

THE EFFECTS OF FOUR READING METHODS
PRIOR TO SELF-EDITING UPON THE
WRITTEN COMPOSITION OF
FIFTH GRADE PUPILS

A THESIS PRESENTED TO THE
FACULTY OF GRADUATE STUDIES
THE UNIVERSITY OF MANITOBA

IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE
MASTER OF EDUCATION

BY
JENNIFER MARGARET KRESTANOWICH

AUGUST, 1977

THE EFFECTS OF FOUR READING METHODS
PRIOR TO SELF-EDITING UPON THE
WRITTEN COMPOSITION OF
FIFTH GRADE PUPILS

BY

JENNIFER MARGARET KRESTANOWICH

A dissertation submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
of the degree of

MASTER OF EDUCATION

© 1977

Permission has been granted to the LIBRARY OF THE UNIVER-
SITY OF MANITOBA to lend or sell copies of this dissertation, to
the NATIONAL LIBRARY OF CANADA to microfilm this
dissertation and to lend or sell copies of the film, and UNIVERSITY
MICROFILMS to publish an abstract of this dissertation.

The author reserves other publication rights, and neither the
dissertation nor extensive extracts from it may be printed or other-
wise reproduced without the author's written permission.

ACKNOWLEDGEMENTS

The investigator wishes to thank all those people who have assisted in the production of this study.

In particular, the investigator wishes to express appreciation to Dr. Odarka S. Trosky for her invaluable advice and guidance throughout the study.

In addition, thanks are due to Dr. B. R. Klassen for his many helpful suggestions, to Dr. A. D. Gregor for his careful examination of the manuscript, and to Dr. L. J. Maurice for his assistance with the statistical analysis.

A special acknowledgement is owed to the following administrators and teachers of Seven Oaks School Division No. 10 for their cooperation throughout the study:

Dr. N. Isler, Assistant Superintendent.

Centennial School: Mr. D. Mandryk, Principal;
Mrs. F. Podliesecki;

Governor Semple School: Mr. M. Michalchuk, Principal;
Mr. V. Barrett;

Margaret Park School: Mr. A. Karlowsky, Principal;
Mr. A. Kinley, Mr. G. Kletke

Finally, this study could not have been completed without the willing cooperation of the pupils who participated in the study.

ABSTRACT

This study sought to ascertain which of four reading methods; immediate silent reading, immediate oral reading, delayed silent reading, or delayed oral reading would be most effective in reducing selected syntactic and lexical errors in the written compositions of fifth grade pupils. A secondary area of interest was concerned with the types of changes these pupils would make in the compositions written during the treatment sessions as a result of using the four reading methods prior to self-editing.

Four classrooms of fifth grade pupils participated in the study. Following the pretest, during which each pupil wrote three compositions--one each in the narrative, descriptive, and expository modes--the classes underwent a nine-week treatment period. During this treatment period, each pupil wrote eighteen compositions--six in the narrative mode, six in the expository mode, and six in the descriptive mode. Each intact classroom employed one of the four reading methods prior to self-editing the compositions. The posttest, like the pretest, consisted of three compositions--one each in the narrative, expository, and descriptive modes. Following the posttest, four pupils were selected from each group to be individually interviewed in order to discover

their perceptions of the reading method they had employed prior to self-editing.

The pretest and posttest errors were examined in terms of four major error categories: sentence sense, T-units with initial 'and', malformed T-units, and spelling. Subcategories within these major categories, and the combined error total were also examined. Of the fifteen null hypotheses formulated, eight were accepted, six were rejected, and one could not be tested owing to insufficient data. As an additional indicator of syntactic and linguistic maturity, mean T-unit length was examined.

There were significant differences among the groups for the major category and the subcategories of sentence sense, the subcategory of spelling errors of lexical carelessness, the combined error total, and for mean T-unit length. Although there was no consistent pattern of significance for any one group, there was a trend showing the delayed silent reading group and the delayed oral reading group to be most effective in reducing composition errors. The delayed oral reading group also showed a significant increase in mean T-unit length.

Analysis of the compositions written during the treatment sessions revealed that pupils made changes in their compositions in two broad areas: changes to correct errors, and changes by choice where no errors existed. Although

analysis showed that, in the majority of individual change categories, the difference between immediate reading and delayed reading seemed to be the critical factor in determining whether changes were made, this did not hold when all changes were considered together. Here, the two silent reading groups made the most changes in their compositions.

The interviews revealed two trends: all pupils thought that they were expected to correct errors in their compositions despite the fact they had not been specifically instructed to look for errors; the types of composition changes identified by the pupils were congruent with the data revealed in the analysis of the compositions written by the pupils.

Although the findings of the study were not conclusive for any one group, trends showed that either oral or silent reading prior to self-editing appeared to be effective in reducing composition errors when this reading was delayed for one week after the compositions had been written.

TABLE OF CONTENTS

LIST OF TABLES	viii
Chapter	
I. STATEMENT OF THE PROBLEM.	1
Purpose of the Study and Rationale.	1
Statement of the Problem.	5
DEFINITION OF TERMS	6
PROCEDURES.	8
LIMITATIONS OF THE STUDY.	10
ASSUMPTIONS	11
ORGANIZATION OF THE STUDY	12
II. REVIEW OF RELATED LITERATURE.	13
Introduction.	13
Feedback and Learning	14
Immediate Feedback Versus Delayed Feedback.	17
Oral Reading and Written Composition	20
Silent Reading and Written Composition	27
Summary	31
III. DESIGN AND PROCEDURES OF THE STUDY.	34
DESIGN.	34
PROCEDURES.	35
Selection of the Sample	35
Pretest	36
Treatments.	38
Posttest.	43
Interviews.	43
ANALYSIS OF THE WRITTEN COMPOSITIONS.	44
Analysis of Compositions Written during the Treatment Sessions	44
Analysis of the Pretest and Posttest Writing Samples	50
Statement of the Hypotheses	56
Statistical Analysis.	58

Chapter	
IV.	ANALYSIS OF THE DATA 60
	ANALYSIS OF THE PRETEST AND POSTTEST WRITING SAMPLES 60
	ANALYSIS OF THE TYPES OF CHANGES MADE DURING THE TREATMENT SESSIONS 97
	INTERVIEWS 106
V.	SUMMARY AND INTERPRETATION OF THE FINDINGS; CONCLUSIONS; IMPLICATIONS FOR RESEARCH AND INSTRUCTION. 117
	SUMMARY AND INTERPRETATION OF THE FINDINGS 117
	Pretest and Posttest Writing Samples. 117
	Changes Made during the Treat- ment Sessions. 125
	Interviews 127
	CONCLUSIONS. 127
	LIMITATIONS. 129
	IMPLICATIONS FOR RESEARCH. 130
	IMPLICATIONS FOR INSTRUCTION 131
	SELECTED BIBLIOGRAPHY 132
APPENDICES	
A.	PRETEST AND POSTTEST INSTRUMENTS 136
B.	PRETEST AND POSTTEST TIMETABLES. 140
C.	TIMETABLE FOR THE TREATMENT SESSIONS 143
D.	TOPICS USED TO STIMULATE WRITING DURING THE TREATMENT WRITING SESSIONS 145
E.	INTERVIEW QUESTIONS. 154

LIST OF TABLES

1.	One-way Analysis of Variance of Pretest Scores for Mean Words per T-unit	62
2.	Average Number of Words Written on the Pretest and Posttest	63
3.	Summary of F Ratios for One-way Analyses of Variance of Pretest Scores for All Categories of Errors	64
4.	Comparison of Mean Scores on Pre- and Posttests for Mean Words per T-unit.	65
5.	One-way Analysis of Variance of Posttest Scores for Mean Words per T-unit.	66
6.	Newman-Keuls Test on Differences Between All Pairs of Means--Mean Words per T-unit	66
7.	Comparison of Mean Scores on Pre- and Posttests for the Major Category of Sentence Sense	68
8.	One-way Analysis of Variance of Posttest Scores for the Major Category of Sentence Sense	69
9.	Newman-Keuls Test on Differences Between All Pairs of Means--Major Category of Sentence Sense	69
10.	Comparison of Pre- and Posttest Mean Scores for the Subcategory of Sentence Sense where the Initial Capital Letter has been Omitted, Including Adjusted Mean Scores for the Posttest	71
11.	Multiple-T Test Showing Differences among Groups for Equality of Slope and Equality of Intercept for the Subcategory of Sentence Sense where the Initial Capital Letter has been Omitted.	72

12.	Comparison of Mean Scores on Pre- and Posttests for the Subcategory of Sentence Sense where the Final Period has been Omitted	73
13.	One-way Analysis of Variance of Post-test Scores for the Subcategory of Sentence Sense where the Final Period has been Omitted	74
14.	Newman-Keuls Test on Differences Between All Pairs of Means--Sentence Sense where the Final Period has been Omitted	74
15.	Comparison of Mean Scores on Pre- and Posttests for the Subcategory of Sentence Sense where the Initial Capital Letter and Final Period have been Omitted.	76
16.	One-way Analysis of Variance of Post-test Scores for the Subcategory of Sentence Sense where the Initial Capital Letter and Final Period have been Omitted	77
17.	Newman-Keuls Test on Differences Between All Pairs of Means--Sentence Sense where the Initial Capital Letter and Final Period have been Omitted.	77
18.	Comparison of Pre- and Posttest Mean Scores for the Major Category of T-units with Initial 'and'.	79
19.	Multiple-T Test Showing Differences among Groups for Equality of Slope and Equality of Intercept for the Major Category of T-units with Initial 'and'.	80
20.	Comparison of Mean Scores on Pre- and Posttests for the Subcategory of T-units Beginning with 'and'.	81
21.	One-way Analysis of Variance of Post-test Scores for the Subcategory of T-units Beginning with 'and'.	81
22.	Comparison of Mean Scores on Pre- and Posttests for the Subcategory of T-units Beginning with Capitalized 'and'.	82

23.	One-way Analysis of Variance of Post-test Scores for the Subcategory of T-units Beginning with Capitalized 'and'	83
24.	Comparison of Mean Scores on Pre- and Posttests for the Major Category of Malformed T-units.	84
25.	One-way Analysis of Variance of Post-test Scores for the Major Category of Malformed T-units	84
26.	Comparison of Mean Scores on Pre- and Posttests for the Subcategory of Malformed T-units with Words Omitted.	85
27.	One-way Analysis of Variance of Post-test Scores for the Subcategory of Malformed T-units with Words Omitted	86
28.	Comparison of Mean Scores on Pre- and Posttests for the Subcategory of Malformed T-units with Extraneous Words.	87
29.	One-way Analysis of Variance of Post-test Scores for the Subcategory of Malformed T-units with Extraneous Words.	88
30.	Comparison of Mean Scores on Pre- and Posttests for the Major Category of Spelling Errors.	89
31.	One-way Analysis of Variance of Post-test Scores for the Major Category of Spelling Errors	89
32.	Comparison of Pre- and Posttest Mean Scores for the Subcategory of Spelling Errors of Lexical Carelessness, Including Adjusted Mean Scores for the Posttest	90
33.	Multiple-T Test Showing Differences between Groups for Equality of Slope and Equality of Intercept for Errors of Lexical Carelessness.	91
34.	Comparison of Mean Scores on Pre- and Posttests for the Subcategory of Spelling Errors other than Lexical Carelessness	93

35.	One-way Analysis of Variance of Post- test Scores for the Subcategory of Spelling Errors other than Lexical Carelessness	94
36.	Comparison of Pre- and Posttest Mean Scores for the Combined Error Total of the Four Major Categories of Sentence Sense, T-units with Initial 'and', Malformed T-units, and Spelling Errors, Including Adjusted Mean Scores for the Posttest	95
37.	Multiple-T Test Showing Differences among Groups for Equality of Slope and Equality of Intercept for the Four Major Categories of Sentence Sense, T- units with Initial 'and', Malformed T- units, and Spelling Errors	96
38.	Summary of the Changes Made During the Treatment Sessions	98
39.	Summary of the Significant Findings.	120

CHAPTER I

STATEMENT OF THE PROBLEM

Purpose of the Study and Rationale

The major purpose of this study was to investigate the effects of four reading methods prior to self-editing upon the written composition of fifth grade pupils.

The self-editing aspect of composition writing was studied because, within the literature on teaching written composition at the intermediate level, a general concern has been expressed that pupils need to develop some skills of critical self-evaluation. As early as 1942, Humphreys stated that, along with an emphasis on widening children's writing experiences, there should also be "a program that ensures an ever increasing independence in written expression."¹ She questioned the usefulness of asking pupils to copy teacher-corrected compositions into notebooks and wondered whether this methodology was developing an adequate resourcefulness in writing.

¹Phila Humphreys, "A Greater Independence in Written Expression", Elementary English Review 19 (March, 1942): 93.

More recently Donohue² has stressed that self-evaluation of written composition in the intermediate grades is imperative. Greene and Petty have endorsed this view:

From the beginning of instruction in written expression the pupil should be encouraged to depend upon himself, both in finding his own errors of expression and in correcting them. He should learn to examine carefully what he has written in terms of selection of the ideas or information, effectiveness of organization, clarity of expression, and courtesy to the readers, including legibility of writing, correct spelling, necessary punctuation, and acceptable usage.³

This dependence upon oneself for learning was emphasized by Bruner⁴ when he suggested that more effective and more permanent learning takes place as a result of learning through 'discovery' than through having the teacher provide the student with information through an expository mode. This discovery learning does not appear in a vacuum, however, but builds upon previously learned skills and knowledge. Strickland⁵ seemed to agree when she pointed out

²Mildred Donohue, The Child and the English Language Arts (n.p.: Wm. C. Brown Company Publishers, 1971), p. 240.

³Harry A. Greene, and Walter T. Petty, Developing Language Skills in the Elementary Schools, 4th ed. (Boston: Allyn and Bacon, 1971), p. 266.

⁴Jerome S. Bruner, "The Act of Discovery", Harvard Educational Review 31 (Winter, 1961): 21-32.

⁵Ruth G. Strickland, The Language of Elementary School Children: Its Relationship to the Language of Reading Textbooks and the Quality of Reading of Selected Children. Bulletin of the School of Education, Indiana University, 38 (July, 1962), (Bloomington: Indiana University, 1962), p. 106.

that, by the intermediate grades, children possess a highly-developed knowledge of their language, and it may be that children could profitably use this knowledge to help them examine their own written compositions critically.

One way of employing this knowledge of language is to ask pupils to read over their written compositions as an aid to helping them detect errors in their compositions. This is a method recommended by several authors, such as Burrows⁶, Greene and Petty⁷, Golub and Fredrick⁸, and Stratta, Dixon, and Wilkinson⁹, although they have not agreed as to whether this reading should be done orally or silently. Nor have they stated when the optimum time for reading is; that is, whether it should occur immediately after writing or after some intervention of time. On the other hand, Moffett¹⁰ has suggested that one can benefit

⁶Alvina T. Burrows, Teaching Composition, What Research Says to the Teacher Series, No. 18 (Washington: National Education Association of the United States, 1961), p. 24.

⁷Greene and Petty, Developing Language Skills, pp. 266-68.

⁸L. S. Golub, and W. C. Fredrick, Linguistic Structures and Deviations in Children's Written Sentences, Technical Report No. 152 (Madison: The University of Wisconsin Research and Development Center for Cognitive Learning, 1971), p. 5.

⁹Leslie Stratta, John Dixon, and Andrew Wilkinson, Patterns of Language, (London: Heinemann Educational Books Ltd., 1973), p. 213.

¹⁰James Moffett, Teaching the Universe of Discourse (Boston: Houghton Mifflin Company, 1968), p. 191.

from looking at one's writing some time after the composition has been completed.

Since there appeared to be no agreement within the literature on the method of reading to be used prior to self-editing nor on when the reading should take place, this study examined four reading methods prior to self-editing. These four reading methods were: immediate silent reading, immediate oral reading, delayed silent reading, and delayed oral reading.

These four reading methods were examined in terms of their effectiveness in reducing or eliminating common errors found in the written compositions of fifth grade pupils. Although there is no empirical evidence concerning the types of composition errors fifth grade pupils will detect and correct as a result of self-editing, evidence concerning the common composition errors made by intermediate pupils does exist. Golub and Fredrick¹¹ conducted a study with fourth and sixth grade pupils in which they examined the syntactic and lexical errors made by these pupils in their written compositions. They found that the most common syntactic errors were related to the misuse of initial capital letters and final periods, an error which they termed 'sentence sense', the misuse of the comma, and the misuse

¹¹Golub and Fredrick, Linguistic Structures and Deviations, p. 5.

of coordinating conjunctions such as 'and'. Many lexical or spelling errors were also noted. In discussing the errors made by these pupils, Golub and Fredrick stated that many errors of redundancy such as extraneous words, as well as many errors of omission, could be eliminated by proof-reading.

