex relationships between speaking and reading has been hampered
not only by problems related to determining linguistic proficiency but
also by problems concerning the assessment of reading itself.

It is imperative, therefore, that researchers continue inves-
tigating how the structure of the child's oral language is reflected
upon reading proficiency. Hence, a study which attempts to analyze
the oral language of six-year-old children and to relate it to reading
by means of a new evaluative instrument -- The Reading Miscue Inventory
(Y. Goodman and C. Burke 1972) -- is appropriate.

Purpose of the Study

The purpose of the study was to analyze the structure of six-
year-old children's oral language and to ascertain the influence of any
apparent differences on the quality of their reading performance.

The oral language structure was analyzed by means of the following syntactic and vocabulary measures: the mean length of communication units, the number of movables, the number of subordinate clauses, the number of clauses per communication unit and the type token ratio.

Reading proficiency was assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

Hypotheses to Be Tested

There is no relationship between the mean length of communication units produced by six-year-old children in oral language and their reading proficiency assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

There is no relationship between the mean number of movables produced by six-year-old children in oral language and their reading proficiency assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

There is no relationship between the mean number of subordinate clauses produced by six-year-old children in oral language and their reading proficiency assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

There is no relationship between the mean number of clauses per communication unit produced by six-year-old children in oral language and their reading proficiency assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

There is no relationship between the mean type token ratio produced by six-year-old children in oral language and their reading proficiency assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

Significance of the Study

Despite the fact that a good oral language background is considered necessary for success in reading, research findings on the relationships between them are far from conclusive. Besides the most intensive investigations regarding oral language and reading have been concerned with middle and upper grade children and not with beginning readers. A survey by Mahaffey (1974) revealed that there were only five studies on the relationship between oral language and reading at the first grade level. Therefore, Wilkinson's (1969, p. 104) statement, "It remains true that there is no systematic study of the relationship between reading and pre-reading oracy" is still valid. Since this study analyzed the oral language of six-year-old children prior to reading instruction and ascertained the influence of this language on reading strategies acquired during the first year of exposure to

planned reading program, it provided further insight into an area where there is an expressed need for research.

The literature on oral language and reading abounds with references regarding the need to use more sensitive reading assessment instruments in studies which measure reading proficiency. Many researchers (Calfee and Venesky 1969; K. Goodman 1971) have attested to the inappropriateness of most standardized reading tests. K. Goodman's (1971) major criticism of these tests is that they are loosely organized around a view not stated of what reading is.

The Reading Miscue Inventory differs significantly from all other commonly used evaluative instruments because it is organized around a psycholinguistic view of reading and because it results in both quantitative and qualitative analysis of reading proficiency. This study related oral language measures to reading proficiency by means of the Reading Miscue Inventory; it is, therefore, unique as far as this methodological aspect is concerned. In all reported studies about oral language and reading, reading proficiency was assessed by standardized tests (Martin 1955; Strickland 1962; Loban 1963; Bougere 1969; Compton 1971; Rich 1972).

Definitions of Terms Used

For the purposes of this study, the following definitions of terms were used.

A. Oral Language: The spontaneous spoken utterances made by children during structured interviews recorded on tape.

B. Phonological Units: Utterances occurring between silences; they are dependent upon the patterns of sound made by the human voice; they are judged by the contours of inflection, stress and pause in the subject's voice. A double-cross marks the completion of a phonological unit.

Example: I'm going to get the boy 'cause he hit me#

C. Communication Units: Subdivisions of the larger phonological units; they can be identified by the semantic meaning which is being communicated; they cannot be further subdivided without the loss of essential meaning. A slant line marks the completion of a communication unit.

Example: I'm going to get the boy 'cause he hit me /# I'm going to beat him up and kick him in the nose/ and I'm going to get the girl too/#

D. Language Mazes: Series of words or initial parts of words which do not add up to meaningful communication or to structural units of communication. They can be identified as noises, repeats, holders, or edits.

E. Movables: Words, phrases or clauses with no fixed position. They can be classified into movables of place (M_1); of manner (M_2); of time (M_3); of cause or condition (M_4); and movables comprised of a preposition and an indirect object (M_5).

F. Subordinate Clause: A clause which indicates that within a sentence there is a minor, contributing idea related to a dominant idea.

G. Type-token ratio: Ratio of the number of different words (types) to the total number of words (tokens).

H. Miscues: Deviations from the expected response to the text in oral reading. The term miscues is used to suggest that they are not random errors, but in fact, are cued by the thought and language of the reader in his encounter with the written material.

I. Substitution Miscue: Substituting a word, phrase or part of a word. It is indicated by writing the substitution above the appropriate part of the text.

Example: She ran into the ^astore.

J. Omission Miscue: Omitting a word, phrase or part of a word. It is indicated by circling the omission.

Example: He worked (at home) every afternoon.

K. Insertion Miscue: Insertion of a word, phrase or part of a word. It is indicated by placing an insertion sign at the point where the insertion occurs; the insertion is then written above the line.

Example: The boy hit ^{at}the ball.

L. Reversion Miscue: Transposition of a word, phrase or part of a word. It is indicated by a transposition symbol that shows where the interchange occurs.

Example: She ran around the playground merrily.

M. Reading Miscue Inventory (RMI): A diagnostic and evaluative instrument which results in a qualitative and quantitative analysis of reading proficiency. The core of the RMI procedures comprises nine questions which are asked about each miscue. The nine RMI questions follow.

1. Dialect: Is a dialect variation involved in the miscue?
2. Intonation: Is a shift in intonation involved in the miscue?

3. Graphic similarity: How much does the miscue look like what was expected?
 4. Sound similarity: How much does the miscue sound like what was expected.
 5. Grammatical function: Is the grammatical function of the miscue the same as the grammatical function of the word in the text?
 6. Correction: Is the miscue corrected?
 7. Grammatical acceptability: Does the miscue occur in a structure which is grammatically acceptable?
 8. Semantic acceptability: Does the miscue occur in a structure which is semantically acceptable?
 9. Meaning Change: Does the miscue result in a change of meaning?
- N. Patterns of Comprehension: Patterns which indicate whether the miscues have resulted in "no loss of comprehension," "partial loss of comprehension," or "no loss of comprehension." They are produced by interrelating the questions of the RMI which determine correction, semantic acceptability and meaning change.
- O. Patterns of Grammatical Relationships: Patterns which give insight into how concerned the reader is that his oral reading sounds like language. They are produced by interrelating the questions of the RMI which determine correction, grammatical acceptability and semantic acceptability. They are listed under the headings of "strength," "partial strength," "weakness" and "overcorrection."

P. Retelling Score: A score which is computed by analyzing the reader's retelling of the story he has read. The retelling is categorized in the following categories: Character Analysis (recall and development), Events, Plot and Theme and a fixed amount of points is assigned to each category.

Limitations of the Study

The following operated as limitations of the study.

1. The oral language samples were collected only in two situations -- in a regular classroom activity and in a private interview between the researcher and the subject.

2. The structure of six-year-old children's oral language was analyzed by means of selected syntactic and vocabulary measures. Even though these measures had been identified in the related literature as indexes of linguistic development, many other measures could also have been included.

3. Reading proficiency was assessed only at one point in time -- in the last six weeks of the first year of exposure to a planned reading program.

4. Reading proficiency was assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the RMI. Patterns of sound/graphic relationships were not considered.

5. Only one school setting was utilized -- The Kino Learning Center -- an open, private school in Tucson, Arizona. Children are

sent to this school not for neighborhood reasons but for desire of the parents and, therefore, its population includes children from different socio-economic, ethnic and religious backgrounds. However, the fact of being a private school limits the participation of low-income class children.

CHAPTER 2

REVIEW OF RELATED LITERATURE

As a result of the emphasis put upon language in the learning activities of the school, skills in the language arts have always been linked to academic success. However, the language arts were considered to be a binary discipline comprised only of reading and writing.

Attention to and study of the skills of oracy and of their relationship to those of literacy is recent in education. Researchers in various disciplines have shown that competency in understanding and producing the spoken language is basic to learning to read and write. But in spite of the limited body of empirical evidence from investigations, as those of Strickland (1962), Loban (1963), Ruddell (1966) which tend to support this view, there are still many gaps in the understanding of how oral language facility contributes to reading success. All of the studies which explored the relationships between oracy and literacy have assessed reading proficiency by means of standardized tests which are not built around the concept of reading as a language related process. Hence, research which attempts to analyze the oral language structure of children prior to reading instruction and to relate it to reading as an extension of language is needed.

This research section is organized in a manner which features the major ideas and theoretical findings upon which the study is based.

Linguistic Competence of Children upon
Entering School

Children bring to school linguistic competence which reflects mastery of the phonological, morphological and syntactic systems of their native language.

Early studies for the assessment of children's oral language (McCarthy 1954; Templin 1957) presented observations on gross aspects of the language development of young children. They brought out the fact that children, by the time they reach school age, use simple, complex, compound and compound complex sentences. These studies as well as others carried out from the mid 1920's through the 1960's derived their methods of syntactic and vocabulary analysis from traditional school grammar; they focused attention upon such factors as the number, length and traditional classification of sentences, upon the incidence of parts of speech and upon what were conceived to be errors in morphology and syntax.

Post-1960 studies have been influenced by two differing approaches to linguistic science, structuralism and transformationalism. The main thrust of structuralists have been toward a detailed description of the overt structure of language -- the ways in which phonological, morphological and syntactic units are patterned in utterances of native speakers. The thrust of transformationalists has been toward an explanation of the ways in which native speakers generate sentences.

Investigators who have been influenced by the structural approach include Strickland (1962), Loban (1963) and many others who followed the Indiana Conference Scheme for defining and analyzing

speech patterns. Both Strickland (1962) and Loban (1963) reported that most children beginning school have already learned to use whatever sound system, grammar and vocabulary characteristic of their home and neighborhood. At all grade levels children used a wide range of language patterns and the patterns used with great frequency appeared to be the basic building blocks of their language.

Investigators who have been strongly influenced by the generative transformational approach include Menyuk (1963) and O'Donnell, Griffin and Norris (1967). Menyuk (1963) reported that at the phrase structure level and at the morphology level both nursery school and first grade children used all the structures in a grammatically acceptable form. In the transformational rules differences were found; some transformations were used significantly more by the first grade children than by nursery school children. O'Donnell, Griffin and Norris (1967) observed that some transformations (e.g., relative clauses) were used much more frequently in kindergarten while others (e.g., noun modification by a participle) were more frequent in later grades.

