ANALYSIS OF RELATIONSHIP OF LENGTH OF PASSAGE TO CATEGORIES OF ORAL READING ERRORS

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Submitted to the Faculty of the Graduage College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
DOCTOR OF EDUCATION
August, 1969

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ACKNOWLEDGMENTS

The writer wishes to express special appreciation to Dr. Darrel D. Ray, chairman of her Advisory Committee, for his perceptive help and encouragement throughout this study. To Dr. Donald Denum, for his help on the statistical analysis special thanks are extended. For their helpful suggestions, she also wishes to express appreciation to the other members of her committee, Dr. Bernard Belden and Dr. Russell Dobson, and to Dr. Norman Wilson, former member of her committee.

Appreciation is extended to Dr. Dale Williams, Kay County Guidance Center, to curriculum directors, principals, fourth-grade classroom teachers of Kay County, and to the fourth-grade students who participated in this study.

My sincerest appreciation is expressed to my friends and colleagues, especially Margery Berends, Bettie Vanice, and Natalie Babcock for their patience and help during the preparation of this manuscript.

To all disabled readers, this study is thoughtfully dedicated.

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CHAPTER I

INTRODUCTION

Although oral reading inventories have been advocated for many years, the possible relationship between length of passage and categories of oral reading errors has not been considered. Instead of the teacher merely assigning a reading grade level placement for her children, authorities in the field of reading have suggested that teachers mark errors and then these errors be analyzed and plans formulated for remediation. Many textbooks about reading and reading workbooks include exercises to be used to overcome deficiencies that are noted from oral reading at sight. However, the length of passage needed to obtain a stabilized sample of oral reading errors is not known at this time.

Confusion is apparent since there is little agreement on the minimum number of words that should be read before errors are analyzed. For instance, the length of informal reading inventories recommended by authorities in the field of reading range from 30 to 60 words at the primer level and from 100 to 300 words at the upper levels. Selected standardized oral reading diagnostic test passages vary in length from 20 to 259 words, depending on the reading level of the child and the test used. Thus, no consensus is evident and no reasons are given for the selection of the particular number of words. No research has been found where this problem has been investigated.

Need For the Study

This study is designed to establish the appropriate length of passage that disabled readers should read at instructional level in order for the examiner to obtain the most reliable error pattern upon which to base instructional needs. This study is particularly interested in investigating the ratio of errors to the number of words read and investigating the number and types of errors made.

A need for the study is evident when the differences in opinion of reading authorities are considered concerning the number of words that a child should read during a testing situation. Estimates of length for an informal reading inventory vary from one sentence for a quick estimate by Dolch (1953) and Wheeler and Smith (1957) to 30 to 300 words, depending on the reading level of the child, as recommended by Johnson and Kress (1965). For example, at the pre-primer level estimates of the number of words to be read for an informal reading inventory vary from 25 (Patty, 1965) to 57 (Sipay, 1951) who used these numbers of words in their investigations. Further variation is seen between Silvaroli (1969) who used 43 words at first reader level for his test and Williams (1963) who used 204 words at the 1^1 reader level in an informal reading inventory. Many authorities recommend "100 or more" words at the upper reading levels, but they give no reason for these numbers and do not suggest how many "more" would be appropriate.

Standardized oral reading tests also add to the complexity of determining a suitable length. Durrell (1965) urges the reading of at least three selections (128 words on the first three paragraphs) from the oral reading paragraphs followed by the use of his check list of behaviors. Gates-McKillop test administrators are instructed to have the child read at least the first four paragraphs (153 words) and to analyze the errors according to the directions in the manual (1962). Spache (1963) does not suggest a number of words to be read, and Gilmore (1947) states that he set the limits of paragraph length arbitrarily.

There are indications that the selections of reading tests may be too short. Harris (1961) notes that the short samples of 50-word selections at preprimer level and 200-word selections at and above second reader level may be enough to show that the material is very easy or too difficult, but he cautions that it may be little enough on which to base a judgment. Ramsay's (1967) conclusions that standardized reading diagnostic tests may be too short was reached as a result of the work of Shedd. Shedd (1968), working with students at the Birmingham University School summer program in 1967, noted that 52 per cent of 112 students made more errors on the first paragraph of the Gates-McKillop Reading Test than on the second paragraph. Shedd's statement would seem to suggest the number of errors may vary as well as the error pattern might be different when a child is doing sustained oral reading in the classroom. If the pattern of errors remains the same when 25 words are read as when 125 or 325 are used, then it would seem that more than 25 words would not be needed.

Since there are many opinions and no research directly attempting to determine the most effective number of words needed to determine error patterns necessary for diagnosis, the need for this study is evident. If the minimum number of words necessary to obtain a maximum diagnostic error pattern can be identified, then teachers, reading specialists, and test makers can provide the number of words required. Thus, a more efficient and reliable diagnosis should result.

Statement of the Problem

The principal objective of this study is to analyze the relationship of the number of words read and the error patterns of disabled fourth graders when stories were read orally at sight on the instructional level.

More specifically, this study will attempt to answer the following questions:

1. What is the minimum number of words necessary to establish a consistent diagnostic error pattern for disabled readers at the instructional level?

2. At what point does the adding of words no longer seem to change the pattern of oral reading errors?

3. Is there a significant difference in error patterns when the number of words read is 25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300, 325, 350, 375, 400, 425, 450, 475 and 500?

4. Will the error pattern stabilize on the same number of words for disabled readers reading different stories at 1.5, 2.0, 3.0, and 3.6 levels of readability?

5. Will different error types stabilize on different numbers of words?

Definitions of Terms

Instructional Level: According to criteria established for informal reading inventories by Killgallon (1942) and Betts (1946), this is the level at which the child can read with no more than one word-recognition error in each 20 words and has a comprehension score of at least 75 per cent. At this level a pupil should be able to make successful progress in reading with teacher guidance.

Disabled Reader: If a child's reading grade is significantly lower than his mental grade, he is classified as a disabled reader. In the intermediate grades a difference of one to one and a half grades is used (Bond and Tinker, 1967).

Oral Reading at Sight: Material given to the reader is read without preparation or previous exposure.

Delimitations

Scope of the Study

This investigation was concerned with children who were enrolled in the fourth-grade classrooms of the public and private schools of one county in Oklahoma in the spring of 1968. All rural and city elementary schools in the county were included in the screening.

The final sample consisted of 76 children whose full scale I. Q. score was 90 or above on the WISC and whose reading instructional level was 2^1 or 3^1 as measured by Form B of the Standard Reading Inventory, and who were, therefore, considered disabled readers. The subjects were free from known uncorrected disabilities such as vision difficulties and speech impediments which would make it difficult to distinguish speech errors from reading errors.

This study was concerned primarily with the study of errors as the children read orally at sight passages of 500 words in length on their designated instructional level.

This study was not concerned with the differences between scores on standarized tests and informal instruments. Neither was it concerned with the percentages of errors needed to establish the instructional level nor with aspects of comprehension, since comprehension was considered when the instructional level was established. This investigation is, instead, concerned principally with the possible relationship between oral reading errors and the number of words read.

Limitations of the Study

This study is limited by the population which is representative of the school districts in one county in northern Oklahoma and of one grade placement, that of fourth-graders.

This study may also be limited by unknown conditions within the reader which can not be taken into account in this report and which may be factors contributing to a child's lack of success in reading.

Underlying Assumptions of the Study

A major assumption underlying this study is that the instruments used in this investigation actually measure the factors they are designed to measure and are pertinent to this study.

A second assumption is that each word in a story will yield to a particular child an opportunity to make any one of several types of errors and that the errors are a random sample of reading behavior for an individual reader.

A third assumption is that the classification of oral reading errors and the use of these errors for establishing an instructional level is pertinent.

A final assumption is that these disabled readers may be considered a representative sample of disabled readers.

Organization of the Study

Chapter I has given an introduction to the investigation to be undertaken. It has included the need for the study, the statement of the problem, the definition of terms, the delimitations of the study, and the assumptions underlying the study.

Chapter II will present a review of the literature which is related to the problem being investigated.

Chapter III will describe the population studied, the instruments used for the collection of the data, the hypotheses to be tested, and a description of the statistical treatment of the data.

Chapter IV will contain a statistical analysis of the data. It will contain the treatment of the data, the analysis of the results, and indications of the degree to which the hypotheses were found to be correct.

Chapter V will present a general summary of the investigation and a discussion of the results including conclusions and recommendations.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

A review of the literature indicates that the concept that error patterns change as different numbers of words are read has not been investigated until this time. Authorities in the reading field recommend or use different passage length for oral reading tests, but no research was found concerning their reason for using a specific number of words. Also, there have been many suggestions that errors be tabulated following oral reading and then remediation planned to correct the deficiencies as indicated. Therefore, this review of literature has been restricted to studies and opinions concerning some of the questions raised by this study, and these will be discussed under the following areas of interest: (1) length of passage suggested or used for oral reading tests, (2) diagnostic use of oral reading errors, and (3) error categories as found in tests and research.

Length of Passage

Such authors of standardized oral reading tests as Durrell, Gates-McKillop, Gray, and Spache do not mention the reasons for the number of words they used in their tests. Gilmore (1947) states he set the number of words in his passages arbitrarily and, while the others do not say so, they evidently did the same.

The passages on the _Gilmore Oral Reading Test_ (1952) vary in length from 26 to 250 words. Ramsey (1967) suggested that the greater length of the _Gilmore_ passages may make them more useful than the _Gray Oral_ (1963) paragraphs which vary from 20 to 63 words.

Passages on the _Diagnostic Reading Scales_ range from 29 to 212 words in length. Directions in the manual instruct the examiner to "continue with successive trial passages, each at a higher level, up to the point at which the pupil makes more errors than the standard" (Spache, 1963).

Another diagnostic test, the _Durrell Analysis of Reading Difficulty_ (1955) contains passages that vary in length from 21 to 111 words, and the examiner is instructed to have the child read aloud at least three appropriate selections. The total of the first three paragraphs is 128 words.

The manual for the _Gates-McKillop Diagnostic Oral Reading_ Test (1962) instructs the examiner to require the child to read at least the first four paragraphs, 153 words total. Errors are to be analyzed according to the directions in the manual.

Following a study of informal oral reading tests, it appears that a great difference exists regarding the number of words a child should read. Among those who recommended approximately 100 words for an informal reading inventory were Austin and Huebner (1962). However, their inventory constructed in 1961 contained passages of 43 to 169 words (Austin, Bush, and Huebner, 1961). According to Hildreth (1936) "one of the best and simplest ways of discovering the nature of reading disability in primary children is to have the child read orally a passage of about 100 words." Botel (1963) instructed the teacher to mark off 100 words of typical continuous material and to have the student read aloud at sight. McCracken (1967) reported that a total of 100 words is ample for oral reading, but his passages on the Standard Reading Inventory vary in length from 47 to 149 words, while the child reads only the number required to establish independent, instruction, and frustration levels. To establish these levels, Silvaroli's Classroom Reading Inventory (1969) includes stories that range from 24 words at pre-primer to 126 words at fifth grade and only 110 words at sixth grade level. In his discussion of the informal reading inventory, Durrell (1940) noted that "while the selection need not be more than 100 words in length, it is often difficult to find such short materials for third and fourth grades."

Neither Spache nor Betts set a limit for the number of words to be used for an informal reading inventory. Spache (1964) did not suggest errors may be different as more words are added, but he did caution that "the selection should require at least four minutes of reading time for the average pupil if rate of reading and comprehension are to be sampled adequately." Betts (1946) advised the use of materials which are of "sufficient length to appraise adequately specific abilities and skills." Betts also pointed out that as materials increase in difficulty they will also increase in length, and on the Betts-Welch Informal Reading Test, selections vary from 29 to 212 at the different levels.

Cooper in his study (1952) reported selections of 50 to 150 words were used because it was his opinion that any selection over 150 words in length would consume valuable testing time without giving any additional information. However, in his mimeographed sheet (1968) he said that selections of 50-175 words should be used. It was his conclusion that length of the selections would vary because of the continuation of a sentence through the suggested number of words or because of the suitability of the sentences for constructing comprehension questions.