Consequently, the present study examined the written compositions of the fifth grade pupils participating in the study in terms of those syntactic and lexical errors which occurred most frequently in their compositions. These were similar to the error categories of Golub and Fredrick since the most common errors were related to sentence sense, malformed T-units, T-units with initial 'and', and spelling. Comma errors also occurred frequently but were not examined on the grounds that the correct usage of the comma would not be familiar to pupils at this level.

Statement of the Problem

It was of interest to the investigator to examine not only the types of errors made by the pupils in their written compositions but also to discover whether there would be a reduction in these errors as a result of reading over their compositions. Consequently, the following general question was investigated:

Which of four reading methods; immediate silent reading, immediate oral reading, delayed silent reading, or delayed oral reading, will be most effective in re-

ducing errors of sentence sense, malformed T-units, T-units with initial 'and', and spelling, in the written composition of fifth grade pupils?

A secondary area of interest was concerned with the types of changes that fifth grade pupils would make in their compositions written during the treatment sessions as a result of using the four reading methods prior to self-editing. As stated previously, there is no empirical evidence specifically related to this aspect of written composition and self-editing. Consequently, a second general question was investigated:

What types of self-editing changes will fifth grade pupils make in their written compositions as a result of using the four reading methods?

DEFINITION OF TERMS

For the purpose of this study, the following terms were defined as stated below:

Oral Reading: This term refers to the vocalization of the written composition as a means of checking what has been written; however, no evaluation of the oral reading is implied.

Silent Reading: This term refers to the reading of the written composition without vocalization as a means of checking what has been written where the outward manifestation of the process is the regular movement of the eyes

across the page. No evaluation of the silent reading is implied.

Immediate Feedback: This refers to the knowledge of results of the written composition provided immediately after writing by means of either oral or silent reading of the composition by the pupil.

Delayed Feedback: This term refers to the knowledge of results of the written composition provided one week after writing by means of either oral or silent reading of the composition by the pupil.

Self-editing: This term refers to the process of conscious revision the pupil engages in as a result of feedback provided through either oral or silent reading of his composition. It includes any changes that may be made to the composition as a result of the reading, such as changes in structure, choice of words, punctuation.

Written Composition: Samples of writing in three different modes; narrative, expository, descriptive, produced by fifth grade pupils as a result of various stimuli.

Narrative Mode: Samples of writing characterized by the relating of a series of events either factual or imaginative.

Expository Mode: Samples of factual writing intended to explain or to convey information.

Descriptive Mode: Samples of writing that convey the physical details of either a real or imagined person, animal, object, or scene.

T-Unit: A unit for measuring syntactic maturity developed

by Hunt and defined as "one main clause expanded at any of many different points by structures that are modifiers or complements or substitutes for words in the main clause".¹²

Malformed T-Unit: A T-unit containing either extraneous words, omissions of words, or misplaced elements in its surface structure.

PROCEDURES

Four classes of fifth-grade pupils from three suburban elementary schools participated in the study. First, a pretest was given, during which each pupil wrote three compositions--one each in the narrative, expository, and descriptive modes.

During the nine-week treatment period that followed the pretest, each pupil wrote eighteen compositions--six in the narrative mode, six in the expository mode, six in the descriptive mode. Each class formed a separate experimental group and employed one of four methods of reading prior to self-editing throughout the treatment period. The four methods of reading were; immediate silent reading, immediate oral reading, delayed silent reading, and delayed oral reading.

This was followed by a posttest during which each pupil again wrote three compositions--one each in the nar-

¹²Kellogg W. Hunt, Grammatical Structures Written at Three Grade Levels, NCTE Research Report No. 3, (Champaign, Ill.: National Council of Teachers of English, 1965), p. 161.

rative, expository, and descriptive modes. Then, four pupils from each experimental group were selected to be interviewed by the investigator. The purpose of the interviews was to discover the pupils' perceptions of the reading and self-editing procedures.

The pretest and posttest samples of those pupils who had been present throughout the eleven-week period were then analyzed. Based on a study by Golub and Fredrick¹³ and an analysis of the compositions written by the pupils in the present study, the following categories of composition errors were examined:

1. Sentence sense

- (a) initial capital letter omitted
- (b) final period omitted
- (c) final period and initial capital letter omitted

2. T-units with Initial 'and'

- (a) T-units beginning with 'and'
- (b) T-units beginning with capitalized 'and'

3. Malformed T-units

- (a) words omitted
- (b) extraneous words
- (c) confused word order

4. Spelling Errors

- (a) errors of lexical carelessness
- (b) errors other than lexical carelessness

¹³Golub and Fredrick, Linguistic Structures and Deviations, 1971.

Since these errors are negative indicators of writing maturity, the pretest and posttest results were subjected to statistical tests to determine whether there was a significant decrease in the occurrence of these errors between the pretest and the posttest. Included in the statistical analysis were error totals for each of the four major error categories as well as a combined error total for all of the above categories of errors.

LIMITATIONS OF THE STUDY

1. The study investigated only the effects of four reading methods prior to self-editing upon the reduction of selected composition errors. There was no intention to instruct in written composition.
2. The analysis of the written composition examined selected syntactic and lexical aspects only. It did not examine the rhetorical aspects of composition, such as style.
3. Although the pupils in the study wrote compositions in three different modes--narrative, descriptive, and expository--there was no intention to compare the three modes of writing in any way. The purpose of the three writing modes was to provide a broad sample of writing for analysis.¹⁴

¹⁴Gerald R. Kincaid, "Some Factors Affecting Variations in the Quality of Students' Writing," in Research in

4. The investigator had control over the writing experiences of the pupils in the study only within the scope of the experiment. Outside writing experiences could not be controlled although teachers of the pupils were asked not to use the techniques employed in the study; however, no guarantee can be given that this was the case.
5. Since the investigator was also responsible for conducting the writing sessions for each group, there may have been a hidden or unconscious bias on the part of the investigator which favoured one group over another.

ASSUMPTIONS

This study was based on the following assumptions:

1. The classes taking part in the study were representative of fifth-grade pupils.
2. Pupils in the fifth grade have obtained a level of competence in language that includes
 - (a) an ability to write compositions in the narrative, expository, and descriptive modes;
 - (b) an ability to read both orally and silently;
 - (c) an ability to examine their own written language for purposes of self-editing.

A pilot study conducted by the researcher prior to

¹⁴Written Composition by Richard Braddock, Richard Lloyd-Jones, and Lowell Schoer (Champaign, Ill.: National Council of Teachers of English, 1963), pp. 94-95.

this study indicated that the second assumption stated above is valid.

ORGANIZATION OF THE STUDY

Chapter Two will review related literature and research on the following topics: feedback and learning; immediate feedback versus delayed feedback; oral reading and written composition; silent reading and written composition.

Chapter Three will present a detailed description of the design of the study and the procedures employed to collect the data, including the selection of the sample, the pretest and posttest, and the treatment writing sessions. Also included in this chapter is a description of the method used to analyze the written compositions, and a statement of the hypotheses.

In Chapter Four, the analyses of the data will be reported both statistically and descriptively. Remarks on the interviews conducted with individual pupils will also be reported.

Chapter Five will include the summary and interpretation of the findings, the conclusions that can be drawn from the findings, and implications for research and instruction.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

Much has been written on the broad topics of knowledge of results, commonly referred to as feedback, oral reading, silent reading, and written composition. This chapter, however, will review only certain aspects of these topics as they are related to the area under examination.

On the topic of feedback, a distinction will be made between two types of feedback, explicit and implicit, and also between the uses of feedback; that is, a distinction between using feedback for reinforcement and using feedback to provide information.

For both oral reading and silent reading, an examination will be made of the literature and research related to these two modes of reading insofar as they provide feedback to a writer concerning his written composition. In addition, an examination will be made of the theoretical bases for this particular relationship between reading and writing.

The chapter will conclude with specific questions for study which arise from the examination of the related literature.

Feedback and Learning

It is generally accepted that feedback or knowledge of results forms a necessary part of the process of learning. Annett, for example, states that "there are few who would deny that KR [knowledge of results] is a potent factor in efficient learning and in maintaining high levels of performance,"¹ but goes on to say that the reasons for these effects are still disputed. He suggests that feedback is more important for the information it provides rather than for its reinforcement aspects.² He also distinguishes between two types of feedback; 'extrinsic' feedback as contrasted to 'intrinsic' feedback. He defines extrinsic feedback as the feedback supplied by an experimenter or adapted by him, whereas intrinsic feedback is that which is normally present within a learning task; for example, the feedback provided to the muscles during physical movement, which is usually not subject to experimenter manipulation.³

Ausubel also distinguishes between these two types of feedback.⁴ Although he uses the terms 'explicit' and

¹John Annett, Feedback and Human Behaviour, Penguin Science of Behaviour Series, No. 2. gen. ed. B.M. Foss, (Harmondsworth, Middlesex, England: Penguin Books, Ltd., 1969), p. 11.

²Ibid., p. 12.

³Ibid., p. 26.

⁴David P. Ausubel, The Psychology of Meaningful Verbal Learning (New York: Grune and Stratton, 1963), pp. 203-6.

'implicit' rather than 'extrinsic' and 'intrinsic', he is referring to essentially the same distinction as Annett. For Ausubel, explicit feedback refers to the knowledge of results provided by some agent outside the learning task. An example of such is a teacher telling a pupil that his answer is correct, or a programmed machine moving to the next instructional frame, thereby verifying that a correct response has been given. On the other hand, implicit feedback is the feedback provided within the learning task itself; for example, such implicit feedback occurs when achievement of understanding provides satisfaction in itself.

Ausubel emphasizes, along with Annett, that feedback can have not only a reinforcement effect on learning, but also a cognitive effect; that is, the feedback furnishes information to the learner. This cognitive aspect of feedback does not have to be provided externally, it may be provided implicitly within the learning task. Ausubel makes this point clear when he states that "the internal logic of the learning material also makes possible some implicit confirmation, correction, classification, and evaluation of the learning product, even in the absence of any explicit provision of feedback."⁵

This viewpoint is endorsed by Gagné⁶ when he proposes that in a rule-learning situation, feedback need not always

⁵Ibid., p. 204.

⁶Robert M. Gagné, The Conditions of Learning, 2nd ed. (New York: Holt Rinehart and Winston, 1970), p. 316.

come from an external situation, but may arise from other concepts or rules recalled by the learner himself. In other words, a learner can often apply an internal check to his responses in order to determine whether they are correct. The example cited by Gagné to underscore this point is the solving of a chemical equation: if a learner is familiar with the elements of the compounds on one side of the equation and knows that an equation must be balanced, then it is not difficult for him to decide whether the other side of the equation is 'balanced' even in the absence of external feedback from the teacher or some other source.

Since the literature suggests, then, that feedback for learning does not have to be provided externally, but may be implicit within the learning task itself, it may be argued that oral reading and silent reading both provide a form of implicit feedback to the learner concerning his written composition. During these types of reading, the individual is using his highly developed knowledge of language and language rules as a point of reference against which his written language can be checked. It will be shown in later sections of this chapter that, as a result of this process, the writer is able to discover discrepancies between what has been written and what is known about language. The feedback provided is implicit rather than explicit since it is provided through an internal awareness of language. Although it could be argued that the vocalization aspect of the oral reading provides a form of explicit feedback, the oral reading

is too closely linked to the reader himself to be considered as true explicit feedback. On the other hand, if the oral reading were to be performed by someone other than the writer, then it could be considered to be explicit feedback.

Immediate Feedback Versus Delayed Feedback

Based on the literature reviewed, it can be said that some form of feedback, either implicit or explicit, is essential if learning is to take place. Since it has been argued that oral reading or silent reading of a written composition provide a form of implicit feedback to the writer, the question that remains to be answered is; When should this feedback take place?

In the school situation, children are usually asked to check their compositions immediately after writing, a practice based on a body of evidence that suggests that effective learning takes place when immediate feedback is provided. Sassenrath⁷ in his review of recent studies states, however, that despite this proposition put forward by such people as Hull, Skinner, and Spence, there is increasing evidence that delayed feedback is superior to immediate feedback if learning of meaningful material in contrast to nonsense syllables is to take place. This view is

⁷J. M. Sassenrath, "Theory and Results on Feedback and Retention," Journal of Educational Psychology, 67 (1975): 894.

confirmed by Pound and Bailey⁸ who cite a number of studies that suggest that immediate feedback is not as effective as delayed feedback in promoting classroom learning.

More directly related to the writing of compositions is the viewpoint of Moffett:

Furthermore we have all had the experience of looking back on something we have written earlier and of responding much as another person might do. Thus, once beyond the moment of writing, the writer himself becomes 'other' and can feedback helpfully to himself.⁹

On the other hand, Hensley, Lewinstein, and Rabinowitz¹⁰ cite several studies to verify their statement that the data from research with children as to the effects of delayed feedback have not been consistent. Delayed feedback apparently has both facilitated learning as well as had an adverse effect on learning.

It seems, therefore, that the research evidence on immediate and delayed feedback is not conclusive. This may be because much of the research has been conducted on animal rather than human subjects, and has been concerned with the learning of motor skills rather than the learning in the

⁸Larry D. Pound, and Gerald D. Bailey, "Immediate Feedback Less Effective than Delayed Feedback for Contextual Learning?" Reading Improvement 12 (Winter, 1975): 222-24.

⁹James Moffett, Teaching the Universe of Discourse, (Boston: Houghton Mifflin Company, 1968), p. 191.

¹⁰G. H. Higgins, J. Lewinstein, and F. M. Rabinowitz, "Effects of Children's Spontaneous Verbal Rehearsal on Learning Performance under Delay of Feedback," Child Development 45 (1974): 479.

area of meaningful language. Sassenrath¹¹ attempts to explain this apparent discrepancy in results by pointing out that earlier researchers such as Skinner, Hull, and Spence, used feedback as reinforcement, whereas later researchers such as Kulhavy and Anderson¹², and Surber and Anderson¹³, have used feedback to provide information to the learner. This difference may explain the inconclusive evidence as to the effects of immediate versus delayed feedback on learning.

In examining the results of the studies reviewed, it must be remembered that all of these studies have looked at immediate and delayed feedback only in terms of explicit or externally provided feedback. Since this study is investigating two forms of implicit feedback, oral reading and silent reading, the results of the studies reviewed may not apply. Consequently, there appears to be a need to find out whether similar results will be obtained when implicit cognitive feedback is provided in immediate and delayed situations.

¹¹Sassenrath, "Feedback and Retention," p. 894.

¹²R. W. Kulhavy, and R. C. Anderson, "Delay-retention effect with multiple-choice tests," Journal of Educational Psychology 63 (1972): 505-12.

¹³G. R. Surber, and R. C. Anderson, "Delay-retention effect in natural classroom settings," Journal of Educational Psychology, 67 (1975): 170-173.

Oral Reading and Written Composition

This section will concern itself only with the literature and research that refers to oral reading as a means of providing feedback to a writer concerning his written composition. It also includes the literature that may clarify the theoretical bases for this particular relationship between oral reading and written composition.

Several writers have suggested that the oral reading of a written composition will assist the writer in detecting errors made during the writing process as well improving such things as style and choice of words.

In referring to pupils in Grades 4, 5 and 6, Thorn and Braun state that

Older pupils . . . should be encouraged to read their compositions aloud to themselves and really listen to them in order to hear the flow of language as well as to weigh the ideas Reading aloud can also become one of the best tests for determining whether a sentence is complete or whether word usage is appropriate.¹⁴

They note also, that it is not uncommon for a pupil, while reading his composition, to pick up a pencil, make alterations to spelling, and add words or punctuation. Since pupils seem to do this quite easily, they suggest that the rereading of written compositions should become a fixed habit.¹⁵

¹⁴Elizabeth Thorn with Carl Braun, Teaching the Language Arts: Speaking, Listening, Reading, Writing, (Toronto: Gage Educational Publishing Limited, 1974), p. 254.

¹⁵Thorn and Braun, Language Arts, p. 252.

Burrows also regards reading aloud as the best test of a complete sentence. She states that "both elementary-school teachers and linguistic scholars agree upon the oral-auditory pattern as the practical test of the sentence,"¹⁶ since voice signals and intonation will indicate to the pupil where terminal punctuation should be applied. She adds that these voice signals and intonation patterns have been mastered many years before the child reaches the intermediate grades.