Developmental Trend in Children's Oral Language Production

A developmental trend can be identified in children's production of oral language. Developmental growth in oral language production from grade one through six was reported by Strickland (1962); she indicated that the length of communication units and the number of clauses increased with age. Loban (1963) cited increasing length of communication units with age. Assessed in question-asking sessions, the mean

length of communication units in kindergarten was 4.81 as compared to the same children's mean length of 10.21 words in grade nine.

Menyuk (1964) attempted to determine whether all the basic structures of the adult grammar were present in two groups of nursery school children, in one kindergarten and one first grade group. It was found that increasing numbers of children used the transformations at the older age level.

Strang and Hocker (1965) studied the structural patterns of first grader's oral language and pointed out that there were some patterns used much more often than others with a trend of moving from the simplest to the most complex.

Hunt (1965) reported increment in the length of T-units in progressively higher grades and proposed that the increased length of T-units reflected syntactical control which permits an augmented informational load per unit.

A study by Hayhurst (1967) found that the production of passive and passive-negative sentences by five, six and nine-and-a-half year old children was very much influenced by age. When the actor was present in the sentence (e.g., "The cat was chased by the dog" versus "The cat was chased") the two youngest groups were virtually without success in producing passive-negative sentences.

The experiments of Chomsky (1969) showed that the comprehension of certain linguistic forms which present particular acquisition problems also followed a developmental trend. She found that the basic principles governing pronominalization were acquired uniformly with respect to age across children at age five to six months. The more

specialized constructions were acquired later; "easy to see" and "promise" were acquired by age nine; "ask/tell" was still imperfectly learned by age ten.

Fox (1972) studied the developmental trend reflected in syntactic maturity and vocabulary diversity in the oral language of kindergarten and primary school children. She reported significant growth in syntactic maturity from kindergarten to first grade in all syntactic measures considered as well as significant growth in vocabulary diversity.

Interrelationships of Oracy and Literacy Skills

Many studies support the view that the abilities in the four language arts are distinct but overlapping. Strickland's investigation (1962) reported that the structure of children's oral language as measured by the common structural patterns was more closely related to listening comprehension than to any other variable. Loban (1963) also identified positive correlations among measures of listening, speaking, reading and writing.

Fries' (1963) description of the first stage of the reading process is based upon the interrelationships of the language arts. According to him, "The process of learning to read one's native language is the process of transfer from the auditory signs for the language signals which the child has already learned to the new visual signs for the same signals" (Fries 1963, p. 118).

Calfee and Venesky (1969) examined the factors reported in the literature as being involved in beginning reading. They reported

little evidence for maintaining the concept "component skills of reading," because in all measurements of those skills there tended to be only two general factors which were adequately separated: (1) the ability to follow instructions; and (2) a general verbal factor.

After interpreting results of research on phonological, morphological and syntactic development and on reading comprehension, Ruddell (1970) made the following points: (1) the child's ability to comprehend language precedes and exceeds his ability to produce language; (2) his language comprehension appears to be a direct function of his control over the grammatical and lexical components of the discourse; and (3) his language performance is related to his language environment.

Interrelationships of language skills used by first grade students in spontaneous expression, in the presentation of dictation and in personal authorship were reported by Cox (1971).

The transfer of skills used in listening to the reading process is emphasized by K. Goodman's (1976) proposition that in the process of learning to read, a child has to use graphic cues and to organize the visual input into patterns and patterns of patterns that he has learned to use in listening.

Oral Language Related to Reading Proficiency

The extent to which the structure of children's oral language is related to reading proficiency is still a controversial issue. The relationship between both has for some time now received the attention of many in the field of reading research and instruction, but there is

still uncertainty concerning which components of oral language are measurably related to reading proficiency.

Findings of a number of investigations did not reveal particularly high relationships between measures of speaking and reading. Martin (1955) reported that only one oral language measure -- the number of different words used -- showed a low positive relationship to reading. Bougere (1969) also pointed out that correlations of language measures with standardized reading tests at the end of first grade tended to be low although positive.

Other investigations, however, revealed high relationships between measures of speaking and reading. Strickland's (1962) study of oral language and reading at the sixth grade level showed significant relationships between the structure of children's oral language and measures of reading comprehension and of oral reading interpretation. In the second grade study, children who ranked above grade expectation in reading had ability not only to use the common patterns but also to go beyond these patterns to further modification of them and to use less common patterns. Loban (1963) found that children who were advanced in general language ability were also advanced in reading ability. For average and poor readers the relationship was not apparent. An investigation by Compton (1971) reported significant differences between a verbal and a non-verbal group in reading achievement in vocabulary and in reading comprehension. Rich (1972) used an oral language test to predict success in reading and indicated that the predictive efficiency of this test ranged from moderately low to moderately high.

Components of Linguistic Maturity
Related to Reading

The components of linguistic maturity presumed related to reading have not been clearly identified and understood yet. There is sufficient evidence from many investigations (Sampson 1962; Strickland 1962; Loban 1963; Ruddell 1966) to indicate that certain syntactic and vocabulary factors in oral language tend to be related to reading proficiency; however there is still disagreement regarding their specification.

Strickland (1962) reported the use of movables and elements of subordination as good indices of children's language development. Loban (1963) also pointed out that the index of subordination was associated with proficiency in language.

Hunt (1965) defined minimal terminable units (T-units) as main clauses plus any subordinate clauses or other elements grammatically attached to or embedded in them. He and other investigators who have used T-units (O'Donnell, Griffin and Norris 1967; Fox 1972) have considered it a valid indicator of children's development in syntactic control.

Bougere (1969) synthesized findings from investigations of children's language development which led to the conclusion that the mean length of communication units, the ratio of sentence combining transformations to communications units, the ratio of subordinate clause length to length of communication unit and measures of extent and diversity of vocabulary were promising indices of children's language development.

Units of Language Which Convey Meaning

It has been suggested by research that in oral and written language only larger units of language, sentences or groups of sentences convey meaning. Lefevre (1964) stated that there is ample evidence to establish the primacy of large, general patterns in the early language learning of infants and young children. Based on this premise he insisted that word-calling developed on the basis of either letter-sound correspondence or word-meaning emphasis, should be replaced by reading by linguistic structures. The word should become a minor linguistic unit, while the importance of intonation and stress patterns and of clauses and sentences should be emphasized.

K. Goodman (1963) pointed out that most words have lexical or dictionary meaning; however, communication was made intelligible by the devices which signal structural meaning. K. Goodman's (1969) analysis of cues and miscues in reading showed that children could read correctly in a story context at least half of the words that they could not recognize in lists.

Y. Goodman (1967) observed that children had difficulties identifying words when they were introduced in less common grammatical positions.

Clay's (1968) study of reading errors provided evidence that the error behavior of the children was guided by the syntactic framework of the sentences.

Smith, Goodman and Meredith (1976) stated that children perceive utterances long before they perceive constituent elements, that

words have no reality extracted from language, that they cannot be defined, pronounced or classified outside the stream of language.

Even at the early stages of language acquisition children operate on the sentence principle. The studies of Bloom (1970) and Schlesinger (1971) reported basic grammatical relationships between subject-verb-object were represented in early two word utterances with subject functioning as agent of an action most often. The investigation of Francis (1972) supported the view that before the age of six children are guided by the principle that words go together in syntagmatic units.

Importance of Syntax and Semantics to Reading

The efforts to understand the relationship between oral language and reading have led investigators to break down the global concept of language into its specific aspects. Syntax and semantics are relevant to reading because they are fundamental to both the productive and receptive aspects of comprehension of which reading is one.

The importance of syntax to reading has been widely studied. Gibbons (1941) tested the hypothesis that reading is largely a process of the correct selection and synthesis of key elements in the sentence by means of a "disarranged phrase test." She found a correlation of .89 at the third grade level between the ability to see relationships among parts of a sentence and the ability to understand the sentence. Further evidence of the importance of syntactic cues for comprehension may be seen in the fact that the ability to use such cues differentiates between good and poor readers. When children are unfamiliar

with the syntactic patterns they find in the text, they are likely to substitute structures with which they are familiar, and good readers do a better job of substituting appropriate structures than do poor readers (K. Goodman 1967; Weber 1970).

In a recent study, Siler (1973-1974) found that syntactic violation of prose had a more deleterious effect on the oral reading performance of second and fourth graders than semantic violations.

Studies on semantics and reading have also yielded important information. Kress (1955) reported that good readers were superior on the ability to draw inferences from relevant cues and to shift their set when a solution was not readily forthcoming. According to him the initiative and persistence displayed by good readers suggest that they have built up a strong expectation that reading will result in meaningful information.

A study by Bever (1970) reported that sentences were better understood if they referred to probable rather than to rare events. Rystrom (1975) pointed out that one of the first things good readers do is to establish the dimensions of the subject with which they will be dealing in the paragraph, article or volume. Then they operate on their knowledge of the probabilities of certain events occurring -- physical, social and linguistic events.

Reading as an Active Language Process

Even though many current methods of teaching reading are built on the assumption that print is processed sequentially, either letter

by letter or word by word, considerable evidence exists to indicate that knowledge of language affects the actual perception of print.

Neisser (1967) has reviewed many experiments showing that if the recognition of a word depended on the identification of all letters, the process would take longer than it usually does. Often letters are perceived which are not present in the stimulus because expectations lead to hypothesis of what is likely to be seen.

Kolers (1969) asked college students to read a text in each of several kinds of geometric transformations such as inversion and mirror images. The types of errors made indicated that the readers were not reading "just words" but were sensitive as well to grammatical categories. Not only were most errors consistent with the grammatical structure of the sentence, but subjects were much more likely to correct errors if they were grammatically unacceptable. Thus these readers appeared to be more sensitive to the grammatical relations of what they were reading than to the transformed words themselves.

Research with eye movements (Hochberg 1965) lends support to the view that reading is not simply a matter of sequential analysis of letters. A program of systematic successive adjacent fixations such as required in reading letter by letter is difficult and inefficient to sustain. Hochberg (1965) claimed that the reader soon learns to seek information at those points at which a knowledge of language structure and hypotheses about the meaning of the text led him to expect information to be found.