When constructing informal reading inventories in order to compare the scores on these with scores on the Gilmore Oral Reading Test and the Gray Oral Reading Test, Patty (1965) used basal reader selections that varied in length from 25 words at pre-primer level to 186 words at sixth grade level. Seventh, eighth, and ninth grade reading passages were shorter than the sixth grade passages and no reason for the choice of length was given.

While comparing scores on the Metropolitan, California, and Gates survey tests with functional reading levels as measured by an informal reading test, Sipay (1961) developed inventories using Scott, Foresman basal readers. These passages ranged in length from 54 words at pre-primer to 221 words at the twelfth grade level. Since no explanation was given by either Patty or Sipay for choosing these passage lengths, the reader can only surmise that neither writer considered the question of length of passage significant for informal reading inventory tests.

Other writers suggested different lengths for informal reading inventories. Zintz (1966) proposed that 60 to 70 running words would be adequate for primer and first grade levels, while 100 to 150 words would be appropriate at second and third grade levels to insure adequate comprehension questions. Kolson and Kaluger (1963) recommended 100 to 150 words to establish an instructional level, and Bond and Tinker (1957, 1967) also advised the selection of 100-150 words from each successive book.

Harris (1961) concluded that 200 word selections should be used for second grade and above. While discussing the establishment of the instructional level, he cautioned that although a short sample may indicate if the material is very easy or too difficult, "usually samples of the lengths suggested are little enough on which to base a judgement." Johnson and Kress (1965), while discussing the length of an informal reading inventory, advised the use of "as few as 30 words at pre-primer level," but suggested 250-300 words at the ninth reader level.

Williams (1963) compared scores on the California, Metropolitan, and Gates Survey reading tests with reading inventory scores in grades four, five and six, using inventories based on Macmillan, Allyn and Bacon, and Scott, Foresman basal reader materials. These informals varied from 143 words to 288 words and no information was given concerning the types of errors which were tabulated. She concluded that the Macmillan inventory was more difficult than the Allyn and Bacon. The Scott, Foresman inventory, which correlated most highly with the standardized tests, was a series familiar to the subjects and, therefore, could not be directly compared to the other two informals. However, it is interesting to note that there was considerable variation in the length of the materials at the same level, and that the Macmillan materials were the longest in seven out of 15 levels. Therefore, it seems that length of materials was a variable that was not considered and could have affected the conclusions.

Monroe (1932) prorated each child's errors to 500 words which was the "nearest round number to the actual number of words read by the median child of the control group." Her assumption was that a child maintains the same ratio of error types in 500 words as he does in the number of words actually read. Herlin (1963) in order to investigate the relationship of norms and gross errors on the Monroe and Durrell tests also converted gross errors to 500 words.

Thus, differences are evident in the recommendations and suggestions for length of passage. It should be noted in Table I

TABLE I

RECOMMENDATIONS ON LENGTH OF IRI

Author	Length of Passage	Source of Information
Austin and Huebner	Under 100 at primer to over 100 at intermedicate and upper grades	Judgment
Austin, Bush, Huebner	43-169	Informal
Betts-Welch*	29-212	Informal test
Bond and Tinker	100-150	Judgment
Botel	100	Judgment
Cooper	50-150	Dissertation
Harris	50-200	Judgment
Hildreth	about 100	Judgment
Johnson and Kress	30-300	Judgment
Kolson and Kaluger	100-150	Judgment
McCracken	100	Judgment
	47-149	Dissertation
Patty	25-186	Dissertation
Silvaroli	24-126	Informal Test
Sipay	54-221	Dissertation
Williams	143-288	Dissertation
Zintz	60-150	Judgment

*Silent reading before oral reading

that Austin, Bush, and Huebner, Betts, Cooper, McCracken, Patty. Silvaroli, Sipay, and Williams actually constructed informal tests even though the effect of length of passage was not investigated. Others only suggested in writing what they considered to be suitable length of passages.

Diagnostic Use of Oral Reading Errors

The use of oral reading errors as a basis for the remediation of reading difficulties is recommended by many writers of books and articles about reading. Although the reasons for the errors and the uses of these errors in remediation is beyond the scope of this research, a review of the importance of the use of oral reading errors should be considered.

In discussing the importance of oral reading errors, several early studies in reading emphasized that no two children will make the same errors on the same words and that individual diagnosis is necessary if the child is to attain optimal growth in reading skills (Monroe, 1935; Duffy and Durrell, 1935; Bennett, 1942).

Silvaroli (1965) emphasized the need to identify specific types of word recognition errors which are made by each child. He cautioned that merely counting the errors will not provide the teacher with an analysis of the child's oral reading performance. Johnson and Kress (1965) supported the idea of preciseness when they urged the use of the informal reading inventory for an analysis of the specific strengths and weaknesses of each reader. They concluded that teaching at the right level is not enough; instruction must be directed toward overcoming any specific weaknesses that exist.

The need for understanding specific weaknesses was also emphasized by Harris (1961) when he asserted that understanding pupil difficulties is the important goal and that errors made should be carefully inspected for information given about other aspects of the child's reading performance. Smith and Dechant (1961) stated that analysis of oral reading errors identifies readers' problems. Bond and Tinker (1967) stressed that the kinds of errors will reveal the kinds of difficulties the pupil has in analyzing words, while Gray (1922) said treatment of errors in oral reading should be considered tentative until the psychology of the different types of errors can be worked out in detail.

The use of oral reading errors to identify instructional needs was indicated by Davis (1931), who concluded that if every pupil were to receive help attacking errors, remedial methods must be used in regular class work. Betts (1936) emphasized that remedial procedures should be based on deficiencies revealed by the analysis program and Woestehoff (1958) reported errors should be analyzed to develop corrective procedures. Mulroy (1932), who developed corrective procedures by constructing exercises to correct deficiencies as revealed by an analysis of oral reading errors, concluded her experimental groups improved significantly in accuracy of oral reading while the control groups did not.

In the higher grades error analysis was recommended by Marksheffel (1966) who recommended that teachers of reading in the secondary schools use an error analysis as a basis of remediation. Courtney (1964), while working with college readers, used errors qualitatively as well as quantitatively.

A significant pattern of reading deficiencies should emerge after observation and tabulation of the different types of errors. Daniels (1966) demonstrated this point when he said that the teacher should not only diagnose the level of mastery of reading skills but, more importantly, identify the pattern of reading deficiencies. Watkins (1953) compared the reading proficiencies of 64 third grade children making normal reading progress with 64 disabled readers in grades four, five and six who were of comparable I. Q., but who were reading on the third grade level. She noted that the same total reading score is no indication that readers possess similar reading patterns. To establish a pattern of errors, Spache (1964) urged that the proportions of various errors, the types that are excessive, and the portion of the word in which the errors are concentrated should be noted. Then, certain explanations for the more frequent errors can be assumed and logical steps for correction may be initiated. Using such diagnostic information for instructional needs was also suggested by Kerfoot (1965) who urged careful interpretation of various types of significant error patterns.

Thus, it can be seen that many writers considered the analysis of oral reading errors and the determination of the pattern into which the errors fall to be a starting point for remediation.

Error Categories

Weber, in the Reading Research Quarterly (1968), reviewed more than 30 studies that sought to establish norms for the diagnosis of reading difficulties or to provide insight into the nature of the reading process. The studies, 1928 to 1968, covered many aspects of oral reading errors including the relationship to silent reading, the development of errors from beginning reading to adult reading, and possible causes of errors. Her conclusions expressed the need for more research on the optimal techniques for dealing with errors in the classroom and aspects of materials and curriculum that may cause errors.

Weber stated that previous studies using oral reading errors cannot be compared profitably because of differences in ages of the subjects, differences in methods of presenting the materials, and unlike as well as overlapping categories. Therefore, those studies and tests utilizing elementary students who were reading continuous materials were considered by this investigator. For clarification the studies in the following review are divided into three sections: (1) sound-symbol relationships, (2) positional word errors, and (3) classifications including broad categories such as mispronunciations

TABLE II

SOUND-SYMBOL RELATIONSHIP ERROR CATEGORIES

Monroe (1932)	Killgallon (1942)	Schummers (1956)	Schale (1964)
Refusals and words aided (15 seconds)	Refusals	Hesitations (5 seconds) & words aided (S)**	No response; words aided (10 seconds)
	Guessing		Gross mispronunciation (no resemblance to real word)
			Partial mispronunciations:
			partial response, (pronounced part of word)
Faulty vowels, faulty consonants (altered sounds)	Initial consonant error, final consonant error (used in sense of dependence on initial or final clues- some→song, dear-need	Consonant alteration (P),* vowel alteration (P),* vowel-consonant alteration (P),* (irrespective of location of the error)	wrong sound

TABLE II (Continued)

Monroe (1932)	Killgallon (1942)	Schummers (1956)	Schale (1963)
Omission of sounds	Omission of final s	Omission of sound (irrespective of location of the error) (P)*	partial omission (one or more letters omitted)
Addition of sounds	Addition of final s	Addition of sound (irrespective of location of error) (P)*	partial insertion (one or more letters)
	Faulty syllabication		wrong syllabication
		Accent incorrect	wrong accent
Reversals: letters - p-b; sequence - left-felt, saw-was, he said-said he	Letter reversals - p-b; partial reversals - act-cat; complete reversal - but-tub; word reversals	Reversals: letters - initial, medial, final; letter sequence reversal - was-saw; order of parts incorrect: skills-silks (P)*; word sequence reversal: Jerry said-said Jerry (S)**	partial inversion (one or more letters) Inversions (word or group of words)
Omission of words (each word one error)	Omission	Omission of whole word (S)**	Omission (word or group of words)
Additions (each word one error)	Insertion	Addition of whole word (S)**	Insertion (word or group of words)

TABLE II (Continued)

Monroe (1932)	Killgallon (1942)	Schummers (1956)	Schale (1963)
Substitution - (no vowel or consonant sounds same)	Substitution - puppy ran for dog ran	Substitution of a whole word (P)*	Substitution (one or more meaningful words)
Repetition - (one error for each word)	Repetition	Repetition of one or more words except for correction (S)**	Repetition (one or more words)

*P - Primary errors
**S - Secondary errors

and substitutions. Similarities and differences of these error classifications will be noted.

Researchers who used sound-symbol relationships include Monroe, Killgallon, Schummers, and Schale as reported in Table II. Monroe's phonetic classifications were used in her study of 415 reading disability cases. Errors made by disabled readers from reading words in context and in isolation were compared to those made by 101 subjects in the control group. From these norms she evolved reading profiles and planned specific remedial techniques (Monroe, 1928).

It should be noted that Monroe used only sound-symbol categories with no provisions for structural analysis errors which were buried in omission and addition of sound classifications. Words considered to be "sight" words were categorized in the "sound" classifications and word parts were not considered cues since all other types except "reversal, additions and omissions" are phonetic classifications (Hill, 1936). Monroe tabulated errors in more than one category. Mispronunciations such as tap for trick were tabulated under a sound addition, a vowel error, and a consonant error.

Killgallon (1942) investigated relationships among certain pupil adjustments in language situation of fourth-graders. Using 14 error categories, he reversed the faulty vowel and faulty consonant categories of Monroe by using categories of initial consonant error and final consonant error in the "sense of overdependence upon initial and final sounds" instead of the wrong element. Examples given were some for song, and dear for need. He retained the refusals, reversals, omissions, insertions, substitutions, and repetitions of Monroe, but added categories for guessing, omission and addition of final s, and apparently ignored vowel errors. Unlike Monroe, however, Killgallon did note faulty syllabication.