Similarly, Hatfield¹⁷ sees voice signals and intonation as the keys to developing sentence sense. He states that adults write in sentences because they think in sentences. Adults hear mentally the sentence that is being written, or is going to be written, and when the end of the sentence is reached, the appropriate end signal--period, question mark, or exclamation mark--is recorded. Hatfield notes that psychologists refer to this mental hearing as 'inner speech', since a vestige of movement remains in the speech organs even during thinking. Turning his attention to children, Hatfield states that children also possess this 'inner speech' and that if the teacher brings to their attention their voice signals and intonation by having them

¹⁶Alvina T. Burrows, Teaching Composition, What Research Says to the Teacher Series, No. 18, (Washington: National Education Association of the United States, 1963), p. 24.

¹⁷W. Wilbur Hatfield, "The Shortest Road to Sentence Sense, Elementary English 33 (May, 1956): 270.

read aloud their compositions, they too will be able to use correct punctuation.

Hatfield's views are supported by Stratta, Dixon, and Wilkinson¹⁸; however, they refer to it as an aid in improving syntax, rather than punctuation. In addition, they provide specific evidence from theory to uphold their views. They suggest that the oral reading of written compositions should be encouraged, especially for those students who have difficulty in controlling syntax and cite the argument of the psychologist Vygotsky that writing is "speech in thought and image only, lacking the musical, expressive, intonational qualities of oral speech."¹⁹ They suggest that it is for this reason that many pupils are unable to hold written sentence rhythms and tunes in their heads. They claim that the problem can be overcome by having the student read aloud since it seems to facilitate the hearing of the sentence rhythms and tunes and, consequently, the finding of errors in syntax.

It is possible that this vocalization of the written word provides a bridge between inner speech and what has

¹⁸Leslie Stratta, John Dixon, and Andrew Wilkinson, Patterns of Language, (London: Heinemann Educational Books Ltd., 1973), p. 213.

¹⁹L. S. Vygotsky, Thought and Language, ed. and trans. Eugenie Hanfmann and Gertrude Vakar, (Cambridge, Mass.: M.I.T. Press, 1962), p. 98, cited by Stratta, Dixon, and Wilkinson, Patterns of Language, p. 213.

been produced on paper. Vygotsky²⁰ states that written speech not only presupposes the existence of inner speech but also implies a translation from inner speech. Inner speech is a condensed, abbreviated form of speech, whereas written speech is more explicit and fully extended, more complete than oral speech. The grammar of thought is not the same in both cases, however, and it might be said that the syntax of inner speech is the exact opposite of the syntax of written speech, with oral speech standing in the middle. Oral speech stands in this medial position to facilitate the translation of the writer's abbreviated thoughts known only to himself, into the written expanded form that appears on the page, a form that must explain the thoughts clearly in order for them to be intelligible to others.

Very few research studies have looked at the question of oral reading as an aid to improving children's writing, in particular the question of using it to provide pupils with a tool for editing their own composition. One such study by Tovatt and Miller²¹ used oral reading as part of a writing program founded on linguistic, psychological, and intuitive bases. The assumptions were:

(a) Speech and writing are intimately related since speech

²⁰Ibid., pp. 99-100.

²¹Anthony Tovatt and Ebert L. Miller, "The Sound of Writing," Research in the Teaching of English 1 (Fall, 1967): 176-189.

is the foundation of writing. Both speech and writing require adeptness in oral-aural skills, and writing requires certain visual skills as well.

- (b) Speech strategies, or oral patterns, which an individual develops and modifies at one level of abstraction, could form the neural bases for developing and refining writing strategies which operate at a higher level of abstraction. (Vygotsky confirms this when he gives reasons to support the idea that writing is a much more abstract activity than oral language.)²²
- (c) Intuitively, writers and teachers have advised that one should listen to what one has written in order to see whether the sentences form the right written tune.

In this study, Tovatt and Miller investigated the effect of having Grade Nine pupils listen to themselves composing a piece of writing. They used taperecorders to facilitate this process of listening. In addition, the investigators describe certain variations on this procedure that the experimental class experienced. Based on the results of standardized tests, the experimental procedures demonstrated a general superiority over the traditional approach to teaching composition in increasing student abilities in writing, reading, listening, and language usage. Rating of compositions written during the year was inconclusive, however, in establishing the superiority of either approach.

²²Vygotsky, Thought and Language, pp. 98-99.

A study by Martin²³ compared the effectiveness of a traditional textbook approach to teaching sentence-writing skills with a sequential, linguistically-oriented program of instruction. The latter program was based upon the "sophisticated oral language patterns of children," "the intuitively mastered grammatical foundations of oral language," and the "problem of economical transfer to written language forms."²⁴ The general learning strategy used with the experimental group was an attempt to establish a useful set of relationships between speaking and writing competencies. This learning strategy was based on two aspects of oral communication that the researcher felt contributed much to written communication. These aspects are an awareness of the relationship between the intonation patterns of oral language and the punctuation signals of the written form, and the ability to discriminate between sentences and non-sentences, an ability that the researcher termed "sentence sense".

The pupils in the experimental group used two types of materials; a textbook on transformational grammar, and materials designed to show the relationship between oral and written language. The researcher felt, however, that the

²³James J. Martin, "The Development of Sentence-Writing Skills at Grades Three, Four, and Five," D. Ed. Dissertation, University of California, Berkeley, 1968.

²⁴Ibid., p. 2.

opportunities provided to develop transfer from oral to written sentences, rather than the transformational grammar text, contributed to the overall superiority of the experimental group in sentence-writing skills. According to the investigator, this research also suggests that

The learning strategies of the experimental curriculum, based on the child's intuitive command of the grammar of English, are effective learning aids. These strategies rely on the child's awareness of certain redundant characteristics of syntax and morphology, features which he commands without reflection in his production of oral sentences.²⁵

In summary, it appears that much of what has been written to support the oral reading of written composition as a tool to aid pupils in detecting errors is founded on intuition. There is a theoretical base, however, in the ideas of Vygotsky and Chomsky.

Vygotsky²⁶ views written language as being much more abstract than oral language. Written language goes a step beyond oral language since in writing a child "must disengage himself from the sensory aspect of speech and replace words by images of words."²⁷ Thought must be encoded as imagined speech and then encoded into graphic signs. Consequently, written language is twice removed from thought. It is this abstract quality of written language that makes it so difficult for children to master written communication.

²⁵Ibid., p. 82.

²⁶Vygotsky, Thought and Language, pp. 98-99.

²⁷Ibid.

Chomsky's theories²⁸ confirm Vygotsky's views since Chomsky distinguishes between 'performance' and 'competence' in his theory of language. He states that there is a fundamental difference between competence, which is the speaker's knowledge of his language, and performance which is his actual use of language in concrete situations. This applies to both speaking and writing.

It may be then, that the oral reading of the written composition provides a means of linking both the thoughts of the child and his knowledge of language to his written performance, and thus helps him to evaluate his performance. Consequently, this study will investigate the effect of oral reading as a means of providing feedback for written composition to see whether in fact it can assist a learner to evaluate his performance.

Silent Reading and Written Composition

This section examines only that literature which refers to silent reading as a means of providing feedback for written composition, and the literature which provides a possible underlying theoretical base for this relationship.

There is little empirical evidence related to the usefulness of silent reading as an aid to improving written composition; there is some literature, however, to support

²⁸N. Chomsky, Aspects of the Theory of Syntax, (Cambridge, Mass.: M.I.T. Press, 1965), pp. 3-4.

the practice.

In general, when authors suggest that pupils should check their written composition, it is intended to be done silently with a checklist or series of questions provided as a guide; usually no instructions to read over their work are given. These checklists and questions are quite specific and are intended to assist the pupil in a self-evaluation of his written performance. For example, both Greene and Petty²⁹ and Donohue³⁰ emphasize the need for self-evaluation of written composition at the intermediate level and both provide checklists as aids to this self-evaluation process.

Neither Greene and Petty nor Donohue provide any reasons for their preference for silent reading over oral reading as a method of editing written compositions, although Greene and Petty³¹ do question the usefulness of using oral intonation patterns to signal punctuation in written material. They claim that punctuating sentences according to speech signals can be misleading as it is a fallacy to assume that any change in pitch requires a punctuation mark.

²⁹Harry A. Greene, and Walter T. Petty, Developing Language Skills in the Elementary Schools, 4th ed. (Boston: Allyn and Bacon, Inc., 1971), pp. 266-68.

³⁰Mildred R. Donohue, The Child and the English Language Arts, (n.p.: Wm. C. Brown Company Publishers, 1971), pp. 240-42.

³¹Greene and Petty, Developing Language Skills, p. 258.

On the other hand, Hatfield³² who advocates that oral reading can be used to detect sentence fragments and comma splices, states that silent reading is just as effective if pupils have been trained to attend to their inner speech.

How does theory support silent reading as a means of checking what has been written? The theories of psycholinguists offer some insights. Goodman suggests that in the writing process "meaning in the mind of the originator creates a deep language structure (a set of base forms) and activates a set of rules which transform the structure and generate a signal"³³ in graphic form, often referred to as the "surface structure". He adds that this surface structure must be complete with all essential elements present and extraneous ones deleted.

In the silent reading process, the reader samples from the graphic input, predicts structures, leaps to quick conclusions about the meaning or deep structure, and slows down only when subsequent sampling fails to confirm what he

³²Hatfield, "Sentence Sense", p. 272.

³³Kenneth S. Goodman, "Behind the Eye: What Happens in Reading," in Theoretical Models and Processes of Reading, 2nd ed. Edited by Harry Singer and Robert B. Ruddell, (Newark, Del.: International Reading Association, 1976), p. 476.

expects to find.³⁴ Ruddell³⁵ confirms this view when he states that silent reading involves the processing of the surface structure of written language in order to obtain meaning from the underlying deep structure.

These theories refer to the process a reader experiences when he is reading material that is unfamiliar to him such as that written by someone else. In the self-editing process, however, the material to be read is not unfamiliar since the reader is also the author. In this situation, the reading of the written language is not just for the purpose of obtaining meaning but also acts as a check for the reader to see whether the written material reflects the intentions the author had in mind during the composing process. If, however, the surface structure of the written language has any essential part missing or anything extraneous added to it, this will hinder the reader in his search for meaning and will turn his attention back to the surface structure where it will be examined more closely. Consequently, errors in the written language may be more readily detected.

Goodman notes, on the other hand, that silent

³⁴ Goodman, Behind the Eye, p. 482.

³⁵ Robert B. Ruddell, "Psycholinguistic Implications for a Systems of Communication Model," in Theoretical Models and Processes of Reading, 2nd ed. Edited by Harry Singer and Robert R. Ruddell, (Newark, Del.: International Reading Assoc. 1976) p. 459.

reading does contain an echo of speech.³⁶ This "silent speech" may perform the same function as oral language does in providing a link between one's thoughts and the form in which they are expressed in written language. Thus, this study will investigate the effect of silent reading as a means of providing feedback for written composition to see whether it can assist a learner to evaluate his performance.

Summary

Much has been written on the topics of feedback, oral reading, silent reading, and written composition, but little directly pertains to either oral reading or silent reading as a means of providing feedback to a writer concerning his written composition. Most of the literature which supports the use of either oral reading or silent reading in this capacity is based on intuition or the theories of linguists and psycholinguists such as Vygotsky, Chomsky, and Goodman. No actual studies have investigated solely the effects of using either oral reading or silent reading prior to the self-editing of written compositions.

Nor are the research studies on immediate and delayed feedback conclusive as they have investigated explicit feedback rather than implicit feedback of the type provided by either oral reading or silent reading. In addition,

³⁶Goodman, "Behind the Eye", p. 482.

many of the studies have investigated the effects of feedback on animals, rather than the effects of feedback on the meaningful learning of human beings.

Since the literature related to either oral reading or silent reading as a means of providing feedback to a writer concerning his written composition is not conclusive, this study will investigate the following major questions:

1. How effective will immediate silent reading be in reducing errors of sentence sense, malformed T-units, T-units with initial 'and', and spelling, in the written composition of fifth grade pupils?

2. How effective will immediate oral reading be in reducing errors of sentence sense, malformed T-units, T-units with initial 'and', and spelling, in the written composition of fifth grade pupils?

3. How effective will delayed silent reading be in reducing errors of sentence sense, malformed T-units, T-units with initial 'and', and spelling, in the written composition of fifth grade pupils?

4. How effective will delayed oral reading be in reducing errors of sentence sense, malformed T-units, T-units with initial 'and', and spelling, in the written composition of fifth grade pupils?

A question of lesser importance, but also related to the effects of oral reading and silent reading upon written composition will also be investigated. The question is:

What types of self-editing changes will fifth grade

pupils make in their written compositions as a result of using either immediate silent reading, immediate oral reading, delayed silent reading, or delayed oral reading prior to this self-editing?

CHAPTER III

DESIGN AND PROCEDURES OF THE STUDY

The primary purpose of this study was to investigate the effects of four reading methods prior to self-editing upon the written composition of fifth grade pupils. A second area of interest was a comparative examination of the types of changes made in the pupils' written compositions as a result of these four types of reading.

DESIGN

In this study four intact classrooms of fifth grade pupils were randomly assigned to one of four experimental groups. This procedure is based on the design outlined by Campbell and Stanley as the Nonequivalent Control Group Design.¹ In this case, however, each group was designated as experimental and underwent a treatment period. The treatments for each group were as follows:

<u>Group</u>	<u>Treatment</u>
Experimental Group 1 (E ₁)	Immediate silent reading
Experimental Group 2 (E ₂)	Immediate oral reading

¹Donald T. Campbell, and Julian C. Stanley, "Experimental and Quasi-Experimental Designs for Research on Teaching," in Handbook of Research on Teaching, ed. N. L. Gage (Chicago: Rand McNally and Company, 1963), p. 217.

<u>Group</u> - Continued	<u>Treatment</u> - Continued
Experimental Group 3 (E ₃)	Delayed silent reading
Experimental Group 4 (E ₄)	Delayed oral reading

PROCEDURES

Selection of the Sample

Fifth grade pupils from a suburban school division comprised the four intact classrooms which were located in three elementary schools and formed a total population of 110 pupils. These classrooms were considered by the principals and teachers of the respective schools to be "average" fifth grade classrooms.

Although the population totalled 110 pupils, not all these subjects were included in the analysis of the data. Since the purpose of the study was to investigate what effects four different treatments of some length, nine weeks in all, would have on the written composition of fifth grade pupils, it was decided to analyze the writing samples of only those subjects who had been present for all eighteen treatment sessions. Through this selection procedure a total sample of 55 subjects became available for analysis.

<u>Group</u>	<u>Actual N</u>	<u>Possible N</u>	<u>% of Possible N</u>
E ₁	12	28	42.8
E ₂	10	25	40.0
E ₃	16	29	55.1
E ₄	<u>17</u>	<u>28</u>	<u>60.7</u>
Total	<u>55</u>	<u>110</u>	<u>50.0</u>

An examination of these figures revealed that Groups E_1 and E_2 both had less than half their possible population available for analysis. Since these figures would probably not provide a true estimate of the effects of the treatment on these groups it was decided to add to each group those subjects who had missed only one session of the possible eighteen in the treatment. The rationale behind this decision was that the increased number of subjects available for analysis would more than compensate for any slight skewing of results caused by the inclusion of the subjects who had missed one session.

Consequently the final sample for analysis was as follows:

<u>Group</u>	<u>Actual N</u>	<u>Possible N</u>	<u>% of Possible N</u>
E_1	18	28	64.2
E_2	16	25	64.0
E_3	21	29	72.4
E_4	<u>19</u>	<u>28</u>	<u>67.8</u>
Total	<u>74</u>	<u>110</u>	<u>67.2</u>

Pretest

Since the four groups participating in the study were of unassured equivalence, each group was pretested.² Each pupil wrote three compositions; one each in the narrative, expository, and descriptive modes. (For a descrip-

²Ibid.

tion of the pretest instruments, see Appendix A.) This broad sample of writing was elicited for two main purposes. Firstly, the broad sample was intended to compensate for any variance in a writer's performance that may occur as a result of day-to-day fluctuation or of the mode of discourse employed.³ Secondly, the three compositions were intended to produce at least 300 words per pupil for analysis. No definitive studies related to ideal sample size have been conducted, although O'Hare found that for seventh grade pupils 400 words was as reliable a sample as 1000 words.⁴ On the other hand, Hunt and O'Donnell found that for fourth grade pupils 476 words was as reliable as a 1000 word sample.⁵ They also recommended that at least three samples be written for analysis purposes. Since the studies on ideal sample size are not conclusive and since it was not feasible to take more than three samples for the pretest, it was expected that the three samples would provide a reliable sample of approximately 300 words for analysis.

³Gerald R. Kincaid, "Some Factors Affecting Variations in the Quality of Students' Writing," in Research in Written Composition, by Richard Braddock, Richard Lloyd-Jones, and Lowell Schoer (Champaign, Ill.: National Council of Teachers of English, 1963), pp. 94-95.