The constant and active interaction between the reader and the text is also well supported by many comprehensive analyses of oral

reading miscues. Clay (1968), Weber (1970), K. Goodman and Burke (1973) have indicated that most miscues resulted from interdependent use of syntactic or semantic constraints and the features of graphic display. Some miscues were based on misperception of graphic shapes and misapplications of phonic relationships but ordinarily the reader used such information within the context of grammar and meaning.

As it was stated by Ryan and Semmel (1969, p. 81),

Reading like speaking can be considered as a language process. It is not only a matter of sequentially pairing visual forms with auditory forms which are then interpreted like speech, but rather a constructive, active process in which the reader uses his cognitive and linguistic knowledge to reproduce a probable utterance from a careful sampling of cues and then matches that prediction for appropriateness.

Reading as a Process of Deriving Meaning
from the Written Language

Studies in psycholinguistics have shed new light into the understanding of reading as "A complex process by which a reader reconstructs to some degree, a message encoded by a writer in graphic language" (K. Goodman 1970, p. 5). How the message is reconstructed in the early stages of reading was explained by K. Goodman (1970) in a simplified model (Fig. 1).

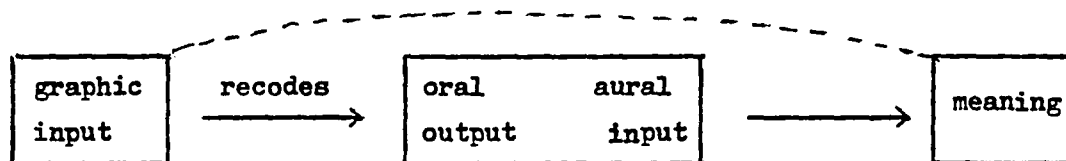


Figure 1. Simplified model of message reconstruction in early reading.

The child recodes graphic input as speech, either out loud or internally and then, utilizing his own speech as aural input decodes as he does in listening.

The fact that even beginning readers strive for getting meaning out of the written language is illustrated by many miscue analysis studies in the primary grades (Y. Goodman 1967; Clay 1968; Weber 1970). They reported that when a child made an error in reading which he realized to be inconsistent with prior cues, he often reevaluated the cues and corrected the error before continuing.

Kolers (1969) reported a study using distorted texts in which he attempted to demonstrate that printed sentences were processed in a deeper level than words. He found that French English bilinguals understood connected texts consisting of some words in each language in a manner similar to the way they understood the monolingual test in either language. According to him in order for this to occur the texts had to be perceived directly in terms of meaning.

Rystrom (1975) pointed out that in the process of reading the reader produces a small framework of meaning based upon the information on the page and his own stored information. He considers the ultimate goal of reading to be the direct passage from print to meaning without going through surface speech processes in between.

Assessment of Reading Proficiency by
Analyzing the Deviations from the Text
That Children Make in Oral Reading

Reading proficiency can be assessed by analyzing the deviations between the expected response and the observed response in oral reading.

Even though it has been long known by researchers and classroom teachers that the errors made by readers provide insight into the reading process, only recently the classification of these errors was subjected to a theoretical framework. This framework emerged as a result of a series of studies on the psycholinguistic nature of reading under the general direction of K. Goodman. It is based on linguistic criteria and it has already been successfully used in many recent investigations about reading errors.

Y. Goodman (1967) followed six children learning to read in order to analyze their reading miscues. One of her findings was that more proficient readers produced miscues which were more complex and involved more integration of the meaning, grammatical and sound systems of the language with the graphic input and the experiential background of the child than the miscues of less proficient readers.

Clay (1968) recorded 10,525 reading errors of five-year-old children and analyzed all substitution errors for structural equivalence with the textual stimulus. She observed that the error behavior of the children was guided by the syntactic framework of the sentences read rather than by the phoneme-grapheme relationships in the words.

Nurss (1969) reported that there is a relationship between the number of reading miscues produced by second graders and the syntactic complexity of the sentences they were reading. Many types of miscues the children made indicated comprehension of the sentence, even though they did not read the exact word in the sentence.

Weber (1970) analyzed oral reading errors observed in a first grade classroom as approximations to the correct response in terms of

letters, word structure, grammatical acceptability and semantic appropriateness. A measure of graphic similarity showed that better readers excelled weaker readers in more closely approaching the correct response. On the syntactic level, judgments of grammatical acceptability showed that the children made responses that in general conformed to the constraints of preceding grammatical context. Judgments of semantic appropriateness in the sentence indicated that a response that was syntactically acceptable was almost always semantically acceptable.

Reading miscues can now be objectively coded and analyzed by means of the Goodman's Taxonomy of Reading Miscues (K. Goodman 1969) and the Reading Miscue Inventory (Y. Goodman and C. Burke 1972). The Taxonomy considers the relationship between the expected and the observed response from all possible angles; it is more commonly used for research purposes. The Reading Miscue Inventory is a less complex version of miscue analysis for use in classroom and clinical setting.

CHAPTER 3

PROCEDURES

The specific problem of the present study was the investigation of the relationships between the oral language of children upon entering school and their reading proficiency in the last six weeks of the school year. The study required the recording, transcription and analysis of children's oral language in terms of selected factors as well as the recording, transcription and analysis of reading proficiency in terms of the patterns of miscues produced by children in oral reading.

Population

The twenty-five subjects used in the study were enrolled in Kino Learning Center during the school year 1976-1977. Kino Learning Center is an open, Catholic, non-profit school founded in 1975 by parents and teachers seeking an alternative learning environment for children. Admission is made without regard to race, color, religion, sex, national origin, socioeconomic class or geographic location of the home. The prime educational concern of this school is to offer a value-oriented education wherein the individual's inherent capacities for self-determination are transformed into habits of action, feeling and thought. The school places special stress on individual discovery, on first hand experience and on creative work.

Three criteria were established for the selection of the subjects: being six years old; not having attended Kino Learning Center previously and not having been exposed to a planned reading program before. Since Kino is a non-graded school, the age six was chosen because it represents the age at which most children in the United States are exposed to a planned reading program. The second criterion -- not having attended Kino before -- was established because it was believed that participation in an environment which allows for much interaction and options as the one in an open school might have influence upon the subject's oral language. The third criterion was set up because the study aimed at ascertaining the influence of children's oral language on reading strategies acquired during the first year of exposure to a planned reading program.

From the two hundred and fifteen students enrolled in Kino in September, 1976 only twenty-five met the three criteria above described. So the population was comprised of these twenty-five subjects -- nine boys and sixteen girls whose mean chronological age at the time of collection of oral language was 6 years and 7 months and at the time of collection of oral reading was 7 years and 3 months.

Collection of Oral Language Data

Samples of oral language were collected by the researcher in two situations -- during sharing time which is a normal classroom activity in Kino Learning Center and in a private interview between the researcher and the subject. All samples were collected in September, 1976. The researcher visited the school twice prior to the actual

recording sessions to identify members of the population, to establish rapport with the group and to become familiar with school arrangement, schedule and activities.

Since open schools do not have isolated classrooms, the sharing time sessions were held in the faculty room to avoid the distractions of the undivided environment. Five subjects at a time were invited by their Language Arts teacher to go to this room and each one was encouraged "to tell" as much as possible about what he had chosen to share. Before each session the teacher explained that the researcher was interested in the language of children and that she would record their language.

Seven sharing time sessions were needed to record all of the subjects due to the absence of some in recording days. There was not a planned recording time per subject; each one talked until he spontaneously finished. The range of recording time went from 2 to 8 minutes with a mean of 3.96 minutes. For one subject whose recording time was less than three minutes, arrangements were made for participation in another sharing time session.

In the private interview the researcher used a stimulus -- a stuffed Snoopy -- as a prop to elicit the subject's oral language. Four structured questions were addressed to all subjects after Snoopy had been presented to them. "Where have you seen him before?" "What can you tell me about him?" "Can you tell me more?" "Can you remember some of the cartoons you have seen or stories you have heard about Snoopy?" As in the sharing time session there was not a planned recording time per subject; each one answered the questions until he

spontaneously finished. The range of recording time went from 2 to 10 minutes with a mean of 4.65 minutes. For one subject whose recording time was less than three minutes a second interview was held.

The researcher used a portable cassette tape-recorder to collect the samples of both situations.

Analysis of Oral Language Data

Taped recordings were transcribed into typewritten form for analysis. The first three minutes of language of each subject was segmented into communication units and then quantified in terms of the following measures: mean length of communication units, number of movables, number of subordinate clauses, number of clauses per communication unit and type token ratio.

The segmentation of the language corpus into communication units followed the procedures described by the Indiana Conference Scheme for defining and analyzing speech patterns. Each utterance which could not be further subdivided without the loss of essential meaning was considered to be a communication unit. It consisted of one main clause plus any subordinate clauses attached to it; a word like yes or no was considered to be a communication unit when it could be replaced by an independent clause. After identifying all communication units in a sample and marking them with a slant line, their mean length was computed by counting the number of words in each unit, adding them up and then dividing by the number of units.

The identification of movables also followed the procedures described by the Indiana Conference Scheme. Movables were defined as

syntactic segments -- words, phrases or clauses with no fixed position. They were indicated by a capital M and were grouped into five subclasses: M_1 -- expression of place of a sentence; M_2 -- expression of manner of a sentence; M_3 -- expression of time of a sentence; M_4 -- expression of purpose or cause of a sentence; M_5 -- a preposition plus an indirect object. In the oral language protocol of each subject the number of movables was counted.

The identification of subordinate clauses was also based on the Indiana Conference Scheme. Subordination was defined as a means of emphasizing a dominant idea within a sentence and placing a minor contributing idea in a less emphatic position. The different ways to subordinate ideas: by using adverbial clauses, adjective clauses, noun clauses, participial phrases, prepositional phrases and appositives, were identified and marked with a capital S in the subjects' oral language protocols.

The number of clauses per communication unit was computed by counting the number of clauses in each unit, adding them up and then dividing the total number of clauses by the total number of units.

The type token ratio, which is the ratio of a number of different words (types) to the total number of words (tokens) was computed by using Carroll's (1964) formula for unlike sized samples. In order to make the ratio independent of sample size, the number of different words (types) was divided by the square root of twice the number of words in the sample.

The mazes, series of words or initial parts of words which do not add up either to meaningful communication or structural units of

communication, were inserted in brackets. The number of words in mazes was not counted as part of the communication units.