Schummers (1956), using third grade children to investigate the extent of the relationship of accuracy of oral reading, sex, intelligence, and difficulty of the reading material, classified errors into primary and secondary categories. Primary error categories, where the sound of the word was actually altered, included the following: addition of a sound, omission of a sound, consonant alteration, vowel alteration, vowel-consonant alteration, reversals, and word substitutions. He picked up the faulty vowel category of Monroe which had been ignored by Killgallon and added vowel-consonant alteration. Each of the primary errors included sound errors at the beginning, in the middle, and at the end of words, but these were still classified as sound errors. A secondary analysis was made of the errors according to location of the error. Schummer's secondary errors, which did not alter the word sound, included: hesitations (aid), omission of a whole word, addition of a whole word, repetition of a word, and word sequence reversals. It should be noted that hesitation is a new category in name only since it was used by Monroe and Killgallon as words aided or refusals. Word sequence reversals were included in the reversal categories of Monroe and Killgallon; where

Schummers put the word sequence reversal as a secondary error since it involves the whole word.

Schale (1964), while investigating changes in oral reading errors at elementary and secondary levels, used 15 boys and 15 girls randomly selected from grades 2, 4, 6, 8, 10, and 12. She used eight major reading error categories since her subjects read passages from the Gray Oral Reading Test, Experimental Edition, Form B. Her wrong sound category included the structure error walked for walking. However, structure errors are included in the examples of omission of one or more elements in the Gray Oral Reading Test edited by Robinson (1963). In this test examples of wrong sound include veen for vein and hisself for himself.

Similarities as well as the differences are evident in the error classification schemes of Monroe, Killgallon, and Schummers, all of whom were concerned primarily with sound-symbol or auditory-visual categories.

Instead of the sound-symbol relationships discussed above, Gates and McKillop (1962) emphasized positional errors in the category of mispronunciation of a word wholly or in part. Positional error categories are wrong beginning, wrong middle, wrong ending, and wrong in two or more parts. It should be noted that words pronounced by the examiner are included in the omission of a word category. Structure and compound words are included in mispronunciations under wrong beginning or wrong ending. The wrong in several parts category included words totally wrong, words correct only in the beginning or middle or ending, and also contractions. This would seem to be rather imprecise for directions in remediation. However, unlike Monroe, Gates classified a mispronunciation in only one place. No other research was found which used Gates' classification except Schummers who did use locational errors but classified them under sound-symbol categories.

Gilmore (1947), Cooper (1952) Sipay (1961), Spache (1963), Patty (1963), and McCracken (1966) used undifferentiated classifications of errors. Differences as well as similarities of rather general classifications can be seen in Table III. It should be noted that reading behaviors such as repetitions, hesitations, self-corrections, punctuation errors; and general reading behaviors are considered important by some researchers and not by others. Daw (1938) used Duffy and Durrell's eighteen reading behavior difficulties when he investigated the reading behavior of 100 children in grades 4 and 5. Although insertions and omissions were marked, word recognition errors such as mispronunciations were not mentioned. Durrell used behaviors such as word-by-word reading, enun ciation, and expression as the basis of his check list on the Durrell Analysis of Reading Difficulty while mispronunciations, repetitions, and aid were also to be marked as errors. Some of these behaviors, including inadequate phrasing or high-pitched voice, were also used by Killgallon and Cooper as symptoms of reading difficulty.

TABLE III

UNDIFFERENTIATED ERROR CATEGORIES

	Gilmore – (1947)	Cooper - Sipay (1952) (1961)	Spache (1963)	Patty (1965)	McCracken (1966)
Mispronunciations	Nonsense caused by insertions, addition of one or more letters or false accent	Phonetic and structure as well as mispronunciation - māp - măp strait - straight		Mispronunciations	Examiner cannot understand word
Substitutions	Sensible or real words	Complete substitution of a word: house-horse where-when	Substitute word or phrase, one error	Substitutions	One word or group of words
Omission of words	One word or more	Word or part of word - house(s) (al)ways	Omission word, part of word, or phrase	Omission	Word, part of word, or phrase
Aid or refused	5 sec. pronounced	5 sec. pronounced	5 sec. pronounced	5 sec. pronounced	5 sec. pronounced
Insertion-addition	Word or words added	Whole word insertion (not Word Perception error)	Addition of any word or part of word.	Insertion	Addition of word, phrase, or part of word

TABLE III (Continued)

	Gilmore (1947)	Cooper - Sipay (1952) (1961)	Spache (1963)	Patty (1965)	McCracken (1966)
Reversals			Word or part of word, inversion of word order	Content pronounced in inverted order	Counted as substitution errors
Accent	Counted as mispronuncation				
Repetitions	Word, part of word, or words	One or more words (not WP error)	Two or more words	Two or more words	Syllable, word or phrase (not WR error)
Hesitations	Two seconds	With aid	No	Of such duration that Examiner pronounces	No
Punctuation	Disregard of punctuation	Ignores punctuation (not WP error)			Definitely misread
Self-corrections	Count as mispronunciation or substitution, not as repetition*			No	Total error, not WR error

TABLE III (Continued)

	Gilmore (1947)	Cooper (1952)	Sipay (1961)	Spache (1963)	Patty (1965)	McCracken (1966)
Word-by-word reading		Not WP error				Do not count as misread punctuation, no error
Inadequate phrasing		Attempts to phrase, not WP error				
Strained, high-pitched voice		Not WP error				
Reads slowly and haltingly		Not WP error				

*Gilmore Oral Reading Test, 1952

Summary

A review of the literature reveals that at the present time the length of passage that should be read by a disabled reader is a matter of opinion. No research was found where length of passage on standardized or informal reading tests was considered to be a variable. Many writers suggested or used varying lengths of reading passages but reasons were not given and the reader must assume the variable of length was not considered. One researcher observed that certain types of readers tend to make more errors on the first paragraph of a test, but this was not investigated thoroughly. No suggestion was found that the error pattern may change or remain stable as more words are added.

A survey of the literature reveals that the analysis of oral reading errors is of importance and, although specificity is suggested, procedures are indefinite. It is also evident that although there have been similarities as well as differences in the error analyses used in the past for standardized tests and for research, a need for more precise error analysis seems to be indicated. A better approach for error analysis may be a combination of Gates, Monroe, and others which would include visual-perception errors, directional confusion errors, visual-auditory errors, structure errors, and behavior errors.

CHAPTER III

DESIGN AND METHODOLOGY

Introduction

This chapter contains a description of the population of the study, the instruments used for the collection of the data, and the statistical treatment of the data.

Description of the Population

This study was one of three independent studies utilizing the same pupil sample.[1] The studies were explained to school personnel and permission was obtained for the testing of all fourth-grade disabled readers in the public and private schools of a county in north central Oklahoma. The thirty-two schools ranged from schools with two teachers for eight grades to schools where there were two fourth grade classrooms in the same building. The schools represented a cross section of socio-economic levels and included children from rural areas, towns, and small cities. Children in the sample were of multi-ethnic extraction.

[1]The testing team consisted of Margery Berends, Bettie Vanice, and the investigator, all of whom collected data for separate dissertation investigations.

Teachers of fourth grade classrooms in cities and towns were asked for the names of the students whose reading ability was in the lowest one-third of their classes. These students and all of the fourth graders in the smaller schools were screened using the *Stanford Achievement Test*, Primary II, Form W, (Reading Section). A total of 505 Stanford tests was administered, and all children who scored at or below 4.0 reading level on this test were given the *Peabody Picture Vocabulary Test, Form A.* All pupils with an intelligence quotient of 80 or above as measured by the *Peabody* test were further screened with the *Standard Reading Inventory, Form B,* to establish instructional levels. All students whose full scale I. Q. was 90 or above on the *Wechsler Intelligence Scale for Children* and who had no known physical handicaps that would interfere with the reading of the stories were assigned to 2^1 and 3^1 instructional groups as determined by the *Standard Reading Inventory, Form B.*

Since the testing covered a period of four months, the instructional level for the final sample was taken from the *Form A Standard Reading Inventory* which was administered at the same time as the Stuever stories were read. Those students whose instructional level on this test was Primer, 2^1, 3^1, or 3^2 were given the experimental *Stories of Stuever* (SOS) at the same level.

The pupils who were taken from the classrooms considered the tests a new experience and were cooperative. Only the student and the examiner were present as the student read orally. The experienced examiners, who were the investigators and colleagues from the Oklahoma State University Reading Center, recorded on copies of the test selections the errors made. All reading was tape-corded, and the errors and the time were carefully re-checked by this investigator.

The sample consisted of 92 children. This sample was subsequently lowered to 76 for the following reasons: (1) on reexamination subjects did not meet the original criteria, (2) Subjects were not instructional at 1.5, 2^1, 3^1, or 3^2, (3) the data was incomplete, or (4) the recordings were inaudible. Eight protocols were examined at the 1.5 level, 33 at 2.0, 23 at 3.0, and 12 at 3.6.

Instruments Used

This study involved the use of tests to measure the reading achievement of fourth-grade disabled readers who were average or above in intelligence as measured by the full scale score of the Wechsler Intelligence Scale for Children. These subjects were then given the Stories of Stuever on their maximum instructional level as measured by the Standard Reading Inventory, Form A. Errors on 500 words of the experimental stories were analyzed using the Berends-Stuever-Ray error classifications.

Standard Achievement Test, Primary II, Form W, Reading Section

This test is designed to measure two aspects of reading: comprehension and word meaning. At each level the paragraph section begins with simple sentences and progresses to longer and more difficult paragraphs. In each paragraph, one to three words are omitted and a blank with a number appears in place of a word. Following the paragraph, each number is listed with four alternatives to replace it. There are 60 separate items. The vocabulary section uses sentence completion for 36 words. The sentences may define the word or ask for a synonym.

Validity of the test is based on the "content of the typical elementary school curriculum in addition to extensive experimentation before publication." The Stanford authors sought to insure content validity by examining appropriate courses of study and textbooks. Split-half reliabilities of the two parts in Primary II battery range from .85 to .93 (manual).

Despite some limitations, it is the opinion of Robinson (1968) that this test is undoubtedly among the best survey tests of reading achievement for elementary grades.

The Peabody Picture Vocabulary Test

This test, which is an individual vocabulary test, consists of two forms, A and B. The test includes 150 plates arranged in order of difficulty and is designed to test an age range of eighteen months to eighteen years. One stimulus word is illustrated on each page. The examinee indicates the picture on the plate in the series which best illustrates the meaning of the stimulus word provided orally by the examiner.

Standardization was based entirely on 4,012 white children and youth in and about Nashville, Tennessee. It is the opinion of Lyman (1968) that the PPVT is a highly useable test of moderate reliability and largely unpublished validity. However, Neville (1965) concluded that although it is limited to one aspect of intelligence, i.e., auding, no significant difference was found between scores of 54 children on the PPVT and on the *Wechsler Intelligence Scale for Children*.

The Wechsler Intelligence Scale for Children

The Wechsler Intelligence Scale for Children consists of twelve tests which are divided into two subgroups identified as Verbal and Performance. The tests of the scale are grouped as follows -- Verbal: Information, Comprehension, Arithmetic, Similarities, Vocabulary, and Digit Span; *Performance:* Picture Completion, Picture Arrangement, Block Design, Object Assembly, Coding, and Mazes. The manual suggests that all twelve tests be used because of the qualitative and diagnostic data they add.

Split-half reliabilities were determined for Full Scale, Verbal, and Performance scales for 7-1/2, 10-1/2, and 13-1/2 year age groups. For the 10-1/2 age group, Full Scale reliabilities were .95, Verbal .96, and Performance .89.

No interpretative data are presented in the manual on the validity of the test. However, there have been a number of studies that have compared performance on the *Wechsler Intelligence Scale for Children* with the *Stanford-Binet*. At different ages, the correlations between the Stanford-Binet and full-scale I. Q. 's vary from .75 to .90 (Freeman, 1962). It is the opinion of Burstein (1968) that the Wechsler Intelligence Scale for Children is a well-standardized, stable instrument, correlating well with other tests of intelligence.

The Standard Reading Inventory

This test is an individually-administered reading test for measuring reading achievement at pre-primer through seventh reader levels. The inventory yields a child's independent reading level, his instructional reading level(s), and his frustration level in reading. The reading levels are given as basal reading book levels. There are two forms which contain eleven stories for oral reading, eight stories for silent reading, and eleven word lists for measuring word pronouncing ability for words in isolation. Four areas of reading achievement are measured: recognition vocabulary, oral errors, comprehension, and speed.