⁴Frank O'Hare, Sentence Combining: Improving Student Writing Without Formal Grammar Instruction, NCTE Research Report No. 15, (Urbana, Ill.: National Council of Teachers of English, 1973), p. 46.

⁵Kellogg Hunt, and Roy O'Donnell, An Elementary School Curriculum to Develop Better Writing Skills (Tallahassee, Fla.: Florida State University, 1970; ERIC Document Reproduction Service, ED 050108, 1970), p. 12.

Each pretest writing session lasted forty-five minutes and each was conducted on different days. The pupils were not given the opportunity to read over their compositions before handing them in. (See Appendix B for the pretest timetable.)

Treatments

Each group in the study was timetabled for two writing sessions of one and one-quarter hours per week, for a total of eighteen sessions over a nine-week period. The sessions for each group took place on the same days each week, with an occasional exception when other school activities interfered. (See Appendix C for the treatment timetable.)

The stimuli for the writing sessions were identical for all groups and were of three main types; narrative, expository, and descriptive. The stimuli used were intended to produce essentially free writing, but were controlled sufficiently that they would produce writing in either the narrative, expository, or descriptive mode. (See Appendix D.) This procedure was employed so that the treatment writing samples would be similar to the pretest and posttest writing samples. With few exceptions, the stimuli were successful in producing writing samples in the desired mode. Within the constraints of the stimuli provided by the researcher, the pupils were given considerable leeway to interpret the topic in any way they saw fit in an attempt to maintain the pupils' interest in writing over the nine-week period of the treatment.

The researcher planned and conducted all writing sessions. The classroom teacher's participation was limited to assisting the researcher during the editing period by giving the instructions for editing, ensuring that pupils did in fact read over their compositions, and to assisting in the recording of changes made to the compositions.

The treatments for each group differed in only two respects: the mode of reading prior to self-editing, and the time at which the reading took place.

Experimental Groups One and Two who both read their compositions immediately after completing their writing assignments used the first forty-five minutes of each session to write, while the last thirty minutes were spent on editing. Pupils did not always spend the full forty-five minutes on writing. As soon as a pupil had completed the writing assignment and wished to read over the composition, he would approach either the researcher or the teacher assisting the researcher and make the request known. Pupils were informed at the beginning of the session whom they should approach. The researcher and the classroom teacher would each be responsible for one-half of the class, but would alternate halves for the subsequent writing session. This procedure ensured that no one pupil would see one teacher more than the other. In addition, the researcher and the teacher sat in different areas of the room so that the conferences with pupils would not disturb other pupils, many of whom were still writing.

The pupils were given the following instructions immediately prior to reading over their compositions:

- (a) "Read over your story silently to make sure that it says what you wanted to say. You can make any changes to the words or sentences that you want to or think are necessary."
- (b) "Read over your story orally to make sure that it says what you wanted to say. You can make any changes to the words or sentences you want to or think are necessary."

Experimental Group One was given the (a) instructions, whereas Experimental Group Two was given the (b) instructions. The pupil then read over his composition either silently or orally, depending on which group he was in. If the pupil indicated that he wanted to make changes, the pupil was told to do so at his desk. As soon as the pupil had completed making changes he returned the composition to the researcher or teacher who kept a record that this particular pupil had made changes on a particular composition. If the pupil indicated that he had no changes to make then the researcher or teacher recorded this information. All compositions were then filed in individual files.

Although the pupils were asked to write on every second line and to make changes to the composition on the blank line above the original, it became obvious that some pupils were making changes in their compositions during the writing process and writing these in on the blank line.

Since it was not always clear whether a change had been made during the writing process or as a result of reading over the composition later, the pupils were asked to point out to the researcher or classroom teacher where the changes had been made. A small check mark was then placed beside each change by the researcher or teacher for later reference. This procedure was not implemented until the fourth writing session.

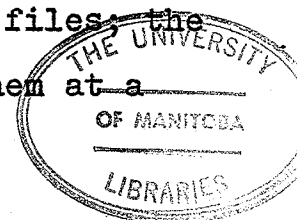
The procedures for the treatments for Experimental Groups Three and Four differed slightly from the procedures for Experimental Groups One and Two. During the first and second writing sessions, Groups E_3 and E_4 both wrote compositions during the first forty-five minutes but did not read them over before handing them in. At all subsequent sessions the following procedures occurred. For example, during session three which took place one week after session one, the compositions from session one were divided into two equal groups, with the researcher taking one half and the classroom teacher taking the other half. Each pupil was then called individually to read over his story. Group E_3 was given the (a) instructions which were the same as for Group E_1 , whereas Group E_4 was given the (b) instructions as was Group E_2 . The remainder of the procedures for making changes were the same for each group. The total editing procedure for each group took thirty minutes. All compositions were returned to the researcher at the end of this period and were filed in individual files.

At this point Groups E_3 and E_4 commenced a new writing session and wrote for a maximum of forty-five minutes. At the end of this time all compositions were handed in without being read over. If a pupil completed the assignment before the forty-five minutes had elapsed, he handed in the composition, also without reading it over. These compositions were then kept by the researcher and returned to the pupils for editing the following week.

In order to complete the treatments for Groups E_3 and E_4 within the school term the compositions from sessions seventeen and eighteen had to be edited before the posttest writing samples could be taken. Since the end of the school term was rapidly approaching, Groups E_3 and E_4 did not have a full week between the last two writing sessions and the editing sessions. The time intervals between writing and editing were six days for sample seventeen and four days for sample eighteen.

To avoid the possibility that the pupils might feel that they had to rush through the editing process, no other assignments were given during the experimental period. Rather, those pupils who had either completed the editing process or were waiting to edit their compositions were able to read silently or complete work in other subject areas that had been previously assigned.

As mentioned previously, the edited compositions of all pupils in all groups were filed in individual files; the pupils were told that they would be returned to them at a



future date.

Posttest

After the eighteen treatment sessions had been completed, each pupil again wrote three compositions; one each in the narrative, expository, and descriptive modes. The instruments for the posttest were made as similar as possible to the pretest instruments (see Appendix A). Each posttest session lasted for forty-five minutes with the three sessions spread over a three-day period. As in the pretest, the groups were not given the opportunity to read over and edit their compositions but were asked to hand them in as soon as they had been completed. Also, as in the pretest, it was expected that each pupil would write approximately 300 words which could then be analyzed.

Interviews

To discover the pupils' perceptions of the reading and self-editing procedures, four pupils were chosen from each group for personal interviews. From each group were chosen the pupil who had made changes in the greatest number of compositions and the pupil who had made changes in the least number of compositions; the other two pupils were randomly selected from the remainder of the pupils. These four pupils from each experimental group were interviewed individually by the researcher after the completion of the posttest sessions.

ANALYSIS OF THE WRITTEN COMPOSITIONS

Analysis of Compositions Written during the Treatment Sessions

The first compositions to be analyzed were those written during the treatment sessions. Since no empirical evidence exists as to the types of changes that would be made as the result of editing, it was felt that this was a logical place to begin. Secondly, this analysis would indicate the types of errors that might be either reduced or eliminated by the editing process.

The writing samples analyzed were from those pupils who had been present for seventeen or eighteen of the treatment sessions as well as all the pretest and posttest sessions. If, however, the researcher's records showed that a pupil within this category had indicated that no changes had been made on a particular composition, then that composition was not examined since it was assumed that any changes in that composition would have been made during the writing process rather than as a result of reading it over after it had been written. Conversely, if the records showed that a pupil had stated that he had made changes, then that composition was examined to discover what types of changes had been made.

Types of Changes Made by All Groups

The changes made can be classified in two broad areas:

- A. changes made to correct errors;
- B. changes made by choice where no errors existed.

Several categories of errors occurred in each broad area. They are listed below with examples for each category where required.

A. Changes Made to Correct Errors

1. Sentence sense

(a) Initial capital only added.

Changes were classified in this category if the pupil had inserted a necessary initial capital letter between two consecutive T-units with faulty punctuation.

Example:

John went to the store // ^[H] he bought an ice cream. //
^{or}
 We went to the lake on Sunday. // ^[W] we had a good time. //

(b) Final period only added.

Changes were classified in this category if the pupil had inserted a necessary final period between two consecutive T-units with faulty punctuation.

Example:

My cousin came to visit during the holidays [.] //
 he lives in Vancouver //
^{or}
 I like building snowforts at recess [.] // Then
 we have somewhere to play. //

(c) Initial capital letter and final period added.

A combination of the two previous changes.

Example:

My father bought a new car last week [.] // ^[I] it's a Chevy. //

2. T-units with initial 'and'

- (a) Initial 'and' deleted from a T-unit.

A change was classified in this category if a pupil deleted the 'and' joining two consecutive T-units.

Example:

Her glasses are brown. // [~~and~~] she has white teeth. //

- (b) Initial 'and' deleted from a T-unit; capital letter and period added.

Example:

and she is ten years old [.] // [~~and~~] ^[S] she was born in 1966. //

3. Malformed T-units

- (a) Extraneous words deleted.

Changes were classified in this category when a pupil deleted word(s) not required in a T-unit, whether the additional words occurred through careless repetition or were examples of redundancy in meaning.

Example:

When you get [~~when-you-get~~] a certain amount of points you get a prize. //
~~or~~
 In the picture boys and girls are playing a game [~~in-it.~~] //

- (b) Words added.

Changes were classified in this category when one or occasionally more words had been inserted in a T-unit to complete the meaning of the T-unit.

Example:

But he didn't know that if he spilt them on anything it ^[would] grow 10 times its size. //

(c) Words in confused order.

A change was classified in this category when a pupil changed a confused word order to a meaningful order.

Example:

I always go with [in mostly with Trini in] everything. //
 changed to
 I always go with Trini in mostly everything. //

4. Spelling

Changes made to spelling errors were of three types:

(a) Changing errors of a careless lexical nature.

Example:

The [y] were going to go swimming a [nd] fishing too. //

(b) Changing careless lexical errors so that the meaning of the T-unit was changed.

Example:

We put it [in] ~~en~~ our fireplace. //
 or
[We]
~~They~~ got burnt. //

(c) All other spelling changes.

Example:

receive for recieve, country for contry,
their for there.

5. Tense

Changes in tense errors were of two types:

(a) Incorrect tense changed to correct tense.

Example:

They still live like they [did] ~~de~~ hundreds of years ago. //

(b) Changes to external tense markers.

Example:

Then he asked me what happen[ed] //

6. Plurals

Changes were classified in this category if a plural error was corrected.

Example:

It has feather[s] on it. //

7. Capital letters.

Changes were classified in this category if necessary capital letters were added or unnecessary capital letters deleted.

Example:

I have this friend ^[J]john. //

or
On TV I like watching comedy, cartoons and ^[s]Science. //

8. Punctuation

All punctuation changes other than final periods or initial capital letters were classified in this category. For example, adding commas, question marks, quotation marks and the like where required.

9. Person marker agreement.

Changes were classified in this category if person marker endings were added or changed.

Example:

He wear[s] black shoes, white socks and black leather pants. //

10. Possessives

Changes were classified in this category if a possessive error was corrected.

Example:

He said it was Dracula ['s] //

11. Subject order.

Changes were classified in this category if incorrect subject orders were corrected.

Example:

[Barry and I]
Me and Barry went to the movies. //

B. Changes Made by Choice Where No Error Existed

Four types of changes were noted in this broad area.

1. A sentence or whole paragraph was deleted.
2. A sentence or paragraph was added.
3. The choice of a word was changed such as in the example:

They wear no ~~seeks~~ [runners] but sandals //

4. The meaning of the sentence or paragraph was changed such as in the example:

I ran to ~~our-neighbor~~ [a house]. //

5. A 'rewrite' change.⁶

⁶A 'rewrite' change occurred when a pupil crossed out a word or words and then rewrote exactly the same words as had been crossed out. This type of change was noticed during the treatment sessions and, on questioning, those subjects who had done this said that it was done because their writing was 'messy'. This type of change occurred in all groups except E₂. Analysis showed that group E₁ made the greatest number² of changes in this category with the majority of changes

Analysis of the Pretest and Posttest Writing Samples

Following the analysis of the compositions written during the treatment sessions, the compositions written during the pretest and posttest sessions were analyzed. For this analysis, two main areas were examined:

1. Mean T-unit length;
2. Syntactic and lexical errors.

Firstly, each writing sample was segmented into T-units, a word count was taken, and the mean number of words per T-unit were calculated. Although it was not expected that there would be significant changes in the mean length of T-unit as a result of the treatments, this measure was examined because it provides an overall indication of syntactic maturity and would offer an accurate indication of the equivalency of the groups on the pretest.⁷ In addition the reliability of mean T-unit length as a major index of syntactic development was confirmed in a study by Klassen who found that it was a reliable index for measuring development

⁶in group E₁ attributable to only two subjects. Groups E₃ and E₄ made only a few changes in this category. It was decided to disregard this type of change for two reasons; firstly, it did not alter the written language in any way, and secondly, it would have inflated the scores for Group E₁ when considering the total number of changes made by each subject.

⁷Kellogg Hunt, Grammatical Structures Written at Three Grade Levels, NCTE Research Report No. 3 (Champaign, Ill.: National Council of Teachers of English, 1965), p. 141.

in English as a second language.⁸

Hunt's definition of a T-unit as "one main clause expanded at any of many different points by structures that are modifiers or complements or substitutions for words in main clauses"⁹ was used as the guide for this study. In addition O'Hare's system of combining a speaker tag with the noun clause following to form a T-unit was adopted. For example, the following direct discourse is segmented into three T-units:

Marsha said, "I really like you, John. //
However, Clarence's father is a millionaire //
and I like the idea of Palm Beach." //10

T-units with one or two words either omitted or added unnecessarily were not rejected but included in the count. These were later categorized as malformed T-units. The missing words were not included in the count although the extraneous ones were. This did not overestimate mean T-unit length as later analysis revealed that errors of omission were greater than errors of addition.

All contractions and hyphenated words were counted as two words, whereas unhyphenated compound words were counted as one word. Dates and names such as "June 30th" and "Mr.

⁸Bernard R. Klassen, "Sentence-Combining Exercises as an Aid to Expediting Syntactic Fluency in Learning English as a Second Language," (Ph.D. dissertation, University of Minnesota, 1976), p. 47.

⁹Hunt, Grammatical Structures, p. 161.

¹⁰O'Hare, Sentence Combining, p. 48.

Bartlett" were counted as two words. Interjections and exclamations such as "Hi" or "Well" were excluded from the word count, as were unintelligible strings of words.

Conjunctions such as "and", "but", "so" and "then" found at the beginning of a T-unit were counted with that particular T-unit.

Analysis of Errors Made on the Pretest and Posttest Writing Samples

All errors made in the pretest and posttest writing samples were tabulated and categorized. The categories used were similar to those employed by Golub and Fredrick in their study in which they examined the written syntactic and lexical deviations of fourth and sixth grade pupils.¹¹ In addition, the error categories reflected the types of changes made during the treatment period.

The following categories of errors were noted:

1. Sentence Sense

(a) Initial capital letter omitted.

Each T-unit with an initial capital letter omitted was counted as one error.

Example:

Where are you going? // [the] boy didn't answer. // (one error)

¹¹L. S. Golub and W. C. Fredrick, Linguistic Structures and Deviations in Children's Written Sentences, Technical Report No. 152 (Madison, Wis.: Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, 1970), pp. 6-9.

(b) Final period omitted.

Each T-unit which did not have a final period where required was counted as one error.

Example:

It was time to go home [] // (one error)

(c) Initial capital letter and final period omitted.

Consecutive T-units which required a final period followed by an initial capital letter were included in this category as one error.

Example:

Let's go home [] // [it's] no fun here. //
(one error)

Category (c) was counted separately from either (a) or (b) as it is an error of greater magnitude than the other two.

2. T-units with Initial 'and'

(a) T-units beginning with 'and'.

Each T-unit beginning with 'and' was counted as one example.

Example:

Then I left // and he started to eat the pie //
and so I told my mom. // (2 errors)

(b) T-units beginning with capitalized 'and'.

This category was counted separately from (a) on the basis that it was a lesser error as indicated by the inclusion of the required initial capital letter.

Example:

And there's my friend Debbie. // And there's
a lot of boys in this class. //

3. Malformed T-units

(a) Words omitted.

All T-units with a word or words missing were included in this category. A T-unit with more than one word missing was still counted as one error.

Example:

It has [a] little bit of paper on it and [is] coloured red. // (one error)

(b) Extraneous words.

All T-units which contained extraneous words were included in this category. The number of extraneous words did not affect the count. Each T-unit in this category was counted as one error regardless of the number of extraneous words.

Example:

To be a science man you have to be smart
[to be a science man.] // (one error)

(c) Confused word order.