The recordings, transcription and analysis of the subjects' oral language were double-checked by a doctoral student in Early Childhood Education from the Department of Elementary Education in The University of Arizona.

Example of one's subject oral language protocol will follow for illustrating how the analysis was carried out.

Oral Language Protocol of Subject 11

I've seen him on TV and Disneyland / He's sill of course/
_{M₁}

ok well she / he's white/ He's a dog / And whenever he wants to go
_S

in top of his dog house he does / He sometimes sleeps up there /
_{M₁ M₃ M₁}

And he always does a puppet show sometimes / And sometimes and
_{M₃ M₃}

sometimes / he dresses like a pilot and then flied on his dog house/
_{M₁}

well no well he is / Once upon the time there was a little dog/
_{M₃}

He loves to play with the toy rope/ He always put it in the neck /
_{M₃ M₁}

And he always pushes it aroung / And then he kept putting it on and
_{M₃}

on/ And then Lucy came and said what are you doing with that rope?/
_S

And then they kept playing with it and playing with it and playing

with it and playing with it and playing with it/ But Lucy said

what are you doing?/ That looks like a necklace/ The end.

S

Measures

Number of communication units -- 17

Mean length of communication units -- 8.29

Number of movables -- 12

Number of subordinate clauses -- 3

Number of clauses per communication unit -- 1.29

Type token ratio -- $75 / \sqrt{164 \times 2} = 75 / \sqrt{328} = 75 / 18.11 = 4.14$

Collection of Reading Data

In the second week of April, 1977, the investigator returned to Kino Learning Center and held a conference with the Language Arts Teacher responsible for the beginning reading program. She informed her that the children whose oral language had been analyzed in September, 1976, were reading at three different levels corresponding to Scott Foresman Systems Levels 2, 3 and 4.

From the original population of twenty-five subjects six of them had moved out of Kino Learning Center. Two of them had remained in Tucson and arrangements were made by the researcher to hold the reading sessions at their homes. Four, however, had moved out of town and, therefore, the final population was reduced to twenty-one subjects.

Based on the information provided by the Language Arts Teacher the following stories: 'Pat's New Puppy' and 'Happy Faces' (Level 2), 'The

"Missing Necklace" (Level 3), "Red and Blue Mittens" and "The Little Knight" (Level 4) were selected as reading materials for the subjects, all from Reading Unlimited Scott Foresman Systems (Scott Foresman 1976).

The stories were retyped on a worksheet preserving the lines of the story exactly as they were in the book. Each line on the worksheet was numbered with page and line of the story so that miscues could be identified as to where they occurred.

With the exception of the reading sessions which were held at the children's homes, all of the others took place in the faculty room of Kino Learning Center. For ten consecutive school days one subject at a time was asked to read the story chosen for him and was informed that he had to retell the story after he had read. He was also told that no help would be given while he was reading and that he should do his best to handle any problems using strategies which were familiar to him. As he read, the researcher audiotaped him and marked the miscues in the worksheet.

All of the subjects except four could handle the materials which had been selected for them. For these subjects a readiness story similar to the ones they were actually reading in school was chosen. They read, "A Monkey Ran Away," from the Readiness Series published by Science Research Associates, 1961.

After he had read the subject was asked to retell the story without interruption. Following the unaided retelling the reader was asked open-ended questions to probe areas he omitted in the retelling. These questions did not use any specific information which the reader

had not himself reported. In spite of slight situational variations all of the subjects were asked the following questions: "Who else was in the story?" "Tell me about them." "What was (name of key character mentioned by the child) like?" "Can you think of anything else that happened?" "Where did the story take place?" "Why did (key event mentioned by the child) it happen?" "Why do you think the author wanted to write this story?"

The retelling was also audiotaped.

Analysis of Reading Data

Later the tapes were replayed to complete the marking of the miscues on the worksheet which became the permanent record of the session and the basis for the miscue analysis. The marking system was organized around the five overt variations which can occur in oral reading -- substitution, omission, insertion, reversal and repetition of items.

After all deviations between the oral response of the reader and the printed page had been recorded in the worksheet, the first twenty-five miscues of each subject entered the RMI coding sheet on the same order they were produced.

As it was described in the definition of terms, the heart of the RMI procedures comprises nine questions which are asked about each miscue. In the present study only the questions concerning correction (6), grammatical acceptability (7), semantic acceptability (8) and meaning change (9) were examined.

In the Reading Miscue Inventory Y. Goodman and C. Burke (1972) described these four questions, their possible answers and marking symbols for the coding sheet in the following way:

For question 6, "Is the Miscue Corrected?", the possible answers and their marking symbols are

Y -- The miscue is corrected.

P -- There is an unsuccessful attempt at correction. Or a correct response is abandoned.

N -- There has been no attempt at correction.

For question 7, "Does the Miscue Occur in a Structure which is Grammatically Acceptable?", the possible answers and their marking symbols are

Y -- The miscue occurs in a sentence which is grammatically acceptable and is acceptable in relation to prior and subsequent sentences in the text.

P -- The miscue occurs in a sentence which is grammatically acceptable but is not acceptable in relation to prior and subsequent sentences in the text. Or the miscue is grammatically acceptable only with the sentence portion that comes before or after it.

N -- The miscue occurs in a sentence that is not grammatically acceptable.

For question 8, "Does the Miscue Occur in a Structure which is Semantically Acceptable?", the possible answers and marking symbols are

Y -- The miscue occurs in a sentence which is semantically acceptable in relation to prior and subsequent sentences in the text.

- P -- The miscue occurs in a sentence which is semantically acceptable but is not acceptable in relation to prior and subsequent sentences in the text. Or the miscue is semantically acceptable only with the sentence portion that comes before it.
- N -- The miscue occurs in a sentence that is not semantically acceptable.

For question 9, "Does the Miscue Result in a Change of Meaning?", the possible answers and their marking symbols are

- Y -- An extensive change in meaning is involved.
- P -- A minimal change in meaning is involved.
- N -- No change in meaning is involved.

The four questions were asked about each miscue and the answers to them appropriately entered the coding sheet. Then the interrelationships between correction, grammatical and semantic acceptability were studied to identify the patterns of grammatical relationships produced by the miscues. Four alternatives were possible -- strength, partial strength, weakness and overcorrection. The interrelationships between correction, semantic acceptability and meaning change were studied to identify the patterns of comprehension produced by the miscues. Three alternatives were possible -- no loss, partial loss and loss. These patterns were marked in the coding sheet; then they were counted and percentages were computed.

Example of one subject's marked worksheet (Fig. 2) and coding sheet (Fig. 3) will follow for illustrating how the analysis was carried out.

0201 ¹ Mrs. Pig wanted her ² friends

0202 to come to a picnic lunch.

0203 She called and asked them. ³ Tom

0301 She ^A made ^B sandwiches.

0302 She put milk in a thermos to keep

0303 ^C it cold. ⁴ That

0304 Then ^{Miss} Mrs. Pig put on her ^{UC} ⁵ purple ⁶ dress and

0305 her marshmallow necklace.

0401 Soon everybody came to lunch.

0402 ⁷ They There were three turtles and a chipmunk,

0403 a sheep and a ⁸ cat.

0501 Mrs. Pig said, "I like your hats."

0502 ^A Her ⁹ friends said, "And we like

0503 your ¹⁰ marshmallow necklace.

Figure 2. Marked worksheet of subject 11. -- Pictures of additional marked worksheets in following text are indicated by framing.

0601 ^{Miss} Mrs. Pig and her friends had lunch ¹¹

0602 in the yard.

0701 When lunch was over, the sheep

0702 looked at Mrs. Pig and said,

0703 "Your necklace is missing!"

0801 ¹² and ¹³ The chipmunk said, "I'm a ^{detector} detective.

0802 I can find ¹⁴ your the necklace.

0901 The chipmunk ¹⁵ turned to the cat and
^{2. told}
^{1. told}

0902 ¹⁶ asked, "What were you doing when

0903 the necklace was ¹⁷ taken?"
^{# taken}

1001 The cat said, "I was eating ¹⁸ a peach."

1002 ¹⁹ I didn't take the necklace."
^{don't}

1101 ^{told} The chipmunk turned to the turtles and

1102 asked, "What were you doing when

1103 the necklace was ^{# taken} taken?"

1201 The ²⁰three ²¹turtles ^{1.T-}said,
 1202 "We were eating ²²strawberries sandwiches.
 1203 We didn't take the necklace.

 1301 The chipmunk ^{told} turned to the ²³sleep sheep and
 1302 asked, "What were you doing when
 1303 the necklace was ^{\$ taken}taken?"

 1401 The sheep said, "I was eating a ²⁴radish. ^{2. radish}
^{1. ra.}
 1402 I ²⁵didn't take the necklace. ^{don't}

 1501 The chipmunk ^{told} turned to ^{Miss}Mrs. Pig and
 1502 asked, "What were you doing when
 1503 the necklace was ^{\$ taken}taken?"

 1601 Mrs. Pig said, "I was eating marshmallows.
 1602 I ate my necklace for lunch."

Figure 2--Continued.

Reader			Date 5-6-77				Selection: The Missing Necklace						
Miscue Number	Reader	Text	Correction 6	Grammatical Acceptability 7	Semantic Acceptability 8	Meaning Change 9	Comprehension			Grammatical Relationships			
							No Loss	Partial Loss	Loss	Strength	Partial Strength	Weakness	Overcorrection
1	Miss	Mrs.	N	Y	Y	N	v			v			
2	-	friends	N	P	P	Y			v			v	
3	Tom	them	N	P	P	Y			v			v	
4	that	it	Y	N	N	Y	v			v			
5	pretty	purple	P	N	N	N		v				v	
6	-	dress	N	N	N	Y			v			v	
7	they	there	N	Y	Y	N	v			v			
8	cats	cat	N	N	N	P			v			v	
9	-	friends	N	N	N	Y			v			v	
10	marshmallows	marshmallow	N	P	P	N	v					v	
11	• (period)	-	N	P	P	P		v				v	
12	and	the	Y	N	N	Y	v			v			
13	detector	detective	N	Y	Y	N	v			v			
14	your	the	Y	P	P	Y	v			v			
15	told	turned	P	P	P	P		v				v	
16	what asked	asked what	Y	N	N	Y	v			v			
17	\$ taken	taken	N	Y	Y	N	v			v			
18	-	peach	N	P	P	Y			v			v	
19	don't	didn't	Y	P	P	P	v			v			
20	-	three	N	P	P	P		v				v	
21	turtle	turtles	P	P	P	N		v				v	
22	strawberries	sandwiches	N	Y	Y	N	v			v			
23	sleep	sheep	Y	N	N	Y	v			v			
24	\$ rashy	radish	N	Y	N	Y			v		v		
25	con't	didn't	Y	P	P	P	v			v			
Column Total							13	5	7	11	2	12	-
Percentage							52	20	28	44	8	48	-
Pattern Total							25			25			

Figure 3. Coding sheet of subject 11.