According to the manual;

> Two studies of concurrent validity have been made. The instructional reading level of the Standard Reading Inventory and the California Reading Test were compared for 79 children completing second grade. The correlation was .87. The results of the reading comprehension and reading vocabulary sections of the Stanford Achievement Tests (Elementary Battery, Form 1) and the instructional reading level and the vocabulary in isolation scores on the Standard Reading Inventory were compared for 77 children completing third grade. The correlations were .77 between the Stanford comprehension and the S. R. I. instructional reading level, and .88 between the vocabulary measures.

Reliability

Reliability was demonstrated by having two examiners administer Forms A and B of the Standard Reading Inventory to 60 children, 30 boys and 30 girls, divided equally among grades one through six. Twelve Pearson product-moment correlations were computed using the results. The highest correlation was .99, the lowest .68, and the median .91. All correlations were significantly different from zero (p .001).

Further evidence of reliability was obtained in a study of second grade children who took both forms of the Standard Reading Inventory. Correlations of the Instructional Reading Level was .95 (Manual).

The SOS Reading Test

Since this research involved many schools where different basal readers were used, it was felt that the stories should be graded, unfamiliar materials (Johnson, 1965; Williams, 1963). The content of the stories resembles basal reader materials.

However, the primer and the 2.0 stories are longer than basal reader stories at the levels used, but this was controlled for since length is the purpose of this study. The 1.5 level story was adapted from "Mr. Queeps Forgot" in Sunny and Gay by Ardith Snyder Turner, published by Bobbs Merrill Company. "To See the King," the 2.0 story, was adapted from The Sword in the Tree by Clyde Robert Bulla, Thomas Y. Crowell, publisher. "How Baseball Began," written at the 3.0 level, was adapted from How Baseball Began in Brooklyn, by LeGrand Henderson, Abington Press. "The Mystery of the Creaking Stairs," by Charlotte Jeanes, published in the Lyons and Carnahan Curriculum Enrichment Series, New Trails, was used as the basis for the 3.6 story.

Readability levels of the stories were established using the Spache formula (1953) so that these levels would compare in readability with the equivalent passages on the Standard Reading Inventory. Approximately the same number of sentences and the same number of unfamiliar words were used in each of the five 100 word samples. It was assumed that this would make each of the 100 word samples as equal in difficulty as possible within the limits of the error of the Spache Readability Formula.

The Stories of Stuever Reading Test passages were written in narrative style, and the average length of the lines in the stories was about four inches. This policy agrees with the recommendations of the literature on typography, which maintains that a line "should not exceed four inches" (Uhl, 1937).

The stories and readability worksheets will be found in Appendix A.

B-S-R Error Analysis

The B-S-R Error Analysis was devised by Berends, Stuever, and Ray at the Oklahoma State University Reading Center. It was evident from a search of the literature that other researchers had emphasized one kind of reading error and ignored others or, by using broad categories, had obscured some of the value of the analysis of errors.

Therefore, errors were classified into five categories: visual-perception--word parts, directional confusion, visual-auditory perception, structure, and behavior.

Visual perception--word parts. These occurred where it was evident that the reader quickly and fluently produced the word error, perhaps because of faulty perception.

1. -++ middle end correct: pet - set

2. +-+ where the first and last letter are correct: front - faint, want - went

3. ++- end incorrect excluding s, ed, ing which were categorized under structure: as - ask, saw - sat

4. --+ end only correct: at - out

5. +-- beginning only correct: do - did, called - come

6. -+- middle only correct: sat - ran

7. --- word completely wrong or if correct word consisted of one or two letter word.

Directional confusion.

1. Rotations: dig - big

2. Reversals: Both whole and partial reversals and word sequence - was - saw, less - else (could it)

Visual Auditory Perception errors. These included errors of sound-symbol relationships, where it was evident that the reader was struggling with the sound-symbol relationships or gave the wrong sound for the symbol. Under these were categorized:

1. C Single consonant: raced - raised

2. CC Ka nights - knife - knight

3. V lat - late

At least 150 words to establish error pattern

4. VV eespeecially - especially, cont - count

5. CCVV ex-mine - sminned - examined

6. Syllabic Division: ex-ae-md - examined

Structure. This category included contractions, compound words, inflexional endings, and prefixes and suffixes.

Behavior. Included in this general heading were omissions of whole words, additions of whole words, words aided, repetitions, and corrections. These are symptomatic of various reading difficulties.

Repetitions, additions, and omissions of one or more consecutive words were counted as one error only. Repetitions caused by corrections were not counted as errors. Speech errors such as goin' for going were ignored as well as dialectical errors such as set for sat. Names, a for the, and responses stairs for steps, noises for sounds, and afraid for frightened were not counted as errors. Errors were tabulated under only one category and only once in each 25 word section.

It was felt that by having combined the usefulness of Gates and Monroe and not using the broad categories of other researchers a more diagnostically, helpful error analysis would result. Five subjects were randomly chosen and errors checked and analyzed by two other clinicians besides the researcher to establish reliability. The reliability coefficient was 94.4.

Hypotheses

Hypotheses in this investigation are concerned with the characteristic error density where a proportional amount of error rate has been processed.

Sub-types of errors subsumed under the total Visual Perception category are middle and ending correct, beginning only correct, beginning and ending correct, beginning and middle correct, middle-only correct, ending-only correct and word totally incorrect. Sub-types under Visual Auditory Perception errors are consonant, double consonant, vowel, double vowel, double consonants and vowels, and syllabic division. Sub-types of Directional Confusion errors are rotations and reversals. Behavior error category subparts are omissions, additions, words aided, repetitions, and corrections. A hypothesis is stated for each of these sub-types individually.

Hypothesis I: For readers who read the experimental story at the 1.5 level, error rate for each of the error subtypes subsumed within the Visual Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis II: For readers who read the experimental story at the 1.5 level, error rate for each of the error subtypes subsumed within the Directional Confusion category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis III: For readers who read the experimental story at the 1.5 level, error rate for each of the error subtypes subsumed within the Visual Auditory Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that errors observed are true errors and are not within the chance domain.

Hypothesis IV: For readers who read the experimental story at the 1.5 level, error rate for the Structure category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that errors observed are true errors and are not within the chance domain.

Hypothesis V: For readers who read the experimental story at the 1.5 level, error rate for each of the error subtypes subsumed within the Behavior category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that errors observed are true errors and are not within the chance domain.

Hypothesis VI: For readers who read the experimental story at the 2.0 level, error rate for each of the error subtypes subsumed within the Visual Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that errors observed are true errors and are not within the chance domain.

Hypothesis VII: For readers who read the experimental story at the 2.0 level, error rate for each of the error subtypes subsumed within the Directional Confusion category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that errors observed are true errors and are not within the chance domain.

Hypothesis VIII: For readers who read the experimental story at the 2.0 level, error rate for each of the error subtypes subsumed within the Visual Auditory Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis IX: For readers who read the experimental story at the 2.0 level, error rate for the Structure category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis X: For readers who read the experimental story at the 2.0 level, error rate for each of the error subtypes subsumed within the Behavior category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis XI: For readers who read the experimental story at the 3.0 level, error rate for each of the error subtypes subsumed within the Visual Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis XII: For readers who read the experimental story at the 3.0 level, error rate for each of the error subtypes subsumed within the Directional Confusion category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis XIII: For readers who read the experimental story at the 3.0 level, error rate for each of the error subtypes subsumed under the Visual Auditory Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis XIV: For readers who read the experimental story at the 3.0 level, error rate for the Structure category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis XV: For readers who read the experimental story at the 3.0 level, error rate for each of the error subtypes subsumed within the Behavior category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis XVI: For readers who read the exoerimental story at the 3.0 level, error rate for each of the error subtypes subsumed within the Visual Perception category can be determined to provide an index to the minimal number of words that must be orocessed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis XVII: For readers who read the experimental story at the 3.6 level, error rate for each of the error subtypes subsumed within the Directional Confusion category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis XVIII: For readers who read the experimental story at the 3.6 level, error rate for each of the error subtypes subsumed within the Visual Auditory Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis XIX: For readers who read the experimental story at the 3.6 level, error rate for the Structure category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Hypothesis XX: For readers who read the experimental story at the 3.6 level, error rate for each of the error subtypes subsumed within the Behavior category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

Treatment of the Data

The hypotheses as stated were tested by subjecting the data to Simpson's Rule in order that rate of occurrence and types of errors in each story could be analyzed. Since the story and the experimental group were held constant, error rate was considered to be a function of error density. It was assumed that the errors were randomly distributed throughout the story. Analysis by Simpson's Rule requires that information processed in a story be segmented into equal parts and that the error rate for each segment be known. By finding the area under the curve when the intervals are broken into equal increments, the width of each segment and the frequency of errors provide a partial area of the curve; and the sum of all these partial areas defines the entire area of the curve.

The testing of the hypotheses involved the comparison of the area of sequential pairs of segments, based on the rationale that error rate is considered to have reached an asymptote when the observed error rate for a particular word segment is less than plus or minus five per cent of the area of the preceding segment. Thus, when the error subtype reached this asymptote, the upper limits of this word group was considered to be the minimal point at which the reader had had the opportunity to encounter a sufficient proportion of the total errors so that the errors observed were true errors, and additional words did not contribute significantly to the error pattern.

When there were fewer than four errors in a category for the total group of subjects reading 500 words, the errors could not be processed by means of Simpson's Rule.

Summary

This chapter has described the population studied in the investigation, the instruments used in the collection of data, and the description of the treatment of the data.

The sample for this study consisted of fourth-grade children in a county in northern Oklahoma who were average or above in intelligence as measured by the Wechsler Intelligence Scale for Children and who were disabled readers. The Subjects were asked to read, orally at sight, experimental stories of 500 words in length on their maximum instructional level as measured by the Standard Reading Inventory, Form A. Reading of the experimental stories was tape-recorded and errors were analyzed using the B-S-R error analysis.

Simpson's Rule was selected for testing the density and rate of errors in each story. Comparisons were made between the areas of sequential 25-word segments. When the area in a segment of 25 words was less than five per cent plus or minus the area in the previous segment, this point was considered to be the place where the error subtypes had reached an asymptote.

CHAPTER IV

TREATMENT OF DATA AND ANALYSIS OF RESULTS

This chapter contains a detailed account of the statistical treatment of the data and the analysis of the results.

Discussion of Simpson's Rule

Simpson's Rule was applied to observed errors for four groups of children who read a 500-word story on their instructional level of 1.5, 2.0, 3.0, or 3.6.

Simpson's Rule integrates the area under a curve when the curve is divided into equal segments.

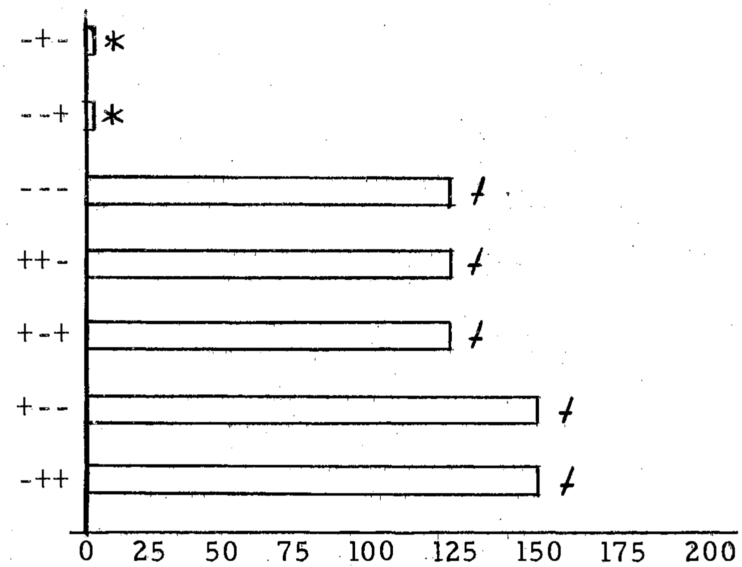
If $h = (b-a)/n$, then $\int_a^b f(x)\,dx \approx \frac{h}{3}(y_0 + 4y_1 + 2y_2 + 4y_3 - \ldots + 2y_{n-2} + 4y_{n-1} + y_n)$ where h is equal to one interval (Fisher, Ziebur, 1965).