Any T-units with confused order were included in this category. Garbles or mazes were not included in this category.

Example:

After the next day we went to church we went to my aunt's house. //

Correct Form

The next day, after we went to church, we went to my aunt's house. //

4. Spelling Errors

Spelling errors were counted and subsequently statistically analyzed even though the researcher had given assistance with spelling throughout the study. An analysis of the changes made during the treatment period revealed that spelling changes formed a major portion of the total changes made. It was decided, therefore, that spelling errors on the pretest and posttest samples should be analyzed.

Errors of two types were noted.

(a) Errors of lexical carelessness.

Example:

'a' for 'and', 'the' for 'they', 'of' for 'off'.

(b) All other spelling errors.

All the above categories of errors, with one exception, were analyzed statistically. The one exception was for malformed T-units with confused order as the number of errors was too small to warrant statistical analysis.

Several other categories of errors were noted and tabulated, but were not analyzed statistically since they had either occurred very rarely or were errors of usage that would not have been familiar to fifth grade pupils.

Errors of the former type were items such as; tense errors where either a verb tense, an internal tense marker, or an external tense marker had been used incorrectly; capital letter errors where a capital letter had been either omitted from a proper noun or added unnecessarily to a common

noun; and period errors where a period had been inserted where it was not required.

Errors of usage that would not have been familiar to fifth grade pupils were items such as the misuse of the apostrophe, and a failure to use either a comma, a question mark, or quotation marks where required.

After the errors in the pretest and posttest writing samples had been classified and tabulated according to the categories stated above, all figures for the subcategories within each major category of sentence sense, T-units with initial 'and', malformed T-units, and spelling errors, were combined to provide a total figure for each of these four major categories. In addition, the figures for these four major categories were then combined to furnish a total error figure for each experimental group. This procedure was followed for both the pretest and posttest figures.

Statement of the Hypotheses

Since this study was concerned with investigating the effects of four reading methods prior to self-editing upon the written composition of fifth-grade pupils and, in particular, in discovering whether a reduction in errors from pretest to posttest would occur as a result of these reading methods, several hypotheses were formulated.

Null hypotheses were formulated for the four major error categories of sentence sense, T-units with initial 'and', malformed T-units and spelling errors, as well as for

the combined error total of these four categories. In addition, null hypotheses were formulated for the ten subcategories of errors within the four major error categories.

In total, fifteen null hypotheses were formulated:

- 1¹ There will be no significant differences among the four groups on the posttest in the number of errors made in the major category of sentence sense.
- 1² There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of sentence sense where the initial capital letter has been omitted.
- 1³ There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of sentence sense where the final period has been omitted.
- 1⁴ There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of sentence sense where both the initial capital letter and the final period have been omitted.
- 2¹ There will be no significant differences among the four groups on the posttest in the number of errors made in the major category of T-units with initial 'and'.
- 2² There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of T-units beginning with 'and'.
- 2³ There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of T-units beginning with capitalized 'and'.
- 3¹ There will be no significant differences among the four groups on the posttest in the number of errors made in the major category of malformed T-units.
- 3² There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of malformed T-units with words omitted.

- 3³ There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of malformed T-units with extraneous words.
- 3⁴ There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of malformed T-units with confused word order.
- 4¹ There will be no significant differences among the four groups on the posttest in the number of errors made in the major category of spelling errors.
- 4² There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of spelling errors of lexical carelessness.
- 4³ There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of spelling errors other than lexical carelessness.
- 5 There will be no significant differences among the four groups on the posttest in the total number of errors made in the four major categories of sentence sense, T-units with initial 'and', malformed T-units, and spelling errors.

Statistical Analysis

After the pretest and posttest writing samples had been analyzed the pretest scores for all categories of errors, the combined error total, and the mean T-unit length were analyzed using a one-way analysis of variance.¹² This procedure was employed to determine whether there were any significant differences among the groups on their initial performance. In two categories of errors, those of spelling

¹²Richard M. Wolf, Choosing an Appropriate Statistical Procedure, (New York: American Book Company, 1972), pp. 178-185.

errors of lexical carelessness and T-units with initial 'and', there did appear to be significant differences among the groups. In addition, the differences among the groups for the error categories of sentence sense where the capital letter had been omitted and the combined error total approached significance. Consequently, a one-way analysis of covariance was applied to the pretest and posttest scores of these four categories, using the pretest scores as the covariate in each case.¹³

In all other categories there were no significant differences on the pretest scores. Therefore, these posttest scores were analyzed by means of a one-way analysis of variance. Where significant differences did occur among the groups on the posttest scores, the Newman-Keuls test was utilized to determine where the differences lay.¹⁴

¹³Campbell and Stanley, "Experimental and Quasi-experimental Designs," p. 219.

¹⁴B. J. Winer, Statistical Principles in Experimental Design, 2nd ed., (New York: McGraw-Hill Book Company, 1971), pp. 216-218.

CHAPTER IV

ANALYSIS OF THE DATA

The purpose of this study was to investigate the effects of four reading methods prior to self-editing upon the written composition of fifth grade pupils. The four methods of reading were: immediate silent reading; immediate oral reading; delayed silent reading; and delayed oral reading. A second area of investigation was a comparison of the effects of the four reading methods upon the types of changes made during the self-editing process.

ANALYSIS OF THE PRETEST AND POSTTEST WRITING SAMPLES

Specifically, the study was designed to determine which of the four reading methods prior to self-editing would be most effective in reducing errors in the written compositions of fifth grade pupils. This was determined by statistically analyzing the pretest and posttest scores in four major categories of errors as well as the ten subcategories of errors contained within these major categories. A combined error total for the four major categories was also analyzed.

The major error categories and subcategories examined were:

1. Sentence Sense - 1(a), 1(b), and 1(c) combined.
 - (a) initial capital letter omitted
 - (b) final period omitted
 - (c) final period and initial capital letter omitted.
2. T-units with Initial 'and' - 2(a) and 2(b) combined.
 - (a) T-units beginning with 'and'
 - (b) T-units beginning with capitalized 'and'
3. Malformed T-units - 3(a), 3(b), and 3(c) combined.
 - (a) words omitted
 - (b) extraneous words
 - (c) confused word order
4. Spelling Errors - 4(a) and 4(b) combined.
 - (a) errors of lexical carelessness
 - (b) errors other than lexical carelessness.
5. Combined Error Total - 1, 2, 3, and 4 combined.

From these error categories were formulated fifteen null hypotheses. These hypotheses stated that there would be no significant differences among the four experimental groups on the posttest in the number of errors made in any of the fifteen error categories.

In order to test the hypotheses it was essential to analyze the pretest scores to determine whether the groups were equivalent in initial performance.¹ Consequently all pretest scores were subjected to a one-way analysis of

¹All data was analyzed statistically with the Statistics on Line (SOL) program of the Health Sciences Computer, Winnipeg.

variance. Although it was not hypothesized that there would be significant differences among the groups on the posttest scores for mean T-unit length, this measure was included in the pretest analysis since it is a major indicator of syntactic maturity and would clearly demonstrate whether the groups were equivalent in initial performance.

Table 1 presents the data for the number of words per T-unit.

TABLE 1.--One-way Analysis of Variance of Pretest Scores for Mean Words per T-unit

Source	df	SS	MS	F
Between groups	3	3.900	1.300	0.698
Within groups	70	130.346	1.862	
Total	73	134.245		

The results show that on this major indicator of syntactic maturity the four groups were equivalent in their initial performance.

Before the scores in the fifteen error categories were analyzed statistically, each raw score was converted to a score indicating the number of errors per 100 words. This was done by dividing the number of errors in each category by the total number of words written and then multiplying the result by 100. This conversion was necessary as the subjects participating in the study did not write a uniform number of words. Table 2 reports the average number of

words written by each group on the pretest and posttest.

TABLE 2.--Average Number of Words Written on the Pretest and Posttest

Group	Pretest	Posttest
E ₁	294	336
E ₂	473	293
E ₃	303	280
E ₄	342	341

Table 2 reveals that on the pretest all groups except group E₁ produced the desired average number of words, while on the posttest groups E₂ and E₃ failed to produce the desired average number of words. Overall, approximately 49,000 words were analyzed.

Table 3 presents a summary of the F ratios obtained for the one-way analyses of variance on the pretest scores for all categories of errors. An F ratio (df 3, 70) of 2.76 was required for a difference to be statistically significant at the .05 level of confidence. One error category, that of malformed T-units with confused word order, was not analyzed because the occurrence of errors in this category was too small to warrant statistical analysis.

TABLE 3.--Summary of F Ratios for One-way Analyses of Variance of Pretest Scores for All Categories of Errors

Error Category	F ratio (3,70)
1. Sentence sense - 1(a), 1(b), and 1(c) combined	0.113
(a) initial capital letter omitted	2.334
(b) final period omitted	1.819
(c) final period and initial capital letter omitted	0.683
2. T-units with initial 'and' - 2(a) and 2(b) combined	3.099*
(a) T-units beginning with 'and'	1.983
(b) T-units beginning with capitalized 'and'	1.602
3. Malformed T-units - 3(a), 3(b), and 3(c) combined	1.869
(a) words omitted	1.637
(b) extraneous words	0.905
(c) confused word order	..
4. Spelling errors - 4(a) and 4(b) combined	1.476
(a) errors of lexical carelessness	3.581**
(b) errors other than lexical carelessness	1.257
5. Combined error total - 1, 2, 3, and 4 combined	2.348

*Significant at the .05 level

**Significant at the .025 level

Table 3 indicates that the four groups were equivalent in initial performance on all but two error categories; T-units with initial 'and', and spelling errors of lexical carelessness. For two other error categories, sentence sense where the initial capital letter has been omitted and the combined error total, the F ratio for the pretest analysis approached significance at the .05 level. It was

felt, therefore, that the use of an analysis of covariance was warranted in order to obtain a more accurate result. Subsequently, these four error categories with significant or close to significant F ratios on the pretest were analyzed using a one-way analysis of covariance, using pretest scores as the covariate in each case.

Since the pretest analysis did not reveal significant differences among the groups on either mean words per T-unit or the remaining eleven error categories, these posttest scores were then analyzed by means of a one-way analysis of variance. As with the pretest, a .05 level of significance was necessary before differences were considered statistically significant.

Table 4 compares the mean pretest and posttest scores of the four groups for number of words per T-unit.

TABLE 4.--Comparison of Mean Scores on Pre- and Posttests for Mean Words per T-unit

Group	N	Pretest		Posttest		Change
		Mean	SD	Mean	SD	
E ₁	18	8.88	1.70	9.14	1.17	+ .26
E ₂	16	8.51	1.19	8.41	1.00	- 1.00
E ₃	21	9.03	1.31	8.77	.94	- .26
E ₄	19	9.15	1.20	10.27	1.62	+ 1.12
Total	74	8.91	1.36	9.17	1.38	+ .26

On this measure, groups E₁ and E₄ showed an increase from pretest to posttest, while groups E₂ and E₃ showed a

decrease. Overall, there was a slight increase.

The analysis of variance revealed that on this measure, there was a significant difference among the groups at a level of confidence greater than .001. Table 5 presents the data for the analysis of variance.

TABLE 5.--One-way Analysis of Variance of Posttest Scores for Mean Words per T-unit

Source	df	SS	MS	F
Between groups	3	35.669	11.890	8.079**
Within groups	70	103.018	1.472	
Total	73	138.687		

**F ratio significant beyond the .001 level.

The Newman-Keuls test was then applied to discover where the significant differences lay. The data is provided in Table 6.

TABLE 6.--Newman-Keuls Test on Differences Between All Pairs of Means--Mean Words per T-unit

Treatment groups		E ₂	E ₃	E ₁	E ₄
	Means	8.41	8.77	9.14	10.27
E ₂	8.41	--	.36	.73	1.86
E ₃	8.77		--	.37	1.50
E ₁	9.14			--	1.13
E ₄	10.27				--

TABLE 6--Continued

Calculated Values
of Differences
Between Pairs
of Means²

	E ₂	E ₃	E ₁	E ₄
E ₂	--	1.282	2.487	6.403*
E ₃		--	1.336	5.518*
E ₁			--	4.007*
E ₄				--

q.95(r,70) r = 2 r = 3 r = 4
2.82 3.41 3.73

*significant at the .05 level

²Differences between pairs of means were calculated according to the following formula (Program ST45 of SOL).

$$\frac{\bar{X}_j - \bar{X}_i}{(\text{EMS})^{\frac{1}{2}} \left(\frac{1}{2} \left(\frac{1}{N_i} + \frac{1}{N_j} \right) \right)^{\frac{1}{2}}}$$

where \bar{X}_j is one mean of the two means being compared, \bar{X}_i is the second mean of the pair being compared, N_i is the number of observations of \bar{X}_i , N_j is the number of observations of \bar{X}_j , and EMS is the error mean square.

An examination of Table 6 reveals that for mean words per T-unit there was a significant difference between groups E₄ and E₂, E₄ and E₃, and E₄ and E₁, but not between E₂ and E₃, E₂ and E₁, or E₃ and E₁. On this measure then, the score for group E₄, 10.27 words per T-unit, was significantly larger than the scores for the other three groups.

The data was then examined according to the hypotheses

outlined by the study.

Hypothesis 1¹

There will be no significant differences among the four groups on the posttest in the number of errors made in the major category of sentence sense.

The data showing the pretest and posttest mean scores for the four groups in the major category of sentence sense is presented in Table 7.

TABLE 7.--Comparison of Mean Scores on Pre- and Posttests for the Major Category of Sentence Sense

Group	N	Pretest		Posttest		Change
		Mean	SD	Mean	SD	
E ₁	18	3.88	1.99	5.07	2.37	+1.19
E ₂	16	3.59	2.99	3.12	2.26	- .47
E ₃	21	3.93	2.65	3.37	2.56	- .56
E ₄	19	3.58	1.85	2.95	1.88	- .63
Total	74	3.75	2.36	3.62	2.39	- .13

An examination of the data in Table 7 reveals that three groups, E₂, E₃, and E₄, all showed a decrease from pretest to posttest in the number of sentence sense errors made, whereas group E₁ showed an increase. Overall there was a slight decrease in errors. The analysis of variance on the posttest scores indicated that the differences among the groups were significant.

Table 8 presents the data for the analysis of variance for the category of sentence sense.

TABLE 8.--One-way Analysis of Variance of Post-test Scores for the Major Category of Sentence Sense

Source	df	SS	MS	F
Between groups	3	51.611	17.204	3.282*
Within groups	70	366.962	5.242	
Total	73	418.573		

*F ratio significant at the .05 level.

Since the F ratio was significant at the .05 level, the Newman-Keuls test was applied to the differences between all pairs of means in order to discover where the differences lay. This data is presented in Table 9.

TABLE 9.--Newman-Keuls Test on Differences Between All Pairs of Means--Major Category of Sentence Sense

Treatment groups		E ₄	E ₂	E ₃	E ₁
	Means	2.95	3.12	3.37	5.07
E ₄	2.95	--	.17	.42	2.12
E ₂	3.12		--	.25	1.95
E ₃	3.37			--	1.70
E ₁	5.07				

TABLE 9--Continued

Calculated Values
of Differences
between Pairs
of Means

	E_4	E_2	E_3	E_1
E_4	--	0.310	0.808	3.976*
E_2		--	0.455	3.501
E_3			--	3.275
E_1				--

$q_{.95}(r,70)$ $r = 2$ $r = 3$ $r = 4$
2.82 3.41 3.73

*significant at the .05 level

An analysis of the data in Table 9 reveals that there was a significant difference between groups E_1 and E_4 in the number of sentence sense errors made in the post-test writing samples. Since group E_4 had the lowest post-test mean for the major error category of sentence sense, it appears that the treatment for group E_4 (delayed oral reading) was most effective in reducing the three types of sentence sense errors included in this major category. Consequently, hypothesis 1¹ was rejected.

Although the differences between the other pairs of means were not significant, the data shows that the differences between groups E_1 and E_2 , and E_1 and E_3 , did approach significance at the .05 level.

Hypothesis 1²

There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of sentence sense where the initial capital letter has been omitted.

Since the pretest scores for this subcategory approached significance at the .05 level, a one-way analysis of covariance was employed to analyze the pretest and posttest scores, using the pretest scores as the covariate. Table 10 presents the data showing the pretest and posttest scores, as well as the adjusted means for the posttest.