Analysis of the Retelling

The transcript of the reader's retelling was compared to the outlined reading material by assigning the subject's information to the categories: Character Analysis (recall and development), Events, Theme and Plot. These categories and number of points assigned to them were described by Y. Goodman and C. Burke (1972, p. 24) in the following way:

Character Analysis (30 points)

Recall (15) - A listing of the characters involved in the story.

Development (15) - Information concerning the character's physical appearance, attitudes and feelings, behavior, relationship to other characters.

Events (30 points) - The actual happenings as they occur.

Plot (20 points) - The plan upon which the sequence of events is organized. The overall question or problem which is the central concern of the story.

Theme (20 points) - The generalization, perspective, viewpoint or truism around which the story and its plot are built.

In the present study a slight variation was introduced as far as the distribution of points is concerned. Since all of the stories read by the subjects were very simple stories from which it was rather difficult to draw generalizations, the category -- theme -- was omitted. The twenty points which are usually assigned to theme were redistributed among character analysis and events. Therefore, the distribution of points in the present study was: recall (20), development (20), events (40) and plot (20). Within each category the number of points was distributed among the several items according to their degree of importance to the story. The retelling score was computed by adding up the number of points in each category.

An example of one subject's retelling transcript and one retelling outline for the computation of the retelling score will follow to illustrate how the analysis was carried out.

Retelling Transcript of Subject 11

T- (name of the child), tell me everything you remember about the story.

S- OK, well the marshmallow necklace was gone. And Mrs. Pig ate it, and the chipmunk asked everybody and hum he asked the sheep, "What were you doing when the necklace was taken?" And she called everybody to see if they could have lunch. It's all I remember.

T- Tell me more about Mrs. Pig.

S- Ah she ate the marshmallows and she called everybody to eat lunch. And she made the lemonade and don't have anything else.

T- Who else was in the story?

S- The chipmunk, sheep, cat, turtles. It's all I remember.

T- Tell me more about the chipmunk.

S- He was a detector and hum he asked everybody what they were doing.

T- Where did the story happen? Where, do you remember?

S- No.

T- Now that you have told me so much about the story, can you tell me what the whole story was about in a few words or in a short form?

S- Mrs. Pig called everybody up on the telephone and asked if they could come for lunch. So they all came for lunch and had something to eat. And then the animals said, "Where is your marshmallow necklace?" And she said, "I don't know." And they said I'm a detective the chipmunk said and then he said he would try he would ask everybody and he asked everybody. They said they were eating lunch and then the chipmunk asked Mrs. Pig and Mrs. Pig said that she ate the marshmallow necklace.

T- Is this story similar to any other story you have read before?

S- No.

T- Why is it different?

S- I don't know.

T- Does Mrs. Pig remind you of somebody else?

S- Yes, hum I forgot.

T- Why do you think the author wanted to write this story?

S- So that kids can read it.

Retelling Outline for the "Missing Necklace"
and Retelling Score for Subject 11

Character Analysis

(20) Recall - 20

(4) Mrs. Pig - 4

(4) three turtles - 4

(4) a chipmunk - 4

(4) a sheep - 4

(4) a cat - 4

(20) Development - 6

(3) has a purple dress on - 0

(4) has a marshmallow necklace - 2

(2) likes her friends' hats - 0

(2) likes Mrs. Pig's necklace - 0

(4) detective - 4

(3) notices Mrs. Pig's necklace is gone - 0

(2) likes Mrs. Pig's necklace - 0

(40) Events - 20

- (4) Mrs. Pig invited her friends to a picnic lunch - 4
- (2) She made sandwiches - 0
- (2) She put milk in a thermos to keep it cold - 0
- (2) She put on a purple dress and a marshmallow necklace - 0
- (3) Three turtles, a chipmunk, a sheep and a cat came to lunch - 3
- (2) They had lunch in the yard - 0
- (3) After lunch the sheep found out Mrs. Pig's necklace was missing - 0
- (4) The chipmunk said he was a detective and he could find the necklace - 4
- (2) The chipmunk asked the cat what he was doing when the necklace was taken - 1
- (2) The cat said he was eating a peach and had not taken the necklace - 0
- (2) The chipmunk asked the turtles what they were doing when the necklace was taken - 1
- (2) The turtles said they were eating sandwiches and had not taken the necklace - 0
- (2) The chipmunk asked the sheep what he was doing when the necklace was taken - 1
- (2) The sheep said he was eating a radish and had not taken the necklace - 0
- (2) The chipmunk asked Mrs. Pig what she was doing when the necklace was taken - 2
- (4) Mrs. Pig said she had eaten her necklace for lunch - 4

(20) Plot - 15

The detective found out that Mrs. Pig had eaten her own marshmallow necklace for lunch. None of her friends had taken it.

Observation - Points in parenthesis are assigned points.

Points out of parenthesis are the points achieved by the subject.

SUBJECT'S RETELLING SCORE - 61

Statistical Procedures for Treating the Data

Data from the two oral language sampling situations were combined in order to secure the most dependable measures available under the conditions of this investigation. So, all oral language variables -- mean length of communication units, number of movables, number of subordinate clauses, number of clauses per communication unit and type token ratio -- were expressed by a single score which represents the means across the two situations.

Two measures of descriptive statistics -- the mean and the standard deviation -- were calculated for the total sample on all oral language and reading variables.

Pearson Correlation Coefficients were computed among all oral language variables and reading variables considered in the study. Age and sex were also included in the correlational matrix.

For discussion and interpretation of correlational procedures, three scores in reading were used as the most representative indexes of reading proficiency: Comprehension-Loss; Grammatical Relationships-Weakness and the Retelling Score.

Table 1 presents the names, abbreviations and classification of all oral language and reading variables included in the study.

Table 1. Classification of oral language and reading variables.

Variable Name	Abbreviation	Classification
1. Mean length of communication units	AVUNIT	Oral language - syntactic complexity
2. Mean number of movables	AVMOV	Oral language - syntactic complexity
3. Mean number of subordinate clauses	AVSUB	Oral language - syntactic complexity
4. Mean number of clauses per communication unit	AVCL	Oral language - syntactic complexity
5. Mean type token ratio	AVTYP	Oral language - vocabulary diversity
6. Comprehension: Loss	COMPLOSS	Reading proficiency - comprehension
7. Grammatical relationships	GRWEAK	Reading proficiency - grammatical relationships
8. Retelling score	RETELL	Reading proficiency - comprehension

CHAPTER 4

RESULTS AND DISCUSSION

Results and discussion will be presented in the following order: findings related to testing the hypotheses 1 through 5 and ancillary findings related to oral language and reading.

The First Hypothesis

It was stated in the first hypothesis that there was no relationship between the mean length of communication units produced by six-year-old children in oral language and their reading proficiency assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

Hypothesis 1 was tested by the Pearson Correlation Coefficient. This test revealed statistically significant correlation between the mean length of communication units, and (1) the percentage of comprehension loss in the patterns of comprehension, and (2) the percentage of weakness in the patterns of grammatical relationships. Significant positive correlation was found between the mean length of communication units and the retelling score (Table 2). Therefore Hypothesis 1 was rejected.

These findings indicate that the higher the mean length of communication units in oral language the lower the percentage of miscue patterns which result in meaning disruption and in the production of

Table 2. Pearson correlations among oral language and reading variables.

Oral Language Variables	Reading Variables		
	OMPLOSS	GRWEAK	RETELL
AVUNIT	-.85***	-.73***	.76***
AVMOV	-.34	-.45*	.41*
AVSUB	-.86***	-.74***	.67***
AVCL	-.88***	-.73***	.72***
AVTYP	-.19	-.02	.08

*Statistically significant at .05 level

**Statistically significant at .01 level

***Statistically significant at .001 level

ungrammatical structures in oral reading. They also mean that the higher the mean length of communication units the better the quality of the retelling given after the reading.

Some factors appear to account for the strong relationship between the mean length of communication units and reading proficiency as measured in this study. Past investigators (Strickland 1962; Bougere 1969; Mahaffey 1974) have evaluated oral reading by means of the following criteria: fluency, phrasing, intonation and freedom from errors. From these only intonation is one of the signaling systems of sentence-level utterances in American English. The others comprise specific skills which are not a part of the interrelated language systems. It is not surprising, therefore, that weak or non-existing relationship between the mean length of communication units and oral reading proficiency has been reported in these investigations.

One of the assumptions which underlie the Reading Miscue Inventory is that all readers bring their oral language system to the reading process. This assumption has been confirmed by the fact that readers are more apt to correct miscues when the resulting syntax is unacceptable and when meaning is affected. If readers are constantly using their intuitive knowledge of syntax, we might expect that superiority in any oral language measure which reflects syntactical control leads them to a more efficient use of the syntactic cues in the reading process. The strong relationship between the mean length of communication units and, (1) the patterns of comprehension, and (2) the retelling score is also expected because semantic structure is

dependent on syntactic structure. So superiority in measures of syntactic maturity helps readers to more easily get to deep structure and meaning.

In fact the miscue patterns of subjects whose mean length of communication units was above the mean for the total sample ($\bar{X} = 5.98$, Table 3) reveal that those subjects were concerned with the on-going meaning and with the production of grammatical structures. This concern was not apparent among the subjects who scored below the mean. Subject 7 scored 7.2 in mean length of communication units and corrected 71% of her grammatically and semantically unacceptable miscues. Excerpts from her oral language protocol and marked worksheet are presented for illustration.

Oral Language Protocol:

". . . because one one big brother was sick [well] the father had to bring him to the doctor and ask him what he should do with sick kids."

Marked Worksheet:

0701 When lunch was over, the sheep

0702 ^{looks} looked at Mrs. Pig and said,

0703 "Your necklace is missing."