In this study a is the first point, 25 words, and b is the last point or 500 words. n is the number of intervals which is one less than the number of points. y_0 is equal to the function of x evaluated at a. For this survey y_0 is the number of errors at 25 words. y_1 equals the number of errors at the second point or 50 words, and y_2 is the number of errors at 75 words continued to y_{19}. y_{n-1} is equal to the number of errors at the next to last point while $\underline{y_n}$ equals the number of errors at the last point. Characteristics of the computer program used was such that data could not be processed if the frequency of observed errors was less than four for the entire group of subjects reading 500 words.

The area under the function from $\underline{x} = 0$ to $\underline{x} = \underline{x_0}$ was compared to the area from $\underline{x} = \underline{x_0}$ to $\underline{x} = \underline{x_1}$. If the area in the first segment was more than five per cent plus or minus the area of the second segment, then it was considered that significant change had taken place and the comparisons continued. Comparisons were continued as long as the increase in the number of words contributed significantly to the error pattern. When the area in a segment was less than five per cent plus or minus the previous segment, the upper limit of this word group was considered as the minimal point where a sufficient proportion of the errors had been processed to adequately sample the error rate.

Tests of the Hypotheses

Hypothesis I: For readers who read the experimental story at the 1.5 level, error rate for each of the error subtypes subsumed within the Visual Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.



*Hypothesis rejected because error density insufficient for processing
⁄Hypothesis accepted

Figure 1. Visual Perception Errors on 1.5 Story

Two error subtypes, middle and ending correct errors and beginning-only correct errors, reach an asymptote at 150 words. Three error subtypes, beginning and ending correct, beginning and middle correct, and totally incorrect, reached an asymptote at 125 words. Two error subtypes, ending-only correct and middle-only correct, were insufficient for processing.

Hypothesis II: For readers who read the experimental story at the 1.5 level, error rate for each of the error subtypes subsumed within the Directional Confusion category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

The hypothesis for reversal errors is accepted at 150 words. The hypothesis for rotation errors is rejected because error density is insufficient for processing.

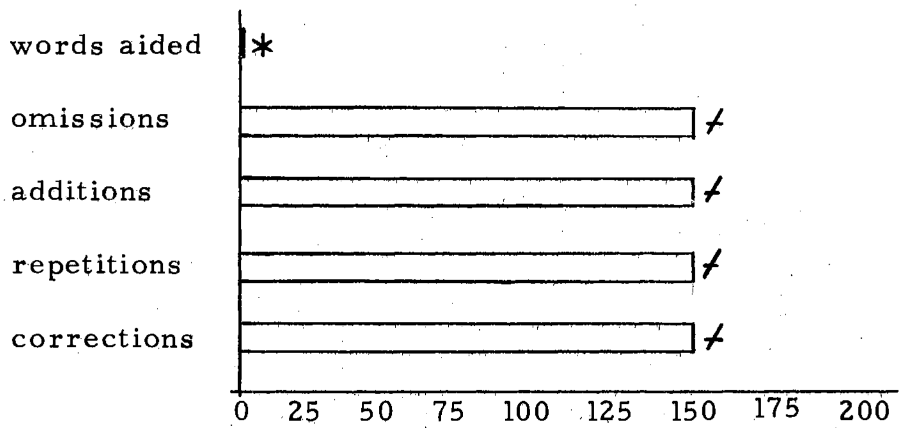
Hypothesis III: For readers who read the experimental story at the 1.5 level, error rate for each of the error subtypes subsumed within the Visual Auditory Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that errors observed are true errors and are not within the chance domain.

The hypothesis is rejected because error density is insufficient for processing.

Hypothesis IV: For readers who read the experimental story at the 1.5 level, error rate for the Structure category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that errors observed are true errors and are not within the chance domain.

The hypothesis is accepted at 125 words.

Hypothesis V: For readers who read the experimental story at the 1.5 level, error rate for each of the error subtypes subsumed within the Behavior category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that errors observed are true errors and are not within the chance domain.

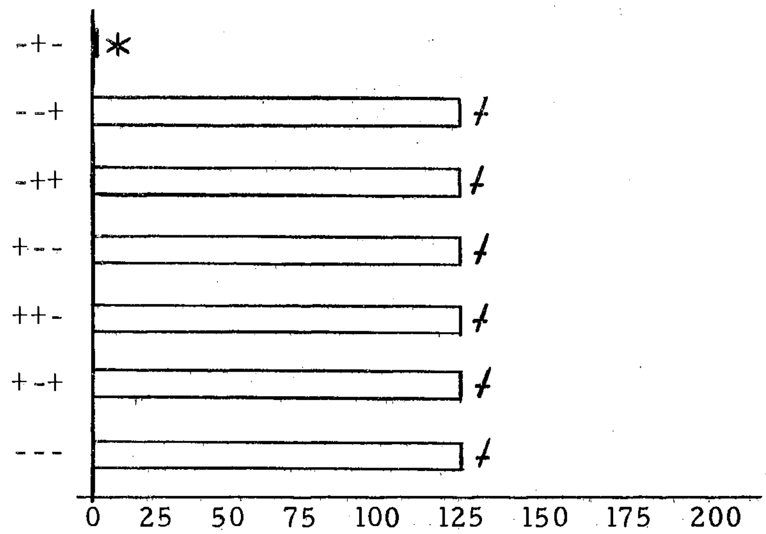


*Hypothesis rejected because error density insufficient for processing
/Hypothesis accepted

Figure 2. Behavior Errors on 1.5 Story

Four of the Behavior error subtypes, omissions, additions, repetitions, and corrections, reached an asymptote at 150 words. The words aided errors were insufficient for processing.

Hypothesis VI: For readers who read the experimental story at the 2.0 level, error rate for each of the error subtypes subsumed within the Visual Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that errors observed are true errors and are not within the chance domain.



*Hypotheses rejected because error density insufficient for processing

/ Hypothesis accepted

Figure 3. Visual Perception Errors on 2.0 Story

Six of the Visual Perception error subtypes, ending-only correct, middle and ending correct, beginning-only correct, beginning and ending correct, beginning and middle correct, and totally incorrect, reached an asymptote at 125 words. The middle-only correct errors were insufficient for processing.

Hypothesis VII: For readers who read the experimental story at the 2.0 level, error rate for each of the error subtypes subsumed within the Directional Confusion category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that errors observed are true errors and are not within the chance domain.

The hypothesis for reversal errors is accepted at 150 words. The hypothesis for rotations is rejected because error density is insufficient for processing.

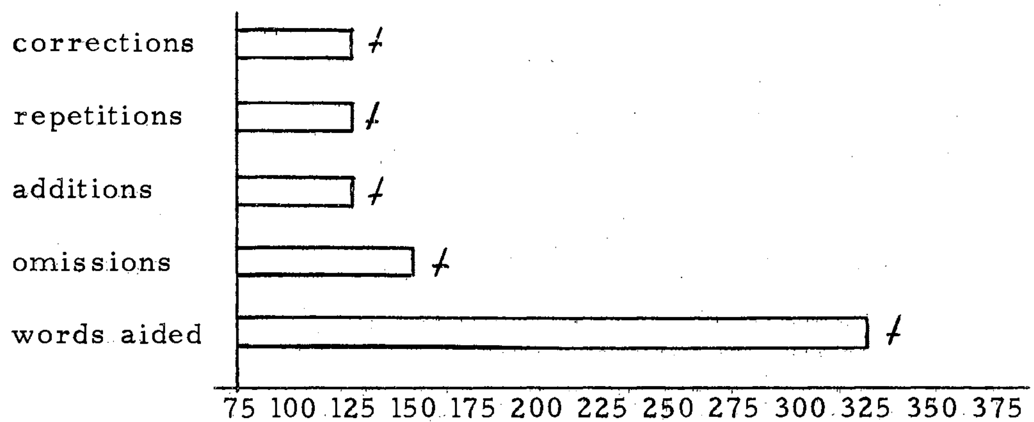
Hypothesis VIII: For readers who read the experimental story at the 2.0 level, error rate for each of the error subtypes subsumed within the Visual Auditory Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

The hypothesis is rejected because error density is insufficient for processing.

Hypothesis IX: For readers who read the experimental story at the 2.0 level, error rate for the Structure category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

The hypothesis for Structure errors is accepted at 150 words.

Hypothesis X: For readers who read the experimental story at the 2.0 level, error rate for each of the error subtypes subsumed within the Behavior category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

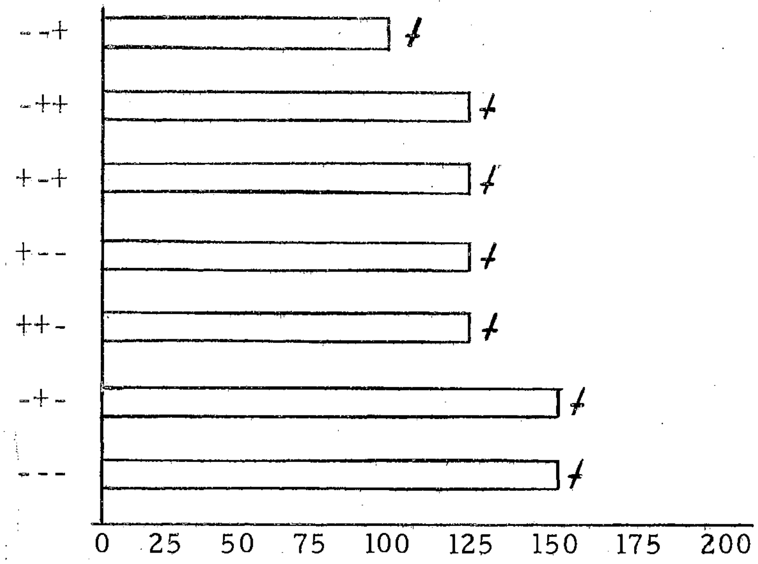


/ Hypothesis accepted

Figure 4. Behavior Errors on 2.0 Story

The words aided errors reached an asymptote at 325 words and the omissions at 150 words. Three subtypes, additions, repetitions, and corrections, reached an asymptote at 125 words.

Hypothesis XI: For readers who read the experimental story at the 3.0 level, error rate for each of the error subtypes subsumed within the Visual Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.



/Hypothesis accepted

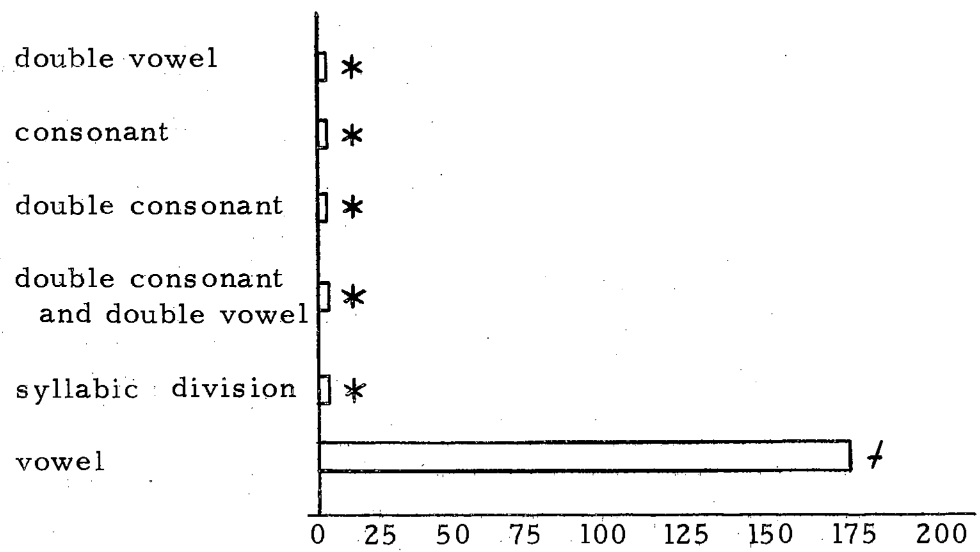
Figure 5. Visual Perception Errors on 3.0 Story

Two error subypes, middle-only correct and totally incorrect, reached an asymptote at 150 words. Four subtypes, middle and ending correct, beginning and ending correct, beginning and middle correct, and beginning-only correct, reached an asymptote at 125 words. The ending-only correct errors reached an asymptote at 100 words.