TABLE 10.--Comparison of Pre- and Posttest Mean Scores for the Subcategory of Sentence Sense where the Initial Capital Letter has been Omitted, Including Adjusted Mean Scores for the Posttest

Group	N	Pretest		Posttest		Posttest Adjusted Mean
		Mean	SD	Mean	SD	
E ₁	18	0.957	0.978	0.542	0.825	0.445
E ₂	16	0.844	1.160	1.152	1.546	1.089
E ₃	21	0.413	0.539	0.335	0.529	0.403
E ₄	19	0.409	0.434	0.380	0.455	0.449

Table 10 indicates that groups E₁ and E₃ decreased from pretest to adjusted posttest in the number of errors made in this category, whereas groups E₂ and E₄ showed an increase.

Tests of significance on the unadjusted posttest means for differences in equality of slope $F(3,66) = 0.610$, and differences in the equality of intercept $F(3,69) = 2.339$,

revealed that the differences among the groups for these two measures were not significant. However, the differences among the groups on the adjusted posttest scores, as determined by the multiple-t test were significant. The data for the multiple-t test is presented in Table 11.

TABLE 11.--Multiple-T Test Showing Differences among Groups for Equality of Slope and Equality of Intercept for the Subcategory of Sentence Sense where the Initial Capital Letter has been Omitted

Groups	Equality of Slope T(3,66)	Equality of Intercept T(3,69)
E ₁ : E ₂	-0.631	-2.147*
E ₁ : E ₃	-0.663	-0.144
E ₁ : E ₄	-0.744	-0.015
E ₂ : E ₃	-1.127	-2.327*
E ₂ : E ₄	-0.399	-2.123*
E ₃ : E ₄	-1.119	-0.167

*Significant at the .05 level.

Values show that significant differences in equality of intercept do exist between treatment groups E₂ and E₁, E₂ and E₃, and E₂ and E₄, but not between E₁ and E₃, E₁ and E₄, or E₃ and E₄. The least effective treatment in reducing errors of this type was treatment E₂ (immediate oral reading). An examination of Table 10 shows that group E₂ had the greatest number of errors per 100 words on the adjusted posttest means (1.089) and in fact showed an increase in errors from the pretest mean to the adjusted posttest mean.

Therefore, hypothesis 1² was rejected.

Hypothesis 1³

There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of sentence sense where the final period has been omitted.

Table 12 presents the data comparing the pretest and posttest means for the four groups in the subcategory of sentence sense where the final period has been omitted.

TABLE 12.--Comparison of Mean Scores on Pre- and Posttests for the Subcategory of Sentence Sense where the Final Period has been Omitted

Group	N	Pretest		Posttest		Change
		Mean	SD	Mean	SD	
E ₁	18	1.03	.82	1.41	1.11	+ .38
E ₂	16	.46	.40	.60	.64	+ .14
E ₃	21	.79	.81	1.17	1.36	+ .38
E ₄	19	.73	.66	.43	.57	- .3
Total	74	.76	.72	.91	1.06	+ .15

An analysis of the data in Table 12 indicates that groups E₁, E₂, and E₃ increased from pretest to posttest in the number of errors made in this subcategory of sentence sense, whereas group E₄ not only showed a decrease but also obtained the lowest mean score on the posttest.

Table 13 presents the data for the analysis of variance for the subcategory of sentence sense where the final period has been omitted.

TABLE 13.--One-way Analysis of Variance of Posttest Scores for the Subcategory of Sentence Sense where the Final Period has been Omitted

Source	df	SS	MS	F
Between groups	3	11.918	3.973	3.980*
Within groups	70	69.880	0.998	
Total	73	81.798		

*F ratio significant at the .025 level.

Table 13 reveals that there was a significant difference among the groups at the .025 level for the subcategory of sentence sense where the final period has been omitted. Consequently, hypothesis 1³ was rejected.

In order to determine where the differences lay the Newman-Keuls test was applied. Table 14 presents the data for the Newman-Keuls test on differences between all pairs of means for the subcategory of sentence sense where the final period has been omitted.

TABLE 14.--Newman-Keuls Test on Differences Between All Pairs of Means--Sentence Sense where the Final Period has been Omitted

Treatment Groups		E ₄	E ₂	E ₃	E ₁
	Means	.43	.60	1.17	1.41
E ₄	.43	--	.17	.74	.98
E ₂	.60		--	.57	.81
E ₃	1.17			--	.24
E ₁	1.41				--

TABLE 14--Continued

Calculated Value
of All Pairs of
Means

	E ₄	E ₂	E ₃	E ₁
E ₄	--	0.693	3.319	4.222*
E ₂		--	2.459	3.357
E ₃			--	1.051
E ₁				--

q.95(r,70) r = 2 r = 3 r = 4
2.82 3.41 3.73

*Significant at the .05 level

This data in Table 14 indicates that there was a significant difference at the .05 level between the mean scores for groups E₄ and E₁ but not between any other pairs of means. Since group E₄ achieved the lowest score on the posttest, it appears that the treatment for group E₄ (delayed oral reading) was most effective in reducing errors of the type sentence sense where the final period has been omitted.

Hypothesis 1⁴

There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of sentence sense where the initial capital letter and final period have been omitted.

The comparison of mean scores on the pretest and posttest for the subcategory of sentence sense where the initial capital letter and final period have been omitted is presented in Table 15.

TABLE 15.--Comparison of Mean Scores on Pre- and Posttests for the Subcategory of Sentence Sense where the Initial Capital Letter and Final Period have been Omitted

Group	N	Pretest		Posttest		Change
		Mean	SD	Mean	SD	
E ₁	18	1.89	1.32	3.11	1.63	+ 1.22
E ₂	16	2.28	2.03	1.37	1.05	- .91
E ₃	21	2.72	2.23	1.86	1.48	- .86
E ₄	19	2.44	1.65	2.14	1.54	- .30
Total	74	2.35	1.85	2.13	1.55	- .22

Analysis of the data in Table 15 reveals that groups E₂, E₃, and E₄ all showed a slight decrease from the pretest to the posttest, whereas group E₁ showed an increase. Overall, there was a slight decrease. The analysis of variance of the posttest mean scores showed that there was a significant difference among the groups for the subcategory of sentence sense where the initial capital letter and final period have been omitted. Consequently, hypothesis 1⁴ was rejected.

Table 16 presents the data for the analysis of variance.

TABLE 16.--One-way Analysis of Variance of Posttest Scores for the Subcategory of Sentence Sense where the Initial Capital Letter and Final Period have been Omitted

Source	df	SS	MS	F
Between groups	3	28.244	9.415	4.450*
Within groups	70	148.081	2.115	
Total	73	176.325		

*F ratio significant at the .01 level

Since the F ratio was significant at the .01 level, the Newman-Keuls test was applied to the difference between all pairs of means in order to find where the significant differences lay. This data is presented in Table 17.

TABLE 17.--Newman-Keuls Test on Differences between All Pairs of Means--Sentence Sense where the Initial Capital Letter and Final Period have been Omitted

Treatment Groups					
		E ₂	E ₃	E ₄	E ₁
	Means	1.37	1.86	2.14	3.11
E ₂	1.37	--	.49	.77	1.74
E ₃	1.86		--	.28	1.25
E ₄	2.14			--	.97
E ₁	3.11				--

TABLE 17--ContinuedCalculated Values
of All Pairs of
Means

	E ₂	E ₃	E ₄	E ₁
E ₂	--	1.425	2.203	4.935*
E ₃		--	0.866	3.807*
E ₄			--	2.883
E ₁				--

$q_{.95}(r, 70)$ $r = 2$ $r = 3$ $r = 4$
 2.82 3.41 3.73

*Significant at the .05 level

The data for the Newman-Keuls test presented in Table 17 reveals that there were significant differences between groups E₁ and E₂, and E₁ and E₃, but not between groups E₁ and E₄, E₂ and E₃, E₂ and E₄, or E₃ and E₄. It appears, then, that the treatment for group E₁ (immediate silent reading) was least effective in reducing errors of the type sentence sense where the initial capital letter and final period have been omitted, since the posttest score for this group was not only the highest of the four groups but also showed an increase from the pretest to the posttest. Consequently hypothesis 1⁴ was rejected.

Hypothesis 2¹

There will be no significant differences among the four groups on the posttest in the number of errors made in the major category of T-units with initial 'and'.

Since the pretest scores for the major category of

T-units with initial 'and' were not equivalent, a one-way analysis of covariance was employed to analyze the pretest and posttest scores using the pretest scores as the covariate. The pretest and posttest scores, as well as the adjusted posttest means are presented in Table 18.

TABLE 18.--Comparison of Pre- and Posttest Mean Scores for the Major Category of T-units with Initial 'and'

Group	N	Pretest		Posttest		Posttest Adjusted Means
		Mean	SD	Mean	SD	
E ₁	18	3.374	2.510	2.943	1.749	2.583
E ₂	16	1.744	1.337	2.018	2.018	2.161
E ₃	21	1.923	2.047	2.197	1.414	2.285
E ₄	19	1.802	1.269	1.839	1.052	1.964

Table 18 indicates that in the major category of T-units with initial 'and' groups E₂, E₃, and E₄, increased the number of errors made from pretest to adjusted posttest, while group E₁ decreased the number of errors made.

Tests of significance on the unadjusted posttest means for this measure revealed that there were no significant differences among the groups in equality of intercept $F(3,69) = 0.518$ but there were significant differences in equality of slope $F(3,66) = 3.931$. The multiple-t test on the adjusted posttest means confirms these findings.

The data for the multiple-t test is presented in Table 19.

TABLE 19.--Multiple-T Test Showing Differences among Groups for Equality of Slope and Equality of Intercept for the Major Category of T-units with Initial 'and'

Groups	Equality of Slope T(3,66)	Equality of Intercept T(3,69)
E ₁ : E ₂	- 3.317*	- 0.799
E ₁ : E ₃	- 0.415	- 0.606
E ₁ : E ₄	- 0.086	- 1.223
E ₂ : E ₃	- 2.955*	- 0.253
E ₂ : E ₄	- 2.740*	- 0.394
E ₃ : E ₄	- 0.365	- 0.688

*Significant at the .05 level

An examination of Table 19 shows that on the multiple-t test there were no significant differences among the groups in equality of intercept although there were significant differences in equality of slope. However, since the crucial measure for significant differences is equality of intercept, it can be said that there were no significant differences among the groups on the posttest in the major category of T-units with initial 'and'. Consequently, hypothesis 2¹ was accepted.

Hypothesis 2²

There will be no significant differences among the groups on the posttest in the number of errors made in the subcategory of T-units beginning with 'and'.

A comparison of the mean scores on the pretest and posttest for errors of the type T-units beginning with 'and'

is presented in Table 20.

TABLE 20.--Comparison of Mean Scores on Pre- and Posttests for the Subcategory of T-units Beginning with 'and'

Group	N	Pretest		Posttest		Change
		Mean	SD	Mean	SD	
E ₁	18	2.79	2.59	2.69	1.68	- 0.1
E ₂	16	1.60	1.40	1.89	2.04	+ .29
E ₃	21	1.56	1.89	1.83	1.27	+ .27
E ₄	19	1.51	1.28	1.60	.97	+ .09
Total	74	1.86	1.91	1.99	1.53	+ .13

An analysis of the data in Table 20 reveals that, overall, there was a slight increase in the number of T-units beginning with 'and' from pretest to posttest. Specifically, groups E₂, E₃, and E₄ showed an increase, whereas group E₁ showed a decrease. An analysis of variance indicated, however, that these differences among the groups on the posttest were not significant.

The data for the analysis of variance is presented in Table 21.

TABLE 21.--One-way Analysis of Variance of Posttest Scores for the Subcategory of T-units Beginning with 'and'

Source	df	SS	MS	F
Between groups	3	12.317	4.106	1.802
Within groups	70	159.529	2.279	
Total	73	171.846		

Taking into consideration the lack of significant differences among the groups on the analysis of variance and the data presented in Table 20, it appears that the four treatments were not effective in reducing errors of the type T-units beginning with 'and'.

Since there were no significant differences among the groups on the posttest scores for errors made in the subcategory of T-units beginning with 'and', hypothesis 2² was accepted.

Hypothesis 2³

There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of T-units with capitalized 'and'.

The data showing the pretest and posttest mean scores for the four groups in the error subcategory of T-units beginning with capitalized 'and' is presented in Table 22.

TABLE 22.--Comparison of Mean Scores on Pre- and Posttests for the Subcategory of T-units Beginning with Capitalized 'and'

Group	N	Pretest		Posttest		Change
		Mean	SD	Mean	SD	
E ₁	18	.58	.79	.26	.56	- .32
E ₂	16	.14	.20	.13	.19	- .01
E ₃	21	.36	.63	.36	.77	0
E ₄	19	.33	.53	.24	.44	- .09
Total	74	.36	.60	.26	.55	- .10

Table 22 reveals that groups E_1 , E_2 , and E_4 showed a slight decrease in errors from the pretest to the posttest, while group E_3 remained constant. Overall, a slight decrease occurred. However, the analysis of variance on the posttest scores indicated no significant differences among the groups.

Table 23 presents the data for the analysis of variance.

TABLE 23.--One-way Analysis of Variance of Posttest Scores for the Subcategory of T-units Beginning with Capitalized 'and'

Source	df	SS	MS	F
Between groups	3	0.494	0.165	0.541
Within groups	70	21.314	0.304	
Total	73	21.808		

Since there were no significant differences among the groups on the posttest for errors of the type T-units beginning with capitalized 'and', hypothesis 2³ was accepted.

Hypothesis 3¹

There will be no significant differences among the groups on the posttest in the number of errors made in the major category of malformed T-units.

The data for the comparison of mean scores on the pretest and posttest for the major category of malformed T-units is presented in Table 24.

TABLE 24.--Comparison of Mean Scores on Pre- and Posttests for the Major Category of Malformed T-units

Group	N	Pretest		Posttest		Change
		Mean	SD	Mean	SD	
E ₁	18	1.59	2.30	1.27	1.07	- .32
E ₂	16	.95	.78	.87	.69	- .08
E ₃	21	2.06	1.80	.91	.92	-1.15
E ₄	19	1.11	.95	1.21	.91	+ .10
Total	74	1.46	1.63	1.07	.91	- .39

As shown in Table 24, three groups E₁, E₂, and E₃ did decrease from pretest to posttest in the number of errors made in the major category of malformed T-units, whereas one group E₄ showed a slight increase. The analysis of variance revealed, however, that these differences were not significant. Consequently, hypothesis 3¹ was accepted.

The data for the analysis of variance showing no significant differences is presented in Table 25.

TABLE 25.--One-way Analysis of Variance of Posttest Scores for the Major Category of Malformed T-units

Source	df	SS	MS	F
Between groups	3	2.273	0.758	0.902
Within groups	70	58.781	0.840	
Total	73	61.055		

Since the posttest scores for the four groups were not consistent in showing a decrease in errors, it appears that the four treatments were not effective in reducing errors in the major category of malformed T-units.

Hypothesis 3²

There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of malformed T-units with words omitted.

Table 26 presents a comparison of the pretest and posttest scores for the subcategory of malformed T-units with words omitted.

TABLE 26.--Comparison of Mean Scores on Pre- and Posttests for the Subcategory of Malformed T-units with Words Omitted

Group	N	Pretest		Posttest		Change
		Mean	SD	Mean	SD	
E ₁	18	1.33	2.24	.79	.75	- 0.54
E ₂	16	.74	.65	.70	.55	- .04
E ₃	21	1.76	1.78	.59	.65	- 1.17
E ₄	19	.91	.83	.82	.77	- .09
Total	74	1.22	1.57	.72	.68	- .50

Although each treatment group did show a decrease from pretest to posttest in the mean number of T-units per hundred words with words omitted, an analysis of variance showed that there were no significant differences among the groups on the posttest scores.

Table 27 presents the data from the analysis of variance.

TABLE 27.--One-way Analysis of Variance of Posttest Scores for the Subcategory of Malformed T-units with Words Omitted

Source	df	SS	MS	F
Between groups	3	0.664	0.221	0.467
Within groups	70	33.162	0.474	
Total	73	33.826		

It appears then, that all treatments were effective in reducing the number of errors in this category but no one treatment was more effective than another. Consequently hypothesis 3² was accepted.

Hypothesis 3³

There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of malformed T-units with extraneous words.

Table 28 presents the data showing a comparison of the mean scores on the pretest and posttest for the subcategory of malformed T-units with extraneous words.

TABLE 28.--Comparison of Mean Scores on Pre- and Posttests for the Subcategory of Malformed T-units with Extraneous Words

Group	N	Pretest		Posttest		Change
		Mean	SD	Mean	SD	
E ₁	18	.26	.44	.28	.35	+ .02
E ₂	16	.19	.26	.17	.25	- .02
E ₃	21	.28	.34	.25	.43	- .03
E ₄	19	.12	.20	.30	.28	+ .18
Total	74	.22	.32	.25	.34	+ .03

An examination of the data in Table 28 reveals that groups E₁ and E₄ showed a slight increase from pretest to posttest in the number of errors in this category, whereas groups E₂ and E₃ showed a slight decrease. Overall, there was a slight increase in the number of errors made in the subcategory of malformed T-units with extraneous words. An analysis of variance showed, however, that the differences among the groups on the posttest were not significant.