It is this investigator's assumption that the subject's ability to express related statements in long communication units helped her to decide that in the context of the whole sentence "lunch was over" would be a dangling and meaningless clause. Hence, the correction for the omission of when. Her familiarity with tense sequence in long complex

Table 3. Means and standard deviations for the total sample on oral language and reading variables.

Variable	Means	Standard Deviations
1. AVUNIT	5.98	1.75
2. AVMOV	10.11	2.83
3. AVSUB	5.69	1.84
4. AVCL	1.46	1.25
5. AVTYP	4.16	.46
6. CMPLOSS	48.00	21.35
7. GRWEAK	57.24	21.59
8. RETELL	48.23	16.15

sentences may also have been the reason which triggered the correction of looks due to the inconsistency with the tense sequence in the other clauses.

The Second Hypothesis

It was stated in the second hypothesis that there was no relationship between the mean number of movables produced by six-year-old children in oral language and their reading proficiency assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

Hypothesis 2 was tested by the Pearson Correlation Coefficient. This test did not reveal statistically significant correlation between the mean number of movables and the percentage of comprehension loss in patterns of comprehension. A significant negative correlation was found between the mean number of movables and the percentage of weakness in the patterns of grammatical relationships; and a significant positive one between the mean number of movables and the retelling score (Table 2). Therefore Hypothesis 2 was accepted insofar as it related to the patterns of comprehension; it was rejected for the patterns of grammatical relationships and the retelling score.

These findings indicate that the higher the mean number of movables in oral language, the lower the percentage of miscue patterns which result in the production of ungrammatical structures and the better the quality of the retelling given after reading. The mean number of movables was not related to the percentage of miscue patterns which result in loss of comprehension.

The lack of correlation between movables and the patterns of comprehension may be explained in the light of knowledge provided by linguistics. Following intonation in descending order of importance, syntactical function order in sentence patterns is the second signaling system of sentence level utterances in American English. Speakers of a language develop an awareness of the typical organization of most sentences in English; for example they know that the noun phrase precedes the verb phrase and so they are able to make predictions based on the natural constraints of the language. Movables, however, do not occupy fixed slots and, therefore, their predictability is dependent upon syntactical occurrence in a language pattern.

For the patterns of grammatical relationships and the retelling score the use of movables had a moderate impact. The movables which were used by subjects in oral language were comprised of different elements -- words, phrases and clauses as the ones in the following examples:

". . . Let's go out for a nice walk and then come home"
(word).

". . . On Halloween they play tricks on each other" (phrase).

". . . When he wakes up in the morning, he sleeps in his dog dish" (clause).

In this study only the movables comprised of clauses correlated with the patterns of grammatical relationships. The subjects who expanded patterns through the use of clauses were the ones who relied more efficiently on their syntactic information to produce patterns of miscues which did not result in ungrammatical structures.

Subjects who scored above the mean in the use of movables ($\bar{X} = 10.11$, Table 3) showed a consistent tendency in the retelling. They mentioned details which were not so important to the plot but which accounted for a high number of points in the category of events. Subject 13 scored 13.00 in the number of movables and included a great deal of detail in the story events by means of expressions of time, place, manner and conditions. Excerpts from her oral language and retelling are presented for illustration:

Oral Language Protocol:

". . . and he climbs to his dog house carefully. Yesterday she he got a typewriter and he thinks he's the best writer in the world. I saw Charlie Brown versus Kinkom. Well I saw in a friend's house and it was really weird."

Retelling:

"One day Helen looked out in the window. She saw snow very deep. And she told her mommy if she can go to Gail's house. The mother and the mommy said not until breakfast. And after breakfast Helen put on her hat, her coat and snow shoes. And Helen took the mittens out of her pocket. And she had a blue one and a red one and the blue one might belong to somebody, she said. . . ."

Even though a cause-effect relationship cannot be established between movables in one oral language sample and inclusion of details in retelling, it is possible that the tendency to modify patterns by means of expressions of time, place, manner, cause and condition increases awareness of these expressions when they occur in reading texts.

The Third Hypothesis

It was stated in the third hypothesis that there was no relationship between the mean number of subordinate clauses produced by

six-year-old children in oral language and their reading proficiency assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

Hypothesis 3 was tested by the Pearson Correlation Coefficient. This test revealed statistically significant negative correlation between the mean number of subordinate clauses and, (1) the percentage of comprehension loss in the patterns of comprehension, and (2) the percentage of weakness in the patterns of grammatical relationships. A significant positive correlation was also found between the mean number of subordinate clauses and the retelling score (Table 2). Therefore Hypothesis 3 was rejected.

These findings indicate that the higher the mean number of subordinate clauses in oral language the lower the percentage of miscue patterns which result in meaning disruption and in the production of ungrammatical structures in oral reading. They also mean that the higher the mean number of subordinate clauses the better the quality of the retelling given after reading.

The reasons which appear to account for the strong relationship between the mean number of subordinate clauses and reading proficiency as measured in this study are also related to the view of reading as a psycholinguistic process. According to K. Goodman (1965) the cue systems in reading include cues within words, cues in the flow of language and cues within the reader such as experiential background, conceptual background and oral language facility. Subordination is an index of language development because it is a more mature and difficult form of

expression than simple parallel statements connected by and or but. Phrases and dependent clauses are verbal means of showing relationships; therefore, subordination makes possible a more coherent organization of related statements. Subjects who use subordination frequently and appropriately may be expected to draw more efficiently on their internalized syntactic and semantic information when they are dealing with complex sentences in reading texts. Familiarity with the kinds of relationships expressed by dependent clauses might lead readers to better prediction, searching and tentative choices as well as to more rigorous tests against the screens of grammar and meaning.

A similar reason appears to account for the positive correlation between subordination and the retelling score. Subjects who had high retelling scores were the ones who were able to produce plot statements. In order to find the plot in a story, subjects have to perceive the relationships among the several parts of the story and to construct the plan on which the sequence of events is organized. Frequent use of subordination in oral language may help readers to identify the key words expressing relationships in the text and this identification might lead to the ability of summarizing the whole story into a coherent organization of related statements.

In fact the miscue patterns of subjects whose mean number of subordinate clauses was above the mean for the total sample ($\bar{X} = 5.69$, Table 3) reveal that those subjects were concerned with on-going meaning and with the production of grammatical structures in oral reading. This concern was not apparent among subjects who scored

below the mean. Subject 19 scored 8.50 in mean number of subordinate clauses and corrected 76% of her grammatically and semantically unacceptable miscues. Excerpts from her oral language protocol and marked worksheet are presented for illustration.

Oral Language Protocol:

". . . Once Malcolm was going to go at his church where there was no one. And he was checking if there was somebody there. But when he saw his shadow, he just jumped behind Henry's back and put his vampire teeth on Henry."

Marked Worksheet:

1501 I'm crying ^{but} because everybody is afraid
 1502 of me, ^{and} said the dragon
 1503 No one comes to see me.

It is this investigator's assumption that the subject's flexibility in using subordination in oral language helped her recognize the existence of a causal relationship between the two clauses in line 1501 which could not be expressed by the connective but. The insertion of and and the omission of the period resulted in a complex miscue which is fully acceptable in syntax and meaning and which constitutes a more sophisticated pattern than the one in the text. Since the subject left the miscue uncorrected, she showed understanding that the transformation of one independent clause into a dependent one did not result in meaning change and it was grammatically acceptable.

The Fourth Hypothesis

It was stated in the fourth hypothesis that there was no relationship between the mean number of clauses per communication unit

produced by six-year-old children in oral language and their reading proficiency assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

Hypothesis 4 was tested by the Pearson Correlation Coefficient. This test revealed statistically significant negative correlation between the mean number of clauses per communication unit and, (1) the percentage of comprehension loss in the patterns of comprehension, and (2) the percentage of weakness in the patterns of grammatical relationships. Significant positive correlation was found between the mean number of clauses per communication unit and the retelling score (Table 2). Hypothesis 4 was rejected.

These findings indicate that the higher the mean number of clauses per communication unit in oral language the lower the percentage of miscue patterns which result in meaning disruption and in the production of ungrammatical sentences. They also mean that the higher the mean number of clauses per communication unit the better the quality of the retelling given after the reading.

A very high degree of interrelationship was identified among the mean length of communication units, the mean number of subordinate clauses and the mean number of clauses per communication unit (Table 4). It might be concluded, therefore, that in this study increase in the mean length of communication units was not caused by the use of modifiers comprised of word or words, phrase or phrases but by the use of clause or clauses. In addition since no communication unit contains

Table 4. Pearson correlations among the five oral language variables:
AVUNIT, AVMOV, AVSUB, AVCL and AVTYP.

Oral Language Variables	AVUNIT	AVMOV	AVSUB	AVCL	AVTYP
AVUNIT		.41*	.96***	.97***	.18
AVMOV			.38*	.40*	.03
AVSUB				.95***	.13
AVCL					.224
AVTYP					

*Statistically significant at .05 level

**Statistically significant at .01 level

***Statistically significant at .001 level

more than one independent clause, the number of clauses per communication unit was determined by the number of subordinate clauses. Hence, the three syntactic variables were so interrelated that they appear to be measuring the same aspect of language competence.

Excerpts from two oral language protocols exemplify the cases of subjects who scored above and below the mean for the total sample in these three syntactic variables.

Subject 11 (above the mean):

" . . . I don't know if she's going to have little cats now/
but when she grows up and and gets fatter and fatter then
she is going to have kittens/#"

Subject 3 (below the mean)

" . . . Snoopy gets the bone / he cleans the dish/ then he takes
out/ and finds another bone and puts the food in in his dog
food dish/#"

The strong correlation between the mean number of clauses per communication unit and reading proficiency as measured in this study may also be explained in terms of greater effectiveness in the use of syntactic and semantic cues demonstrated by subjects whose oral language patterns reflected syntactic maturity.

The miscue patterns of subjects whose mean number of clauses per communication units was above the mean for the total sample ($\bar{X} = 1.46$, Table 3) reveal that those subjects were concerned with on-going meaning and with the production of grammatical structures in oral reading. This concern was not apparent among the subjects who scored below the mean. Subject 3 scored 1.09 in mean number of clauses per communication unit and corrected only 12% of his grammatically and

semantically unacceptable miscues. Excerpt from his oral language protocol was presented earlier in this discussion; excerpt from his marked worksheet is presented now for illustration.

Marked Worksheet of Subject 3:	
1201	<i>When</i> Helen looked out the window.
0604	Her mother said, "I don't think so." <i>can't</i>
0605	<i>Put</i> But look in the mirror and see."