Hypothesis XII: For readers who read the experimental story at the 3.0 level, error rate for each of the error subtypes subsumed within the Directional Confusion category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

The hypothesis is accepted at 150 words for the Directional Confusion subtypes, reversals and rotations.

Hypothesis XIII: For readers who read the experimental story at the 3.0 level, error rate for each of the error subtypes subsumed under the Visual Auditory Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.



*Hypothesis rejected because error density insufficient for processing

ƚHypothesis accepted

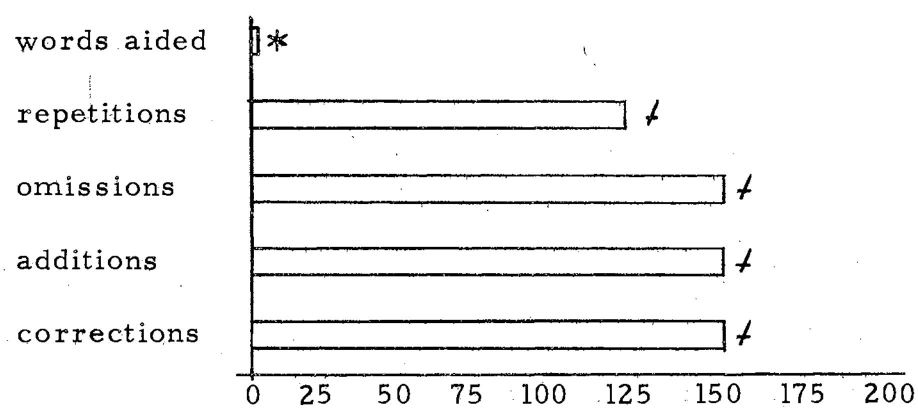
Figure 6. Visual Auditory Perception Errors on 3.0 Story

The vowel errors reached an asymptote at 175 words. All other subtypes were of insufficient density for processing.

Hypothesis XIV: For readers who read the experimental story at the 3.0 level, error rate for the Structure category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

The hypothesis is accepted at 125 words.

Hypothesis XV: For readers who read the experimental story at the 3.0 level, error rate for each of the error subtypes subsumed within the Behavior category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not with the chance domain.



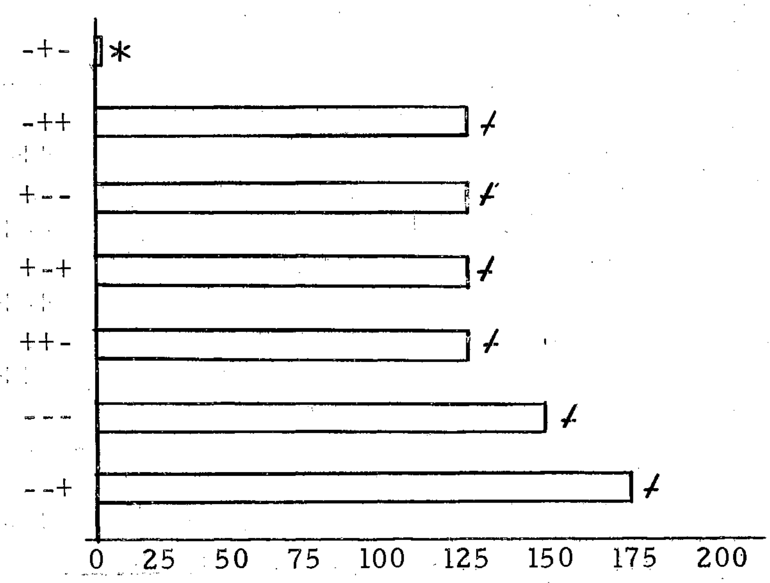
*Hypothesis rejected because error density insufficient for processing

ƚHypothesis accepted

Figure 7. Behavior Errors on 3.0 Story

Three error subtypes, omissions, corrections, and additions, reached an asymptote at 150 words. Repetitions reached an asymptote at 125 words, while the density of the words aided subtype did not allow processing.

Hypothesis XVI: For readers who read the experimental story at the 3.6 level, error rate for each of the error subtypes subsumed within the Visual Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.



*Hypotheses rejected because error density insufficient for processing
✓ Hypothesis accepted

Figure 8. Visual Perception Errors on 3.6 Story

The ending-only correct errors reached an asymptote at 175 words, while the totally incorrect errors reached an asymptote at 150 words. Four subtypes, middle and ending correct, beginning-only correct, beginning and ending correct, and beginning and middle correct, reached an asymptote at 125 words. The density of the middle-only correct errors was not sufficient for processing.

Hypothesis XVII: For readers who read the experimental story at the 3.6 level, error rate for each of the error subtypes subsumed within the Directional Confusion category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

The hypothesis for reversals is accepted at 150 words. The hypothesis for rotations is rejected because error density is insufficient for processing.

Hypothesis XVIII: For readers who read the experimental story at the 3.6 level, error rate for each of the error subtypes subsumed within the Visual Auditory Perception category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

The hypothesis is rejected because error density is insufficient for processing.

Hypothesis XIX: For readers who read the experimental story at the 3.6 level, error rate for the Structure category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

The hypothesis is accepted at 150 words.

Hypothesis XX: For readers who read the experimental story at the 3.6 level, error rate for each of the error subtypes subsumed within the Behavior category can be determined to provide an index to the minimal number of words that must be processed sequentially before a sufficient proportion of the error density has been sampled so that observed errors are true errors and are not within the chance domain.

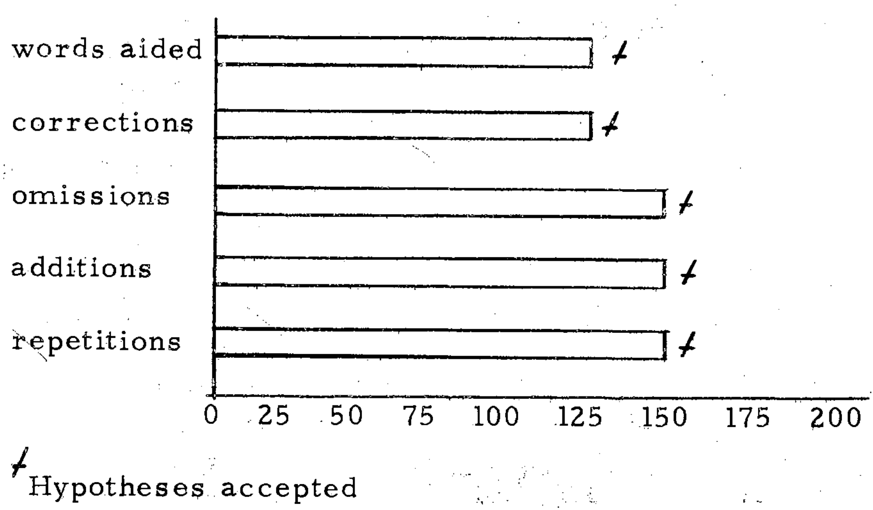


Figure 9. Behavior Errors on 3.6 Story

Three of the error subtypes, omissions, additions, and repetitions, reached an asymptote at 150 words. Corrections and words aided reached an asymptote at 125 words.

Summary

This chapter has presented a detailed analysis of the statistical treatment of the data. Twenty hypotheses were treated by means of Simpson's Rule.

Hypotheses I, VI, XI, and XVI were concerned with seven subtypes of Visual Perception errors. Five of the error subtypes reached an asymptote at 125-150 words on all levels of the experimental stories, another at 125-150 words on two of the four stories, and the seventh reached an asymptote at 125-150 words on one story level. The ending-only correct subtype reached an asymptote at 175 words on the 3.6 story and could not be processed on the 1.5 story. The middle-only correct errors could not be processed on the 1.5, 2.0, and 3.6 stories because of insufficient error density. These hypotheses are summarized in Figure 10.

Hypotheses II, VII, XII, and XVII dealt with Directional Confusion errors. Of these, reversals reached an asymptote at 150 words on all stories and rotations at 150 words on the 3.0 story. Rotation errors could not be processed on the 1.5, 2.0, and 3.6 stories because of insufficient error density. These hypotheses are summarized in Figure 11.