Table 29 presents the data from the analysis of variance for the subcategory of malformed T-units with extraneous words.

TABLE 29.--One-way Analysis of Variance of Posttest Scores for the Subcategory of Malformed T-units with Extraneous Words

Source	df	SS	MS	F
Between groups	3	0.161	0.054	0.463
Within groups	70	8.109	0.116	
Total	73	8.270		

Since there was not a consistent decrease in the posttest scores, nor any significant differences in the analysis of variance, it appears that none of the four treatments was more effective than another in reducing the number of errors of the type malformed T-units with extraneous words. Thus hypothesis 3³ was accepted.

Hypothesis 3⁴

There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of malformed T-units with confused word order.

As there were so few occurrences of errors on both the pretest and the posttest in the category malformed T-units with confused word order, the data was not subjected to statistical analysis. Thus, hypothesis 3⁴ could neither be accepted nor rejected.

Hypothesis 4¹

There will be no significant differences among the four groups on the posttest in the number of errors made in the major category of spelling errors.

The data showing the pretest and posttest mean scores

for the major category of spelling errors is presented in Table 30.

TABLE 30.--Comparison of Mean Scores on Pre- and Posttests for the Major Category of Spelling Errors

Group	N	Pretest		Posttest		Change
		Mean	SD	Mean	SD	
E ₁	18	7.37	4.59	6.70	3.76	- .67
E ₂	16	4.57	2.88	4.99	3.34	+ .42
E ₃	21	5.58	3.62	4.67	2.97	- .91
E ₄	19	5.58	4.52	5.28	3.83	- .30
Total	74	5.80	4.03	5.39	3.50	- .41

Table 30 indicates that three groups E₁, E₃, and E₄, decreased from the pretest to the posttest in the number of errors made in the subcategory of spelling errors, whereas group E₂ increased. The analysis of variance on the posttest scores showed, however, that the differences were not significant.

The data for the analysis of variance is presented in Table 31.

TABLE 31.--One-way Analysis of Variance of Posttest Scores for the Major Category of Spelling Errors

Source	df	SS	MS	F
Between groups	3	44.692	14.897	1.230
Within groups	70	847.515	12.107	
Total	73	892.207		

Since there was not a consistent decrease in the posttest scores, nor any significant differences in the analysis of variance, it appears that none of the four treatments was more effective than another in reducing the number of errors in the major category of spelling errors. Consequently, hypothesis 4¹ was accepted.

Hypothesis 4²

There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of spelling errors of lexical carelessness.

Since the pretest scores for the subcategory of spelling errors of lexical carelessness were not equivalent, a one-way analysis of covariance was employed to analyze the pretest and posttest scores, using the pretest scores as the covariate. Table 32 presents the data showing the pretest and posttest scores as well as the adjusted means for the posttest.

TABLE 32.--Comparison of Pre- and Posttest Mean Scores for the Subcategory of Spelling Errors of Lexical Carelessness, Including Adjusted Mean Scores for the Posttest

Group	N	Pretest		Posttest		Posttest Adjusted Mean
		Mean	SD	Mean	SD	
E ₁	18	1.473	0.824	1.411	1.032	1.340
E ₂	16	1.070	0.507	0.755	0.608	0.749
E ₃	21	0.802	0.649	0.851	0.685	0.888
E ₄	19	0.837	0.786	1.337	0.978	1.369

An examination of Table 32 reveals that there was a decrease in spelling errors of lexical carelessness from pretest to adjusted posttest for two groups, E_1 and E_2 , whereas groups E_3 and E_4 both showed an increase in the number of errors of this type.

Tests of significance on the unadjusted posttest means for differences in equality of slope $F(3,66) = 3.877$ and differences in equality of intercept $F(3,69) = 2.443$, showed that there was a difference among the groups for equality of slope that was significant at the .05 level. Consequently, the differences between pairs of groups on the adjusted posttest scores as determined by the multiple-t test need to be examined separately in order to determine which differences were true differences. Table 33 presents the data for the multiple-t test.

TABLE 33.--Multiple-T Test Showing Differences between Groups for Equality of Slope and Equality of Intercept for Errors of Lexical Carelessness

Groups	Equality of Slope T(3,66)	Equality of Intercept T(3,69)
$E_1 : E_2$	- 1.196	- 1.996*
$E_1 : E_3$	- 0.332	- 1.569
$E_1 : E_4$	- 2.824	- 0.097
$E_2 : E_3$	- 1.389	- 0.491
$E_2 : E_4$	- 0.817	- 2.145*
$E_3 : E_4$	- 2.927*	- 1.794*

*significant at the .05 level

Values for the multiple-t test show that significant differences on the posttest scores in equality of intercept exist between groups E_2 and E_1 , E_2 and E_4 , and E_3 and E_4 . However, the difference in equality of slope between groups E_3 and E_4 is also significant. Therefore, the difference between groups E_3 and E_4 cannot be considered to be a true difference. The differences between groups E_2 and E_1 , and E_2 and E_4 can be considered to be true differences since the differences in equality of slope are not significant. Consequently, hypothesis 4² is rejected.

An examination of Table 32 reveals that group E_2 obtained the lowest score on the posttest adjusted mean for this error category. It appears then that the treatment for group E_2 (immediate oral reading) was most effective in reducing spelling errors of lexical carelessness.

Hypothesis 4³

There will be no significant differences among the four groups on the posttest in the number of errors made in the subcategory of spelling errors other than lexical carelessness.

A comparison of mean scores on the pretest and posttest for the subcategory of spelling errors other than lexical carelessness is presented in Table 34.

TABLE 34.--Comparison of Mean Scores on Pre- and Posttests for the Subcategory of Spelling Errors other than Lexical Carelessness

Group	N	Pretest		Posttest		Change
		Mean	SD	Mean	SD	
E ₁	18	5.89	4.02	5.29	3.15	- .60
E ₂	16	3.49	2.66	4.23	2.98	+ .74
E ₃	21	4.78	3.25	3.81	2.44	- .97
E ₄	19	4.74	4.14	3.94	3.20	- .80
Total	74	4.76	3.60	4.29	2.94	- .47

Table 34 indicates that groups E₁, E₃, and E₄ showed a slight decrease from pretest to posttest in the number of errors made in the subcategory of spelling errors other than lexical carelessness, whereas group E₂ showed a slight increase. Overall, there was a slight decrease.

The analysis of variance on the posttest scores revealed, however, that there were no significant differences among the groups on this measure.

Table 35 presents the data for the analysis of variance revealing no significant differences.

TABLE 35.--One-way Analysis of Variance of Posttest Scores for the Subcategory of Spelling Errors other than Lexical Carelessness

Source	df	SS	MS	F
Between groups	3	25.013	8.338	0.962
Within groups	70	606.582	8.665	
Total	73	631.595		

Since there was not a consistent decrease in the posttest scores, nor any significant differences in the analysis of variance, it appears that none of the four treatments was more effective than another in reducing the number of errors in the subcategory of spelling errors other than lexical carelessness. Thus, hypothesis 4³ was accepted.

Hypothesis 5

There will be no significant differences among the four groups on the posttest in the total number of errors made in the four major categories of sentence sense, T-units with initial 'and', malformed T-units, and spelling errors.

Since the analysis of variance on the pretest scores for this measure approached significance, $F(3,70) = 2.348$, a one-way analysis of covariance was employed to analyze the pretest and posttest scores, using the pretest scores as the covariate. The data showing the pretest and posttest scores, as well as the adjusted posttest means, is presented in Table 36.

TABLE 36.--Comparison of Pre- and Posttest Mean Scores for the Combined Error Total of the Four Major Categories of Sentence Sense, T-units with Initial 'and', Malformed T-units, and Spelling Errors, Including Adjusted Mean Scores for the Posttest

Group	N	Pretest		Posttest		Posttest Adjusted Mean
		Mean	SD	Mean	SD	
E ₁	18	16.213	7.308	15.837	5.415	14.048
E ₂	16	10.869	6.129	11.014	5.056	12.127
E ₃	21	12.372	6.030	11.159	5.243	11.455
E ₄	19	12.124	5.736	11.298	5.457	11.729

The data in Table 36 indicates that three groups, E₁, E₃, and E₄, showed a decrease from pretest to adjusted posttest in the number of errors made in the four major categories, whereas group E₂ showed an increase.

Although tests of significance on the unadjusted posttest means revealed that there were no significant differences among the groups in equality of slope $F(3,66) = 0.148$ nor in equality of intercept $F(3,69) = 1.433$, the multiple-t test on the adjusted posttest means showed that there were significant differences in equality of intercept, which is the crucial measure for revealing significant differences.

The data for the multiple-t test is presented in Table 37.

TABLE 37.--Multiple-T Test Showing Differences among Groups for Equality of Slope and Equality of Intercept for the Four Major Categories of Sentence Sense, T-units with Initial 'and', Malformed T-units, and Spelling Errors

Groups	Equality of Slope T(3,66)	Equality of Intercept T(3,69)
$E_1 : E_2$	- 0.391	- 1.318
$E_1 : E_3$	- 0.247	- 1.933*
$E_1 : E_4$	- 0.333	- 1.685*
$E_2 : E_3$	- 0.155	- 0.494
$E_2 : E_4$	- 0.655	- 0.286
$E_3 : E_4$	- 0.540	- 0.212

*Significant at the .05 level

Table 37 reveals that significant differences exist between groups E_1 and E_3 , and between groups E_1 and E_4 , but not between any other pairs of groups. Since the table indicates no significant differences in equality of slope, the differences in equality of intercept may be accepted as true differences. Thus hypothesis 5 is rejected.

It appears, then, that the most effective treatments for reducing errors, when all error categories are combined, were the treatment for group E_3 (delayed silent reading) and the treatment for group E_4 (delayed oral reading).

ANALYSIS OF THE TYPES OF CHANGES MADE
DURING THE TREATMENT SESSIONS

In order to investigate the second area of interest, namely, to compare the effects of the four reading methods upon the types of changes made during the treatment period, all changes made by the subjects during this period were categorized and summarized. Since each group did not make a uniform number of changes and since it was not practicable to determine the number of possible changes that could have been made, all raw scores were converted to percentage figures by dividing the number of changes in each category by the total number of changes made by each group and then multiplying the result by 100.

The types of changes made fell into two broad areas; changes made to correct errors and changes made by choice where no errors existed. Table 38 presents the summary of all the changes made by the four groups during the treatment period.

In discussing the results of Table 38, the following abbreviations will be used: group E_1 (immediate silent reading) will be referred to as E_1 (IS); group E_2 (immediate oral reading) will be referred to as E_2 (IO); group E_3 (delayed silent reading) will be referred to as E_3 (DS); and group E_4 (delayed oral reading) will be referred to as E_4 (DO). In so doing the letters in parentheses for each group indicate the treatment for that particular group.

TABLE 38

SUMMARY OF THE CHANGES MADE DURING THE TREATMENT SESSIONS

Change Categories	E ₁ (N = 18)		E ₂ (N = 16)		E ₃ (N = 21)		E ₄ (N = 19)	
	Raw Score	%	Raw Score	%	Raw Score	%	Raw Score	%
A. Changes Made to Correct Errors								
1. <u>Sentence Sense</u>								
(a) initial capital letter added	11	6.9**	6	4.3	16	5.2*	1	.76
(b) final period added	20	12.5**	0	0	3	.98*	0	0
(c) initial capital letter and final period added	9	5.6**	1	.72	8	2.6	6	4.6*
Combined figures for 1(a), 1(b), and 1(c).	40	25.2**	7	5.1	27	8.9*	7	5.4
2. <u>T-units with Initial 'and'</u>								
(a) initial 'and' deleted	1	.63	5	3.6**	2	.65*	0	0
(b) initial 'and' deleted from T-unit; capital letter and period added	2	1.2	2	1.4*	2	.65	2	1.5**
Combined figures for 2(a) and 2(b)	3	1.9*	7	5.1**	4	1.3	2	1.5
3. <u>Malformed T-units</u>								
(a) extraneous words deleted	10	6.3**	4	2.9	16	5.3	7	5.4*
(b) words added	26	16.4*	24	17.5**	50	16.4*	19	14.6
(c) confused word order corrected	0	0	1	.72**	0	0	0	0
Combined figures for 3(a), 3(b) and 3(c)	36	22.6**	29	21.2	66	21.7*	26	20.0

TABLE 38--Continued

Change Categories	E ₁ (N = 18)		E ₂ (N = 16)		E ₃ (N = 21)		E ₄ (N = 19)	
	Raw Score	%	Raw Score	%	Raw Score	%	Raw Score	%
A. Changes Made to Correct Errors								
4. <u>Spelling</u> (a) errors of lexical carelessness corrected	5	3.1	10	7.2**	12	3.9	7	5.3*
(b) errors of lexical carelessness corrected; meaning changed	6	3.7*	6	4.3**	4	1.3	4	3.0
(c) all other spelling changes	31	19.4**	21	15.3	57	18.7*	13	10.0
Combined figures for 4(a), 4(b) and 4(c)	42	26.4*	37	27.0**	73	24.0	24	18.5
5. <u>Tense</u>								
(a) Incorrect tense changed to correct tense	0	0	0	0	0	0	2	1.5**
(b) Changes to external tense markers	0	0	1	.72	3	.99*	2	1.5**
Combined figures for 5(a) and 5(b)	0	0	1	.72	3	.99*	4	3.1**
6. Plurals	2	1.3*	0	0	4	1.3*	2	1.5**
7. Capital letters	2	1.2	1	.72	5	1.6**	2	1.5*
8. Other punctuation	0	0	1	.72	18	5.9**	3	2.3*
9. Person marker agreement	1	.62	1	.72*	3	.98**	0	0
10. Possessives	0	0	0	0	1	.32**	0	0
11. Subject order	0	0	0	0	0	0	2	1.5**
Total changes to correct errors	126	79.2**	84	61.3	204	67.1*	72	55.4
Mean number of error changes per subject	7.0*		5.25		9.71**		3.78	

TABLE 38--Continued

Change Categories	E ₁ (N = 18)		E ₂ (N = 16)		E ₃ (N = 21)		E ₄ (N = 19)	
	Raw Score	%	Raw Score	%	Raw Score	%	Raw Score	%
B. Changes Made by Choice where No Errors Existed								
1. Sentence or paragraph deleted	1	.62	14	10.2**	2	.65	6	4.6*
2. Sentence or paragraph added	8	5.0**	4	2.9	8	2.6	6	4.6*
3. Change of word choice	14	8.8	14	10.2	44	14.4*	19	14.6**
4. Meaning of sentence or paragraph changed	10	6.2	21	15.3*	46	15.1	27	20.7**
Total changes made by choice	33	20.8	53	38.7*	100	32.9	58	44.6**
Mean number of choice changes per subject	1.83		3.31*		4.76**		3.05	
C. Total Changes (A and B combined)								
Total changes for all categories	159		137		304		130	
Mean number of changes per subject	8.8*		8.6		14.5**		6.8	

**Highest score in a particular category
 * Second highest score in a particular category

In addition, it should be noted that some scores in Table 38 have been marked with either a double or single asterisk. This indicates that a particular percentage ranks as either the highest or second highest score in a category and hence shows a possible trend or pattern.

In examining Table 38, the broad area of changes made to correct errors will be discussed first, followed by the second broad area; changes made by choice.

To examine the oral reading versus silent reading factor first, it should be noted that, for the individual change categories (excluding combined figures), the two silent reading groups rank first or second in 19 instances, while the oral reading groups rank first or second in 17 instances. Consequently, the silent reading groups and the oral reading groups are very similar in the number of instances in which they rank first or second.

In the first main category of sentence sense, the two silent reading groups rank first or second in five instances versus one instance for the oral reading groups. If the figures for the three categories of sentence sense are combined the two silent reading groups still rank first and second.

In the second main category which is concerned with T-units with initial 'and' deleted, the two oral reading groups rank first or second in three instances as contrasted to one instance for the silent reading groups. When the figures are combined, group E₂(IO) continues to rank in

first place but group E_1 (IS) obtains the second place.

An examination of the third main category, malformed T-units, reveals that the oral and silent reading groups are equal in the number of instances in which they rank first or second. Combined figures give a slight edge to the two silent reading groups but overall the scores for all the groups are very close.

In the fourth main category, spelling, the oral reading and silent reading groups are again equal in the number of instances in which they rank first or second. When all figures are combined, group E_2 (IO) ranks first with E_1 (IS) in second place.