The non-correction of these unacceptable miscues suggests that the subject is not concerned about meaningful structures. Many reasons beyond the scope of this study may account for this fact. It is possible, though, that among these reasons one of them is his poor language competence demonstrated by low scores in three syntactic variables -- mean length of communication units, mean number of clauses per communication units and mean number of subordinate clauses.

The Fifth Hypothesis

It was stated in the fifth hypothesis that there was no relationship between the mean type token ratio produced by six-year-old children in oral language and their reading proficiency assessed by the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

Hypothesis 5 was tested by the Pearson Correlation Coefficient. This test did not reveal any statistically significant correlation between the mean type token ratio and, (1) the percentage of comprehension loss in the patterns of comprehension, (2) the percentage of

weakness in the patterns of grammatical relationships, and (3) the retelling score (Table 2). Hypothesis 5 was, therefore, accepted.

According to these findings the type token ratio, which is a measure of verbal diversification, does not have any relationship with the percentage of miscue patterns which result in meaning disruption and in the production of ungrammatical structures in oral reading. It does not have any relationship with the quality of the retelling given after the reading either.

These findings need not be interpreted to mean that there is no relationship between vocabulary and beginning reading proficiency. However, it is apparent that the selected measure (out of the great variety of vocabulary measures potentially available for investigation) did not prove to be closely related to reading as measured in this study.

It is this investigator's hypothesis that the collection of oral language samples in only two situations, including a structured interview has posed limitations on the vocabulary diversity which might otherwise have been used by the subjects. The standard deviation for the mean length of communication units, the mean number of movables, the mean number of subordinate clauses and the mean number of clauses per communication unit were 1.75, 2.83, 1.84, and 1.24 respectively as compared to .46 for the type token ratio (Table 3). These figures show that the quantification of the syntactic measures yielded a well spread distribution, indicating, therefore, the diversification of syntactic patterns used by the subjects. On the other hand the type token ratio

scores clustered around the mean, indicating very little inter-child variability. As an illustration for answering the second question in the structured interview -- "Tell me about him" -- 66% of the subjects used descriptive terms such as, "soft, furry, cuddly, funny, silly, round, black ears, black nose, black eyebrows, black eyelashes, white hands, white tummy, white tail, red ribbon" and so on. For answering the question, "Can you remember some of the cartoons you have seen or stories you have heard about Snoopy?" 57% of the subjects talked about well-known cartoons such as Snoopy on Christmas, Easter, Thanksgiving, Halloween and Valentine's Day. So, a question remains -- whether type token ratio was not effectively measured in this study or whether in fact it does not bear relation to beginning reading.

Many investigators have explained the lack of correlation between measures of vocabulary and beginning reading in terms of the vocabulary used in first grade reading. According to Compton (1971, p. 41), "Typical first grade reading employs only a few hundred words and the typical six-year-old child understands the meaning of thousands of words." It is possible, therefore, that all subjects in this study have already achieved the minimum range of vocabulary needed for success in beginning reading.

Ancillary Findings Related to Oral Language and Reading

While analyzing the oral language protocols and the RMI worksheets and coding sheets, the investigator became aware of several factors which were deemed of sufficient importance to report in this study.

Oral Language

1. Three syntactic measures used in this study -- the mean length of communication units, the mean number of subordinate clauses and the mean number of clauses per communication unit were highly interrelated (Table 4). The mean number of movables was moderately interrelated with these measures. This finding suggests that mean length of communication units, mean number of subordinate clauses and mean number of clauses per communication unit may be used interchangeably as indexes of syntactic maturity.

2. The classification of movables revealed that movables of place appeared with greatest frequency accounting for 66.05% of all movables and being followed by movables of time 16.4%, movables of manner 10.2%, movables comprised of preposition plus an indirect object 7% and movables of cause and condition .21% (Table 5). The classification of subordinate clauses revealed that adverb clauses accounted for 62% of all subordinate clauses being followed by noun clauses 29% and adjective clauses 9% (Table 6). The frequency distribution of movables and subordinate clauses are comparable to the ones reported by Strickland (1962) and Loban (1963). The greater frequency of certain types of movables and subordinate clauses in six-year-old children's oral language supports Menyuk's (1963) finding that there is a sequence in children's acquisition of a productive repertoire of syntactic structures.

3. Age and sex did not correlate significantly with any oral language variable (Table 7). There is evidence from previous research

Table 5. Mean percent of M_1 , M_2 , M_3 , M_4 and M_5 produced by subjects in the two situations of oral language collection.

Situations	M_1	M_2	M_3	M_4	M_5
Sharing Time	69.8	8.6	11.6	.43	9.5
Interview	62.3	11.8	21.3	-	4.5
Two Situations Combined	66.05	10.2	16.4	.21	7

Table 6. Mean percent of adverb clauses, noun clauses and adjective clauses produced by subjects in the two situations of oral language collection

Situations	Adverb Clauses	Noun Clauses	Adjective Clauses
Sharing Time	68	24	8
Interview	56	34	10
Two Situations Combined	62	29	9

Table 7. Pearson Correlations among age, sex and the five oral language variables: AVUNIT, AVMOV, AVSUB, AVCL and AVTYP.

	AVUNIT	AVMOV	AVSUB	AVCL	AVTYP
Age	.23	.03	.31	.30	.08
Sex	.07	-.03	-.07	-.09	-.01

(Strickland 1962; Loban 1963; Menyuk 1964) that oral language measures are positively related to increasing chronological age of preschool and school age children. Since in this study the subjects' ages varied only between 6 years 1 month and 6 years 9 months, probably the range was not wide enough to show developmental trends. The lack of relationship between sex and oral language measures indicate that differentiation in speech patterns cannot be made on the basis of sex. Studies by Templin (1957), Strickland (1962), Loban (1963), Menyuk (1963) and O'Donnell, Griffin and Norris (1967) have reported the absence of clear sex distinction in oral language.

Reading

The three measures of reading proficiency used in this study -- the percentage of comprehension loss in the patterns of comprehension, the percentage of weakness in the patterns of grammatical relationships and the retelling score were all highly interrelated (Table 8). K. Goodman and Burke (1973) reported significant correlation between syntactic and semantic acceptability. These findings reaffirm the interdependence between syntactic and semantic structures, indicating that in oral reading concern with meaning does not occur independently from concern with grammar.

The high correlation between the patterns of comprehension and the retelling score deserves further consideration. The patterns of comprehension are a process measure, that is, they are obtained from analyzing interrelationships among correction and miscues produced during the actual reading. The retelling score is a performance

Table 8. Pearson Correlations among the three reading variables:
CMPLOSS, GRWEAK and RETELL.

Reading Variables	CMPLOSS	GRWEAK	RETELL
CMPLOSS		.83***	-.71***
GRWEAK			-.82***
RETELL			

***Statistically significant at .001 level.

measure because it is based on the evaluation of the subject's oral retelling after reading. Even though the patterns of comprehension and the retelling score assess reading effectiveness in different ways, they both provide insight into the reader's ability to reconstruct the meaning intended by the author. Significant correlation between comprehension (performance measure) and comprehending (process measure) was reported by K. Goodman and Burke (1973).

The subjects in this study corrected 17.3% of their total miscues and attempted to correct 13.3% more of them, while 68.8% were left uncorrected (Table 9). These percentages are comparable to the ones found in many miscue analysis investigations (Burke and K. Goodman 1970; Weber 1970). When the subjects were grouped according to the stories they read either from the Science Research Associates Readiness Series or from Scott Foresman Systems, Levels 2, 3 and 4, it was observed that the percentage of correction was very low for subjects who read a readiness story. Since their correction of unacceptable miscues was also much lower than correction of unacceptable miscues by the other groups, it might be concluded that these subjects were concerned neither with the production of grammatical structures nor with meaning. The readiness story did not have a predictable sequence and it used only simple, unrelated sentences; it is likely, therefore, that its context and grammatical structures were not conducive to the effective use of language cues. The percentage of unsuccessful corrections 13.3% (Table 9) was much higher than the one reported by K. Goodman and Burke (1973). Most of them occurred among subjects who read readiness and

Table 9. Mean percent of miscue correction, unsuccessful correction and non-correction made by subjects grouped into reading levels.

Groups	Correction	Unsuccessful Correction	Non-Correction
Readiness	2	16	82
Level 2	10	23.3	66.6
Level 3	27.7	8	64.3
Level 4	29.5	6	62.5
All groups combined	17.3	13.3	68.8

Level 2 stories and they consisted mostly of unsuccessful attempts at sounding out words. Probably these subjects were relying heavily on analytical techniques using only cues within words at the expenses of syntactic and semantic cues.

At all reading levels the subjects corrected syntactically unacceptable miscues at a greater rate than fully acceptable miscues. For all subjects in this study the mean percentage of correction for syntactically unacceptable miscues was almost three times the rate for fully acceptable miscues (Table 10). Similar proportions were observed for semantic acceptability. For all subjects in this study the mean percent of correction for semantically unacceptable was more than three times the rate for fully acceptable miscues (Table 11). These findings are comparable to the ones reported by Burke and K. Goodman (1970) and by Weber (1970). They indicate that miscues are more apt to be corrected when the resulting syntax is unacceptable and when meaning is affected. With the exception of the readiness group which had a very low percentage of correction, the differences among the other groups concerning correction of semantically and syntactically unacceptable miscues were negligible. However, the percentage of correction for fully acceptable miscues was much lower for group 4 than for the other groups. This fact suggests that the more advanced the reader's level, the greater the tendency to leave uncorrected those responses which do not interfere with syntax and meaning.

Analysis of the types of miscues made by subjects reveals that substitutions were the most frequent miscue type accounting for more

Table 10. Syntactic acceptability and mean percent of miscue correction by subjects grouped into reading levels.

Groups	% Miscues Corrected	Unacceptable	Partially Acceptable	Fully Acceptable
Readiness	2	25	52.5	22.5
Level 2	10	51.6	15	33.3
Level 3	21.7	74.5	8.2	17.2
Level 4	27	67	27	6
All groups combined	15.2	54.5	25.7	19.8

Table 11. Semantic acceptability and mean percent of miscue correction by subjects grouped into reading levels.