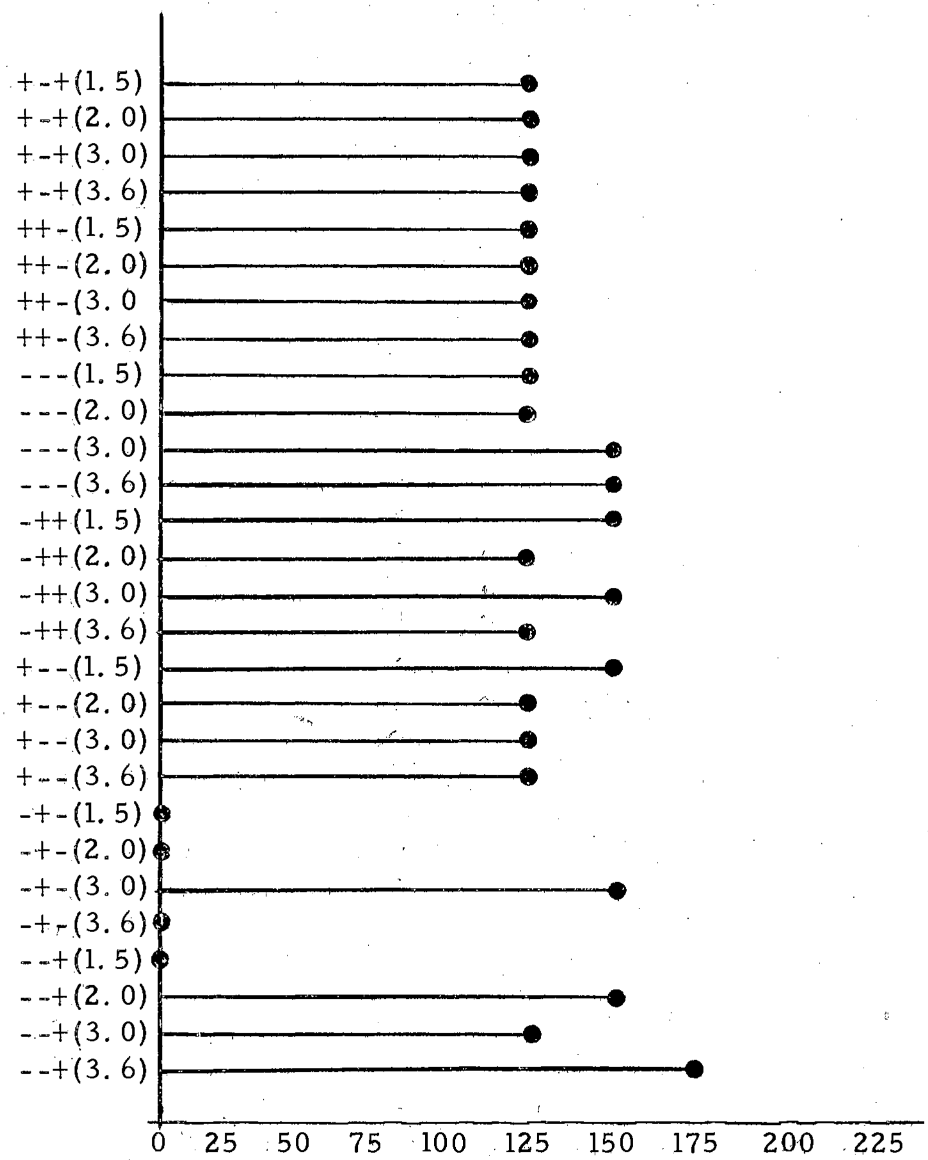


Figure 10. Total Visual Perception Errors

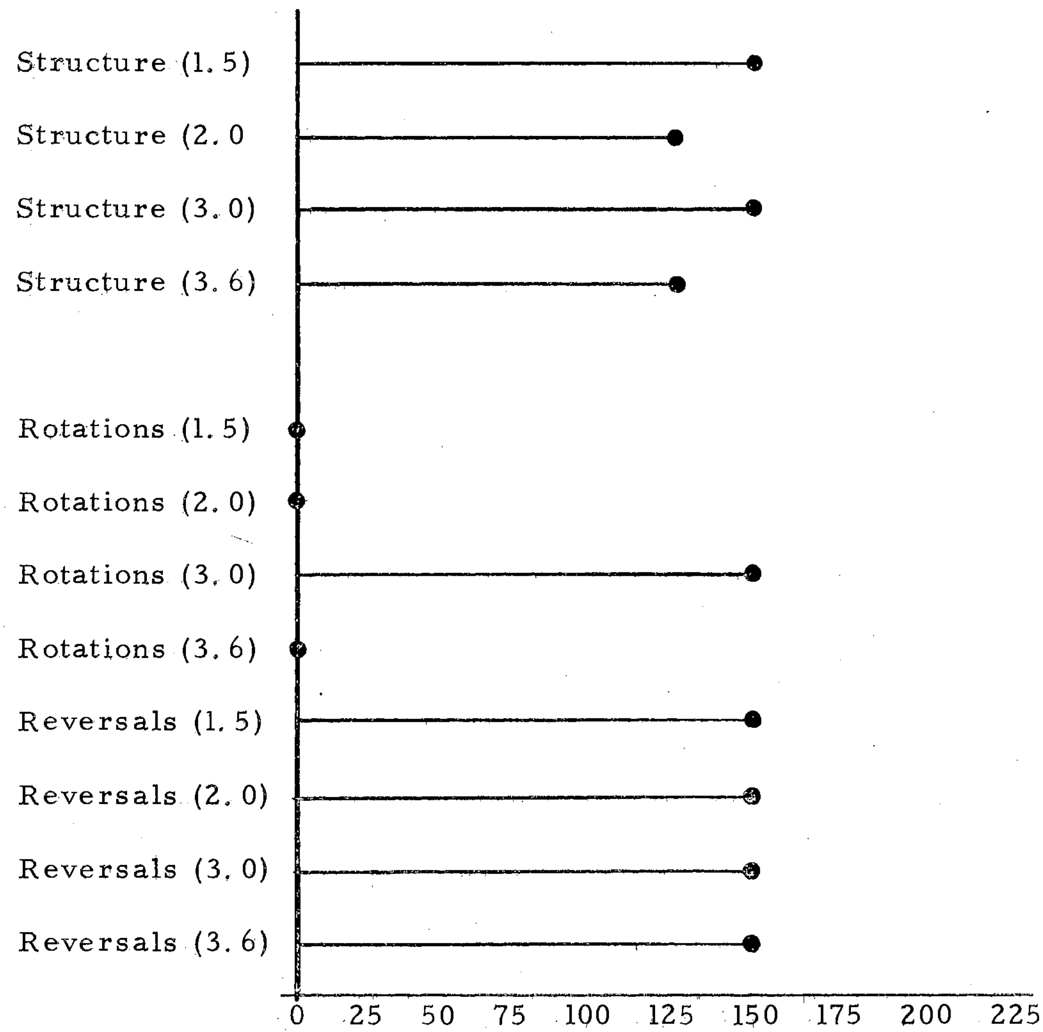


Figure 11. Total Structure and Directional Confusion Errors

Hypotheses III, VIII, XIII, and XVIII were concerned with six subtypes of Visual Auditory Perception errors, five of which could not be processed because of insufficient error density. The vowel error subtype reached an asymptote at 175 words on the 3.0 story, but could not be processed at the other story levels.

Hypotheses IV, IX, XIV, and XIX referred to Structure errors. Errors in this category reached an asymptote at 125-150 words on all story levels. A summary of these hypotheses will be found in Figure 10.

Hypotheses V, X, XV, and XX were concerned with the error subtypes listed under the Behavior category. Four of the five error subtypes reached an asymptote at 125-150 words on all levels of the stories. Words-aided errors reached an asymptote at 325 words on the 2.0 story and at 125 words on the 3.6 story; error density on the 1.5 and 3.0 stories was insufficient for processing. These hypotheses are summarized in Figure 12.

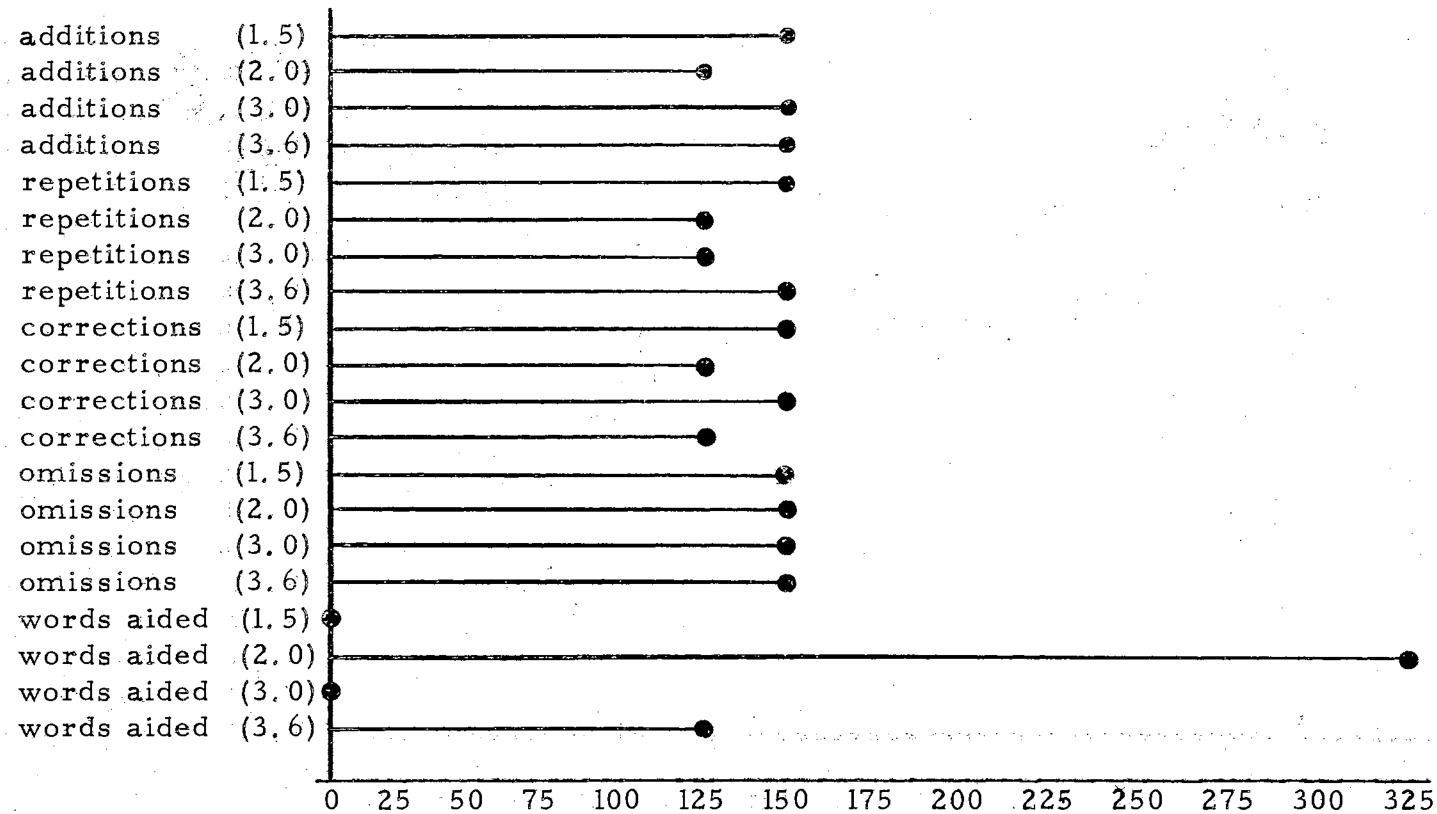


Figure 12. Total Behavior Errors

CHAPTER V

SUMMARY AND CONCLUSIONS

General Summary of the Investigation

This study investigated the density and rate of observed errors when disabled readers read an experimental story of 500 words at instructional level as determined by the criterion instrument.

The final sample consisted of the total population of fourth-grade disabled readers in a county in northern Oklahoma who met the criteria set up by the study: Wechsler Intelligence Scale for Children full scale score of 90 or above, instructional on the Standard Reading Inventory, Form B at 2^1 or 3^1 level, and no discernible speech or visual handicaps.

The instructional levels actually used in the study were taken from the Standard Reading Inventory, Form A which was given at the same time as the experimental stories. The final sample consisted of 76 children. Eight protocols were examined at 1.5 level, 33 at 2.0 level, 23 at 3.0 level and 12 at 3.6 level.

The oral reading at sight of the 500-word experimental stories was tape-recorded and the errors were analyzed using the Berends-Stuever-Ray error analysis. The B-S-R error analysis includes the following categories: Visual Perception errors, Directional Confusion errors, Visual-Auditory Perception errors, Structure errors, and Behavior errors. Twenty-one error subtypes are subsumed within the five categories.

Simpson's Rule was used to compare the density and rate of observed errors in sequential pairs of 25-word segments on each story. When the area of a segment for each error subcategory was less than 5 per cent plus or minus the area of the previous segment, the error was considered to have reached an asymptote since the added number of words in this segment did not contribute significantly to the error pattern. When the error reached this asymptote, the upper limits of this segment was considered to be the point at which a sufficient proportion of the errors had been processed to adequately sample the error rate.

Conclusions

Results of this study indicate that changes in error rate in adjacent 25-word segments occurred until the observed errors in 125 to 150 words had been processed. This was true for the majority of the observed errors in the 500-word experimental stories.

The two error subtypes in the Visual Perception category which did not reach an asymptote at 125-150 words were ending-only correct and middle-only correct. At the 1.5, 2.0, and 3.0 levels of the experimental stories, density of the errors in the middle-only correct category subcategory was insufficient for processing. The density of the ending-only correct error was insufficient for processing at the 1.5 level, but reached an asymptote at 175 words on the 3.6 level story.

Although error density of these Visual Perception subcategories was insufficient for processing the errors on some levels, it is suggested that these categories be retained in an error analysis since it is easier to classify visual perception errors if all positional error possibilities are given. In addition, these categories may be important for some children.

Structure errors as well as additions, repetitions, and corrected errors reached an asymptote at 125 or 150 words on all levels. Omissions reached an asymptote at 150 words on all levels.

In the Directional Confusion error category, reversals reached an asymptote at 150 words on all levels. Rotations reached an asymptote at 150 words on the 3.0 level, but could not be processed at the 1.5, 2.0, and 3.6 levels because of insufficient error density.

Error density of the words aided subcategory was insufficient for processing at the 1.5 and 3.0 levels. This subtype reached an asymptote at 125 words on the 3.6 level and at 325 words on the 2.0 level.

Density of the Visual Auditory Perception error subcategories was insufficient for processing except for the vowel subcategory which reached an asymptote at 175 words on the 3.0 level.

It was anticipated that words aided would be insignificant for many children at the instructional level. Visual Auditory errors reflecting difficulties with sound-symbol association should occur less frequently at the instructional level than errors reflecting faulty perception. Therefore, only a small number of words would be given the wrong sound or would be pronounced by the examiner.

Since the majority of the errors reached an asymptote at 125-150 words, it is suggested that at least 150 words of continuous material be read at the instructional level whenever an oral reading test is given so that changes in the error rate will be minimized. This is not to say that several passages of 150-word stories should not be read in individual diagnoses in order to accumulate sufficient errors to form a reliable error pattern. What is being said is that any passage read by a subject should be at least 150 words in length so that the density and rate of observed errors as well as the proportion of specific kinds of errors will not be distorted.

If error classification is based solely on an instrument where paragraphs of increasing difficulty are utilized, it is possible that shifts in the difficulty of the material will cause shifts in the density and rate of errors. Therefore, the asymptote as well as the specific types of errors may be different.