Groups	% Miscues Corrected	Unacceptable	Partially Acceptable	Fully Acceptable
Readiness	2	25	52.5	22.5
Level 2	10	50	33.3	16.6
Level 3	21.7	64.6	24.7	10.7
Level 4	27	54.5	42	3.5
All groups combined	15.2	48.5	38.1	13.3

than half of all miscues (56.9%) and being followed by omissions (32.5%), insertions (9.6%) and reversals (.9%) (Table 12). When the subjects were grouped according to the stories they read -- either from the Science Research Associates Readiness Series or from Scott Foresman Systems, Levels 2, 3 and 4 -- substitutions were again the most frequent miscue for all groups except the readiness group. For this group omissions were more frequent than substitutions, a finding which indicates that the subjects in this group were not confident in attempting to figure out the words by using any available cues. The high frequency of substitutions among subjects in Levels 2, 3 and 4 suggests that they were making greater attempts to use work attack strategies. These strategies did not appear to be only responses to the cue systems within the words because 60.6% of all substitutions made by the subjects in these three groups did not involve change in the part of speech (Table 13). It might be concluded that they were using grapho-phonetic information within the contexts of grammar and meaning.

The range of the mean number of miscues per hundred words (MPHW) went from 4.7 to 19.8 with a mean of 10.2 (Table 14). When the subjects were grouped according to the stories from the Scott Foresman Systems, Levels 2, 3 and 4, the mean MPHW per group were 17.0, 9.9 and 6.8 respectively. The MPHW could not be computed for the group which read a readiness story because it had less than 100 words. Significant correlation was found between MPHW and the percentage of comprehension loss in the patterns of comprehension (.74 $p < .001$), the percentage of

Table 12. Mean percent of types of miscues made by subjects grouped into reading levels.

Groups	Substitutions	Omissions	Insertions	Reversals
Readiness	42.3	48.8	7.8	1.1
Level 2	58.7	32	9.3	-
Level 3	56.6	35.4	7.4	.57
Level 4	70	14	14	2
All groups combined	56.9	32.5	9.6	.9

Table 13. Mean percent of substitution miscues which did not involve change in part of speech.

Group	Percent
Readiness	45.1
Level 2	65.3
Level 3	64.5
Level 4	67.6
All groups combined	60.6

Table 14. Ranges and means of MPHw of subjects grouped into reading levels.

Groups	Range	Mean
Level 2	15.5 - 19.8	17.0
Level 3	8.2 - 12.5	9.9
Level 4	4.7 - 9.2	6.8
All groups combined	4.7 - 19.8	10.2

weakness in the patterns of grammatical relationships (.73 $p < .001$) and the retelling score (-.63 $p < .001$). These significant correlations between MPHW and measures of reading proficiency as well as the decrease in number of mean MPHW as subjects advanced from Level 2 to 3 and 4 appear to indicate a relationship between miscue quantity and reading proficiency. However, as it has been pointed out by K. Goodman and Burke (1973, p. 32):

This should not be taken as proof that accuracy is a prerequisite for efficient effective reading. Among more proficient readers, it is likely that the lower quantities of miscues is the result of their efficiency in processing information in reading rather than the cause of it.

Summary of Results

Hypotheses Testing

1. The findings of the statistical tests used in this study reject Hypotheses 1, 3 and 4 indicating that three oral language variables -- the mean length of communication units, the mean number of subordinate clauses and the mean number of clauses per communication units -- are significantly related to three reading variables: the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

2. The findings of the statistical tests support Hypothesis 2 as far as the relationship between the mean number of movables and the patterns of comprehension of the Reading Miscue Inventory is concerned. They reject Hypothesis 2 as far as the relationships between the mean

number of movables and, (1) the patterns of grammatical relationships, and (2) the retelling score are concerned.

3. The findings of the statistical tests support Hypothesis 3 indicating that the type token ratio is not significantly related to the patterns of comprehension, the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

Ancillary Findings

Oral Language

1. There was a very high degree of interrelationship among three syntactic variables used in this study -- the mean length of communication units, the mean number of subordinate clauses and the mean number of clauses per communication units. The mean number of movables was moderately correlated with these three variables.

2. Movables of place were the most frequent accounting for more than half of all movables and being followed by movables of time, movables of manner, movables comprised of preposition plus an indirect object and movables of cause and condition.

3. Among the subordinate clauses the adverb ones were the most frequent accounting for more than half of all subordinate clauses and being followed by noun clauses and adjective clauses.

4. There was no significant correlation between age, sex, and the five oral language variables used in this study.

Reading

1. There was a high degree of interrelationship among the three reading proficiency variables used in this study -- the percentage of comprehension loss in the patterns of comprehension, the percentage of weakness in the patterns of grammatical relationships and the retelling score of the Reading Miscue Inventory.

2. The subjects corrected or attempted to correct 30% of their total miscues. At all reading levels syntactically and semantically unacceptable miscues were corrected at a much greater rate than fully acceptable ones.

3. When grouped into reading levels, correction was low among subjects who read a readiness story; unsuccessful correction was high among subjects who read readiness and Level 2 stories; correction of fully acceptable miscues was low among subjects who read a Level 4 story.

4. Substitutions were the most frequent miscue type accounting for more than half of all miscues and being followed by omissions, insertions and reversals. For the group which read a readiness story omissions were slightly more frequent than substitutions. More than half of all substitutions did not involve change in part of speech.

5. There was an inverse relationship between the mean number of miscues per hundred words (MPHW) and the reading level of the subjects. Significant correlation was found between MPHW and, (1) the percentage of comprehension loss in the patterns of comprehension, (2) the percentage of weakness in the patterns of grammatical relationships, and (3) the retelling score of the Reading Miscue Inventory.

CHAPTER 5

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

Conclusions and Implications

From this study strong evidence exists to indicate that children's oral language structure upon entering school is reflected in their reading proficiency acquired in the first year of exposure to a planned reading program. More specifically the study suggests that there are certain factors in oral language -- mean length of communication units, number of subordinate clauses and number of clauses per communication unit -- which are highly related to reading comprehension and to the production of grammatical structures in oral reading.

Implications for language arts programs in early childhood education may be drawn from this conclusion. One of them concerns the need for a systematic approach toward oral language assessment of preschool and school age children. Even though it is generally agreed that between the ages of four and five children have acquired most of their basic knowledge about the structural features of their own language, many investigations (Loban 1963; Chomsky 1970; Bormuth et al. 1970) have indicated that differences in linguistic competence do exist among preschool and school age children and they lie mainly in the area of syntax.

It is important, therefore, to assess the degree to which children are able to understand and to produce syntactic features which are indexes of linguistic maturity. Do they use linking verbs and inner complement patterns? Do they use movable elements to expand the basic patterns? Do they use dependent clauses to express relations between parts of a sentence? Do they use transformations appropriately? Do they use language to express tentativeness, supposition, hypothesis, condition? Are they able to understand constructions in which the grammatical relations among the words are not expressed directly in surface structure? Are they able to understand clauses in which elements are deleted?

By knowing where each child stands in relation to these features, it is possible to differentiate between more and less proficient users of language. In early childhood language arts programs the information yielded by assessment should become the basis for designing special activities which expose children to those features of syntax still lacking in their oral expression and which present them with real situations conducive to their appropriate use and practice.

Another conclusion which seems justified from the findings of this study concerns the high degree of interrelationship among three variables of syntactic complexity -- the mean length of communication units, the number of subordinate clauses and the mean number of clauses per communication unit. The subjects in this study could be distinctly classified into high, average and low groups according to the extent of their use. In addition these variables were the ones which strongly

correlated with reading proficiency. It appears, therefore, that all instruments which purport to measure language development should focus on the range of grammatical resources and syntactic options that are available to the children for active use.

This investigator suggests that these three oral language variables -- the mean length of communication units, the number of subordinate clauses and the number of clauses per communication unit -- be tested separately and in combination with larger samples to validate their usefulness as components of oral language maturity related to reading proficiency.

The findings of this study concerning types of miscues and the interrelationship among correction, syntactic and semantic acceptability lead to two major conclusions. First from the very beginning children expect the sentences they read to conform to the structure of the language they already know and they actively use this knowledge while they read. Second, it is the effectiveness in the use of syntactic and semantic cues which determines reading proficiency defined in terms of comprehension and production of grammatical structures in oral reading.

Since these conclusions were previously reached by investigators who studied miscue patterns in first grade reading, there appears to exist overwhelming evidence to indicate that children naturally do use language constraints in reading and they do want to handle reading as a meaning seeking process.

In face of these facts why do the most common approaches to reading instruction still disregard entirely all the strengths the children can bring to the reading process? Why do they still focus on the exact, detailed, sequential perception and identification of letters and words? Why do they still emphasize recoding at the expenses of decoding? Why are young readers, not able to deal with abstractions yet, urged to dissect and pull language apart into abstract pieces?

There is one single answer to all these questions -- the most common approaches to reading methodology have not assimilated yet the vast amount of knowledge on language and reading amassed by linguistics and psycholinguistics in the last decades. This knowledge has led to the view that reading is an active process which requires the interaction between cognition and language and that language competence is the greatest resource in learning to read. If reading is a natural extension of language, the time has come for us to start teaching it as such.

Recommendations for Further Research

1. The present study should be replicated with larger samples including children from different schools which vary in the approaches to teaching beginning reading.
2. As an attempt to obtain data which optimally reflects the typical language produced by children of a given age, oral language samples should be recorded in differing types of experimental situations such as adult child interviews, child-child conversations, "free-play" in school settings and "free-play" out of school settings.

3. Measures of vocabulary diversity such as the type token ratio should be used in combination with measures of vocabulary extent so that a more dependable estimation of children's vocabulary may be secured.

4. It would be desirable to conduct a follow-up study to determine if the relationship between oral language structure and reading proficiency identified by this investigation remains constant in subsequent primary grades.

5. The patterns of miscues produced by beginning readers should be analyzed at several points during the first year of exposure to a planned reading program. This procedure would lead to the identification of the various strategies which children use in successive encounters with reading materials throughout the year.

6. In the assessment of reading proficiency by means of the Reading Miscue Inventory, the patterns of sound-graphic relationships should be considered. It is the analysis of the interrelationships among the patterns of comprehension, of grammatical and graphic-sound relationships which yields complete information on how effectively readers use all cues available in the reading process.

7. Continued, persistent and cumulative research is needed to determine the minimum level of oral language competence requisite for success in beginning reading and to determine whether typical first grade beginners have already achieved this level.

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