More total errors were made on the first 25 words read than on the second 25 words read on all stories except the 1.5 level. On the 2.0 story 105 errors occurred on the first 25-word segment and 86 on the second segment. Behavior errors occurred one and one-half more times on the first segment than on the second segment. On the 3.0 story there were 53 errors in the first 25-word segment compared to 42 errors in the second segment, and structure errors occurred at a ratio of 20 to one. On the 3.6 story the number of <u>structure</u> and <u>visual perception</u> errors was significantly greater on the first 25 words. Total errors on the 3.6 story were 35 to 24 with <u>structure</u> errors being 11 to 3 and <u>visual perception</u> errors 12 to 8. Thus, in 75 per cent of the experimental stories more errors occurred on the first 25 words than on the second 25 words which indicates a rapid change in error rate especially in the <u>structure</u> and <u>behavior</u> error categories.

The findings of this study suggest that several misleading conclusions may result from the use of oral reading passages of insufficient length to establish instructional levels or to identify error patterns.

The tendency for a disproportionate number of <u>behavior</u> and <u>structure</u> errors to occur in the first 25 words of the story may produce a spuriously high ratio of errors to total words read, thus resulting in a lower apparent instructional level than would have been assigned if an adequate number of words had been read. In addition, these excessive errors in the <u>behavior</u> and <u>structure</u> categories may distort the error pattern.

Because of the change in error rate which occurs until 125-150 words have been processed, the prorating of errors to 500 words as was done by Monroe and Herlin could lead to equally fallacious conclusions if fewer than 125-150 words were actually read.

Since Monroe did not indicate how many of her subjects (if any) read fewer than 125-150 words, the reader can only speculate as to how this variable may have affected her results and what different conclusions she may have reached had she not assumed that error ratio remained the same regardless of the number of words read.

Recommendations

1. It is suggested that this study be replicated using other disabled readers.

2. A study should be made of normal readers who read the experimental stories at their instructional level.

3. A study should be made using disabled readers at reading levels between 1.5 and 6.0 who read different experimental stories on which density and rate of errors can be computed.

4. A study should be made using normal readers at reading levels between 1.5 and 6.0 who read different experimental stories on which density and rate of errors can be computed.

5. Since the scarcity of errors in the <u>words aided</u> and the <u>Visual Auditory</u> categories did not allow adequate sampling, it is suggested that other readers be given these stories on frustration level as well as on instructional level to study not only differences in error rate, but also differences in types of errors at the two levels.

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APPENDIX A

SOS Experimental Stories

Mr. Queeps Forgot

Mr. Queeps was a little old man. He lived in a house. He lived all by himself. He kept the house clean. He did it all by himself. He was very good at it. But he forgot where he put things. Often he could not find them again.

One morning Mr. Queeps looked out the window. He said, "I would like to go for a walk. Wait! Look! Oh, my! Is that snow?" Again he looked. Then he said, "Let me see. No. It is not snow. Oh! It is rain. Oh, good. I'm glad. I like to walk in the rain. But I must put on my boots."

Mr. Queeps looked for his boots. He could not find them. Then there was a knock. Mr. Queeps went to the door. It was Mr. Bumple. "Hello! Come in," said Mr. Queeps.

Mr. Bumple came in. He looked at his friend. He said, "Hello. What are you doing? What have you lost now?"

"My boots," said Mr. Queeps.

Mr. Bumple said, "Oh, my. Come. I'll help you. Here. We will look for them." "Thank you," said Mr. Queeps. "First, would you like an apple? Apples are good."

"Yes," said Mr. Bumple.

Mr. Queeps went to get some apples. He came back with a stamp. He said, "Look. Here is a stamp. I wanted it for a letter. That was the other day. Now then. Let me see. What did I do with the letter?

Mr. Bumple laughed. He said, "Wait! Stop! I thought you went after apples."

Mr. Queeps said."Yes. I did. I could not find them. I found this stamp. Now, I'll look for my letter."

"We will find the letter. And also the apples," said Mr. Bumple.

Mr. Queeps said, "I know. I'll put this stamp on my nose. Very good. Then I'll know where it is."

He put the stamp on his nose.

Then a man came to the door. He knocked. It was the man from the store. "Look! Here are your apples. You left them."

Mr. Queeps said, "Oh! Very good! Thank you. Hurry! Let's go. Now we can look for the letter."

A man brought the mail. He saw the stamp on Mr. Queeps' nose. He said, "Oh! I am sorry. We do not take people by mail. You will have to go some other way."

Mr. Queeps said, "No. I am looking for a letter. I want to mail it. Soon I'll find it. Then I'll take this stamp off my nose. I'll put it on the letter."

The man said, "See. Look here. I have something. Is this the letter you want? It has no stamp.

Mr. Queeps looked. He said, "Oh,

my! Yes. Good. Very good! That is it." Then he put the stamp on the letter. "There now. Let's look for my boots."

"Your boots?" asked the man. "There! Surprise! Look! Look there! Look at your feet!"

Mr. Queeps looked down. "Well! How about that?" he said. "My boots are on my feet! Oh! I forgot. Look! I put them on. I thought they would not get lost!"

Then Mr. Queeps went for a walk with Mr. Bumple in the rain.

To See The King

Late at night John came to the gate of Camelot. Many other people where there. Some were building cook-fires. Some had put up small tents.

A few horses were tied outside the gate. A man told John, "We are waiting until morning. Then the gate will open. Then we can go into the city." John waited with them. He listened to the people talking. Some had come to ask for food. Others, like John, had come to see the King.

In the morning the gate was opened. John went into the court-yard. He waited there with the others who had come to see the King.

All day long John stood waiting. After a long time, no one else was left. Then Sir Kay called him into the castle.

John waited in a small room. He looked out into a great hall. At the end of the hall he saw a round table. It was a large table. All around it were chairs. On each chair was a name. He knew that this must be the Round Table. Here King Arthur sat with his knights.

John wanted to look at the names on the chairs. He started out into the hall. He heard Sir Kay's voice. "There is one left, your Majesty." said Sir Kay. "He is only a boy in old clothes. I think he has nothing much to say. If you wish, I shall send him away."

"Bring him before me," said another voice.

John was happy. He knew that he had heard King Arthur.

Sir Kay came back to the little room. "His Majesty will see you," he said.

John went out into a great hall. There a man sat on a great chair.

He saw the man's red and gold clothes. The man had a gold crown on his head. John looked into the face. It was a kind face. His eyes were kind but a little sad.

John stood before the King. "I thank you, Sir. I ask you to hear me."

"I will hear you," said the King.

"I'm John. My father is Lord Morgan. Once I lived in Morgan Castle with my father and mother. My Uncle, a bad man, came to Morgan Castle. He took my father hunting. My father was never seen again. My mother and I ran away to save our lives. Now my uncle lives in Morgan Castle that should be ours.

The King sat for a little while with his face in his hands. Then he said, "You shall have a knight go with you. You will go to Morgan Castle. But I do not know which knight it will be. I have already sent most of my knights to far places--."

A man came out of a room behind the king. "Sir," he said, "I am here."

"You, Sir James?" asked King Arthur. "Were you not hurt when you last rode in the hunt?"

"That was five days ago. Now I am well," said Sir James. "If it pleases your Majesty, I'll ride with the boy. Let's go," he said. And he looked at John and smiled.

How Baseball Began

Peter and his brothers took their ball and went into a quiet, cool clearing. It was just a little way into the forest. Then they turned around very quickly, for they heard a strange noise.

"Oh, my," Peter said as nine Indians came out of the forest. The oldest of the Indians was about Peter's age. He raised one of his father's old war clubs as if he were going to throw it at Peter.

Peter ducked and picked up his ball. He threw it at the Indian. The Indian hit the ball high in the air. Then he said, "I'm Nine Feathers. I throw ball and you hit ball. This new game is much fun. Look, I can bat the ball so far that I can run all around the field before you can throw it back."

But Peter threw the ball back when Nine Feathers was only halfway around the field. Nine Feathers was angry because he was caught. "Ugg," he said.

"Oh, my," Peter said, "I must fix things so he will not be angry." So he said, "I think it is too far to run all around the field. We will make the distance shorter by having three places to stop. You will be safe if you stop at any of these places before the ball comes back."

"This is a fine idea," said Nine Feathers. "Look, there are three trees in good places. We can stop at the bases of the trees."

"Yes," Peter agreed, "but

there is no tree to mark the place for batting. We should have a mark there."

Peter's little brother John was eating a plate of pudding he had brought from home. When he finished the pudding he put the plate down at the batting place. "There," he said, "that will make a good mark."

"Fine," Peter said. "And because it is a plate from home, we will call it home plate."

So the Denbrooms and the Indians played baseball with a home plate and three bases. Peter pitched for the Denbrooms. Nine Feathers made a short hit. He got to the first tree base. The next Indian made a long hit and Nine Feathers ran past the second base and the third base and raced to the home plate. "Ugg," Nine Feathers said. "It is like running for home when there is danger. Anyone who reaches the home plate should be called safe at home." "Yes," Peter said, "that will count one point in the game. And because the point is made by running, we will call it a run."

The next Indian, Brown Bear, was not a good batter. Peter pitched the ball forty-eight times, but the Indian did not hit it. Peter's arm was tired and he stopped to rest.

Nine Feathers said, "This Brown Bear makes us all tired."

As Peter rubbed his sore arm he agreed. "Anyone who does not hit the ball in three chances should be out of the batting place. So we will call that an out," Peter said.

Every day the Indians and Denbrooms played the ball game at the edge of the woods.

The Mystery of the Creaking Stairs

It was raining the day Elly first heard the strange noises. It sounded as if someone were walking up the attic stairs. Old houses often made scary noises, Elly thought, especially when it rained or the wind blew.

It was during the night that Elly heard the strange sounds again. It was not raining or blowing then. She was awakened by the creaking of the attic stairs, step by step. Elly threw back the blankets and walked softly into the next room.

She wanted Mark to hear the strange footsteps. Her brother was only eight, two years younger than Elly, but he was not often afraid.

"Mark, wake up," she whispered softly as she shook him. "Someone's in the attic!"

As he sat up sleepily, Mark asked, "What's the matter?"

"Sh-sh-sh, I heard someone in the attic."

Elly and her brother sat very still, but the house was quiet--there was not a sound.

"Oh, Elly," Mark said, "you were dreaming, or the wind was blowing or something."

"The wind isn't blowing," Elly answered, "and I did hear footsteps on the stairs."

"I'm sleepy, so we'll go up tomorrow to look around," he said as he lay down again.

Elly went back to her room and listened for a long time. But she did not hear the sounds again.

The next day Elly decided to go up to the attic by herself. Strangely enough, Elly thought, the attic was not dusty as it had been earlier, and it smelled fresh, as if the windows had been opened. She did not see anything unusual--the chairs, the boxes, and the old trunk were all there. Then, in one corner she saw a pile of rolled-up rags, or could it be a rug?

Carefully, Elly examined the roll. It was a sleeping bag! But whose? She knew it wasn't Mark's, and her father had died a long time ago.

As she turned around, she saw something wrapped in a newspaper. When she unwrapped the package, a pair of men's shoes fell out. The shoes were not new, but they had been shined not long ago. The date on the newspaper was November 14, only last week!

Suddenly she was afraid, and she turned and ran downstairs.

That night very late, Elly woke suddenly when she heard sounds--something was walking up the attic steps.

She lost no time as she dashed

out of bed and into Mark's room. Even her brother heard the steps creaking now.

"Let's go see what it is," Elly whispered.

"I'll take my flashlight with us," Mark said.

Elly and Mark moved softly down the dark hall. They looked up the stairs which led to the attic and saw that the attic door was open.

Suddenly Mark pushed her aside and started up the stairs. Elly ran after him.

When Mark and Elly stopped at the top of the steps, they could hear someone breathing in the coal-black attic. Mark took a deep breath as he turned on the light.

Something moved, and there was a shout, "What do you think you're doing?" A man climbed out of the bag, his white hair standing on end.

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