For the remaining categories of change, the factor that seems important is the immediate reading versus delayed reading rather than oral reading versus silent reading. Consequently, the last eight categories will be examined within that frame of reference. An examination of the figures in terms of the immediate reading versus delayed reading factor reveals a trend different from that found in examining the figures from an oral reading versus silent reading point of view. Overall, the two delayed reading groups ranked first or second in 21 instances as compared to only 15 for the immediate reading groups. Once again, combined figures are not included in this count. It appears then that the delayed reading groups made the highest percentage of changes in more individual categories than did the immediate reading groups.

In the first five categories of change which encompass all the individual categories of sentence sense and T-units with initial 'and' deleted, the instances of ranking first or second are equal for both the immediate reading groups and the delayed reading groups. The differences in these categories derive from the oral reading versus silent reading factor rather than from the immediate reading versus delayed reading factor.

For the categories of malformed T-units and spelling, the immediate reading groups show the greatest number of instances of ranking first or second: eight instances as compared to only four for the delayed reading groups. For the remaining categories, however, the delayed reading groups rank first or second in nine instances versus only two for the immediate reading groups.

It seems then that the difference between oral reading and silent reading was important in determining the number of changes made in six of the nineteen categories examined: the three categories of sentence sense, the two categories concerned with T-units with initial 'and' deleted, and the category of all other spelling changes. But in the remaining categories the difference between immediate reading and delayed reading seemed to be the important factor in determining the number of changes made.

This trend for the difference between delayed reading and immediate reading as a factor in determining the number of errors corrected does not continue, however, when

the total figures are examined. When all types of changes to correct errors are considered, the figures show that the two silent reading groups made more changes to correct errors in proportion to choice changes than did the two oral reading groups. In addition, the two silent reading groups made more error changes per subject than did the two oral reading groups. This apparent inconsistency may be explained by examining the combined figures for the sentence sense categories and the figures for the category of other punctuation. The combined figures for sentence sense show that the silent reading group E_1 (IS) scored substantially higher than the other groups on this measure, while in the category of other punctuation, the silent reading group E_3 (DS) scored substantially higher than the other groups. These scores were sufficiently high to weight the total figures in favour of the two silent reading groups.

An examination of the figures for the second main area of changes, that is, changes made by choice, indicates that the oral reading groups rank first or second in the majority of instances; six instances in contrast to two for the silent reading groups. In looking at the immediate reading versus delayed reading factor, the delayed groups, particularly E_4 (DO), rank first or second in five instances compared to three instances for the immediate reading groups. Overall, the delayed oral reading group E_4 (DO) ranks first or second in the greatest number of instances (four), followed by the immediate oral reading group E_2 (IO) with two

instances. This is confirmed by the percentage figures showing the relationship between changes made by choice and the total number of changes made. The two oral reading groups again rank first and second. This appears to suggest that oral reading is a factor in determining the number of changes made by choice, but this is denied by the figures for the number of changes made per subject as two contrasted groups, E_3 (DS) and E_2 (IO) rank first and second respectively. Although the delayed oral reading group E_4 (DO) achieved the highest total percentage of changes made by choice, the subjects within that group did not individually make as many choice changes as the subjects in group E_3 (DS) and group E_2 (IO). Consequently the differences between oral reading versus silent reading and immediate reading versus delayed reading may not have been important in determining whether a choice change was made.

Overall, when figures for both main areas are combined, the two silent reading groups rank first and second in the number of changes made per subject. Since the largest percentage of changes were made to correct errors, the overall figures are consistent with the figures for this type of change.

Although the figures presented in Table 38 may suggest certain conclusions concerning the effect of silent reading versus oral reading, or immediate reading versus delayed reading, upon written composition, the foregoing observations need to be considered with the following points

in mind:

1. Any subject in any group may have been unaware that an error had been made, and consequently did not correct the error.
2. Any subject in any group may have been aware of an error but did not know how to correct it. (This was confirmed by the interviews. In addition, some changes made to errors were incorrect but were not included in the table as they were few in number.)
3. Any subject in any group may have been aware of an error but did not feel inclined to change it. (The interviews revealed that this happened occasionally, perhaps as a result of becoming tired of writing so many compositions.)
4. Although the groups were found to be equivalent on the pretest on all measures except two, they may not have continued to commit an equivalent number of errors during the treatment sessions. Any one group may have made more errors in their written compositions than any other group: consequently, one group may have had more potential changes to make than any other group.

INTERVIEWS

After completing the posttest, four pupils from each experimental group were selected to be interviewed individually by the investigator. From each group were chosen the pupil who had made changes in the greatest number of com-

positions, and the pupil who had made changes in the fewest number of compositions. In addition, two other pupils were selected randomly from the remainder of the pupils in each group. In all, sixteen pupils were interviewed.

The questions asked were open-ended and intended to discover what the pupils thought they were supposed to do during the self-editing process as well as to discover their opinions of the four reading methods employed prior to self-editing. They were also asked to state the kinds of changes they had made, if they had made changes. Finally, they were asked whether they had read over their written work at times other than during the writing sessions.²

Some answers given were common to all pupils in all four groups. Firstly, all pupils stated that they thought they were supposed to read over their stories to find mistakes and correct them. They assumed this even though the instructions given prior to reading did not specifically ask them to correct mistakes.³ Secondly, the pupils who made changes stated that they had changed spelling errors, added small words that had been left out, deleted words that were not necessary, changed punctuation, and changed or added sentences to make their story clearer. These stated changes

²See Appendix E for examples of the questions asked.

³The instructions stated "You can make any changes to the words or sentences that you want to or think are necessary."

are consistent with the data presented in Table 38 summarizing the types and number of changes made during the treatment period.

The answers to the remaining questions, however, showed no consistent pattern. A few pupils were quite articulate and able to state their perception of the reading method they had used prior to self-editing, while the majority were not able to offer any insights into the effects of the four reading methods. The few youngsters who were articulate were those same pupils who seemed to perform with confidence and at an above average level in the classroom. Since they were in the minority, however, they can not be considered to be representative of the sample used in this study.

The remainder of the discussion of the interviews will concentrate on identifying the different responses within each group concerning the types of changes made, the four methods of reading employed prior to self-editing, and the incidence of self-editing at times other than during the writing sessions.

Group E₁

The pupil who made the fewest changes in this group gave three reasons. Firstly, she had thought that the researcher was going to make the changes in the stories, but once she realized that this was not the case, she began making changes herself. Secondly, she stated that she had

not made many changes because she had not been able to tell where her mistakes were. Thirdly, she had thought that she could change the errors only.

The pupil who made the most changes said that he had made changes because some words had not made sense in the sentences. He stated that he had not made changes to correct spelling or punctuation errors because he had thought that these errors would not matter.

Of the other two pupils interviewed, one stated that he had made changes at the beginning of the treatment period and then had stopped making changes but could not give a reason for this. The other pupil said that she had not made changes when she had written slowly because when she wrote slowly she did not make mistakes. Both stated that they had sometimes read over their stories when they had been about halfway through writing them.

Two reasons were given to explain why they thought they had been asked to read silently instead of orally: in order not to disturb the class, and so as not to embarrass pupils. The other two pupils did not know why they had been asked to read silently. When asked whether it would have made any difference to have read orally, two stated that it would have made no difference, one thought that she would have made more changes, but could not explain why, and one thought that silent reading had helped her find errors more easily because she 'went past' mistakes when reading orally.

Three pupils thought that they would have made more

changes if they had read their stories a week later, and one did not think that it would have made any difference, but none were able to give any reasons for their answers.

All pupils stated that they had occasionally read over written work before handing it in to other teachers but usually they did not bother to do this.

Group E₂

One pupil in this group had made no changes at all during the treatment sessions. When asked to explain this, he stated that he could not be bothered to make any changes. He added that since he had been reading aloud to the teacher or the researcher he had expected them to tell him where to make changes. Since this had not occurred he had been quite happy to leave any errors uncorrected so that he could do other things which were more interesting to him. Another pupil who had made very few changes stated that she had not needed to make changes because she had read over her stories while she had been writing them and had made changes then.

The pupil who made the most changes stated that she had made them so that her stories would be 'good'. She also thought that she would receive a mark on her report card for the stories she had written. The fourth pupil said that she had made changes if she thought a word did not sound 'right'. She had decided this from the oral reading of the story.

When asked why they had been asked to read their

stories orally rather than silently, three pupils thought it was so the teacher or researcher could hear what had been written, and one could think of no reason. Two pupils stated that they preferred reading aloud because it helped them concentrate as well as decide if they had changes to make. Three pupils were not able to articulate any possible consequences that might have occurred if they had read their stories silently, while one pupil thought that she might not have found any mistakes but could not explain why she thought this.

One pupil was able to state quite clearly what she thought would have happened if she had been asked to read her story a week after writing it instead of immediately after completing it. She thought that she would have made more changes because she would have had a week to think about the story rather than just the forty-five minutes which she had had for writing. Consequently, she probably would have changed her mind about what she had written and would probably have wanted to change it. The other three pupils, however, either thought that it would have made no difference or were unable to express an opinion.

When questioned about whether they had read over other written material before handing it in, three pupils admitted that they had sometimes done this, while one said that he had not. All three said that if they read it over they read it to themselves which, on further questioning, meant that they whispered rather than read completely silently.

Group E₃

In this group the pupil who had made no changes in her writing stated that she had not felt a need to change anything because she thought her writing expressed what she had wanted to say. She did not feel that she needed to make any corrections although she did state that she would have made changes if the researcher or teacher had indicated that they were needed. She added that she had not made any changes to spelling because she was not very good at spelling.

The pupil who made the greatest number of changes stated that he had done this because his writing contained many errors. He added that if he had not made the corrections his sentences would not have been "plain English".

The other two pupils both stated that they had made changes to correct mistakes. One also said that sometimes she had not made changes that were necessary because she had not felt like it.

When questioned about why they thought they had been asked to read silently instead of orally, three stated that it was in order not to disturb the others in the class, while one felt that it was to prevent the reader from being embarrassed. One pupil indicated that he preferred reading silently to orally as he usually forgot what he had said when he read orally. Another pupil who thought that it would have been easier to find mistakes if she had read orally, gave two reasons; she had to read slowly when she

read orally, and if she were to read orally to someone else she could tell by the expression on their face when she had made a mistake. The other two pupils made no comment concerning their preference.

On the question of reading immediately after writing versus delayed reading, two pupils were able to articulate very specific reasons in favour of delayed reading; if they used delayed reading they were able to find more mistakes. On the other hand, if they had read immediately, they would have been too close to their stories, or too involved in them, and consequently would not have found as many mistakes. They explained that when they had just written a story they felt that it was good, but when they read the story a week later they thought that it could be improved because they had had a chance to forget the story. Consequently, they were able to make changes. These two pupils also stated that when they wrote they often forgot about punctuation and spelling in the excitement of writing their stories, so it was necessary to read them over afterwards to determine where the punctuation should be or to correct spelling errors. Of the remaining two pupils, one felt that it would have made no difference to have read immediately after writing while the other thought that the purpose of the delayed reading had been to allow the researcher time to read the stories.

When questioned about whether they had read over written work for other teachers, all four pupils stated

that they did do it for other teachers or had done so in previous years. In all cases, after they had read over their work, the teachers would also check it and find other mistakes. Two pupils declared that the reason the teachers were able to find more mistakes was that they (the pupils) were not aware of all their errors, especially errors of punctuation or spelling.

Group E₄

The pupil who had made no changes in this group said that she had not needed to make changes a week after writing because she had previously read over her story while she was writing it and had made changes then.

The pupil who had made the most changes stated that he had done so because he had many mistakes and needed to correct them.

The third pupil said that he had made changes because his stories had not sounded the way he had wanted them to, while the fourth pupil could not state why he had made changes, although he had previously specified the types of changes he had made.

When questioned about why they thought they had been asked to read orally instead of silently, several different reasons were suggested. One pupil stated that the purpose of reading orally was to find mistakes since he felt that he would not have found mistakes if he had read silently. Another pupil was not sure but thought that the class had been asked to read orally so the teacher or researcher

could record marks although she admitted when questioned that she had never seen any marks being recorded. A third pupil thought that the teacher or researcher would know what they had been doing by hearing the oral reading. The fourth pupil thought that it was so the pupils could make sure that they had written what they had wanted to say. Except for one pupil, none were able to say what they thought would have happened if they had read silently. In addition, none of the pupils felt that it would have made any difference to have read over their stories immediately after writing rather than a week later.

The only other time that the pupils had read over written work was for one particular teacher who taught them grammar and composition. They stated that they read over their stories because they had to do this in order to copy the rough copy onto foolscap. The teacher then corrected further mistakes after the good copy had been handed in. (Groups E_3 and E_4 were both taught the same subjects by this teacher as both groups were in the same school.)

Summary of the Interviews

The interviews were intended to reveal the pupils' perceptions of the self-editing process they had employed during the treatment period. In two areas the answers given were common to all four groups. All pupils agreed that they thought the purpose of the reading prior to self-

editing was to find and correct errors in their written compositions. Secondly, the composition changes which the pupils identified during the interviews were congruent with the data presented in Table 38 summarizing the types and number of changes made during the treatment sessions. Answers to the other questions, however, were not consistent.

Information concerning one other aspect of the treatment sessions was also obtained from the interviews: some pupils stated that, towards the end of the sessions, they had become tired of writing so many compositions.

CHAPTER V

SUMMARY AND INTERPRETATION OF THE FINDINGS; CONCLUSIONS; IMPLICATIONS FOR RESEARCH AND INSTRUCTION

This chapter summarizes and interprets the findings concerning the effects of four reading methods prior to self-editing upon the written composition of fifth-grade pupils. The four reading methods were immediate silent reading, immediate oral reading, delayed silent reading, and delayed oral reading. In addition, the findings concerning the number and types of changes made during the treatment sessions, and the results of the individual interviews are summarized and interpreted. The conclusions, the limitations of the study, and implications for research and instruction follow the summary and interpretation of the findings.

SUMMARY AND INTERPRETATION OF THE FINDINGS

Pretest and Posttest Writing Samples

Primarily, this study sought to ascertain which of four treatments would be most effective in reducing four major types of composition errors: sentence sense, T-units with initial 'and', malformed T-units, and spelling errors.

Statistical analyses of the data presented in Chapter Four revealed the following findings: of the fourteen null hypotheses tested, eight were accepted and six were rejected. Owing to insufficient data, one additional hypothesis was not tested.

The eight hypotheses accepted were those concerning the three categories of T-units with initial 'and', three of the four hypotheses concerning malformed T-units, and two of the three hypotheses concerning spelling errors. The one additional hypothesis that could not be tested was hypothesis 3⁴ which was concerned with malformed T-units with confused word order.

The analysis of the data for these measures revealed no trends since no one group consistently decreased in the number of errors made in all of these error categories. Although all four groups made changes during the treatment sessions to correct errors in all the categories mentioned, this did not significantly affect their written composition. Thus, it can be said that none of the treatments used in this study were effective in reducing either errors related to the overuse of 'and' to begin T-units, errors of redundancy or omission, or spelling errors other than those of lexical carelessness. In the light of this evidence, the assertion of Golub and Fredrick¹ that errors of redundancy

¹Lester S. Golub, and Wayne C. Fredrick, Linguistic Structures and Deviations in Children's Written Sentences, Technical Report No. 152 (Madison: The University of

or omission could be eliminated by proofreading written compositions appears to be refuted.

The six hypotheses which were rejected were those concerning the four categories of sentence sense, the hypothesis concerning spelling errors of lexical carelessness, and the hypothesis concerning the combined error total; however, the differences between the groups for these six hypotheses were not consistent for any one group. (See Table 39) In the four categories of sentence sense, there were significant differences between groups E_4 and E_1 for both the major category of sentence sense, and for the subcategory of sentence sense where the final period has been omitted; between group E_2 , which had the highest post-test mean, and the other three groups for the subcategory of sentence sense where the initial capital letter has been omitted; and between groups E_2 and E_1 , and E_3 and E_1 , for the subcategory of sentence sense, where the final period and initial capital letter have been omitted. For the subcategory of spelling errors of lexical carelessness, there were significant differences between groups E_2 and E_1 , and E_2 and E_4 . For the combined error total there were significant differences between groups E_3 and E_1 , and E_4 and E_1 . Although there was no consistency in these results, group E_1 made the highest number of errors on the posttest

¹Wisconsin Research and Development Center for Cognitive Learning, 1971), p. 5.

TABLE 39.--Summary of the Significant Findings

Hypotheses	E ₁	E ₂	E ₃	E ₄
<u>Hypothesis 1¹</u> Sentence sense--major category				*
<u>Hypothesis 1²</u> Sentence sense where the initial capital letter has been omitted		* -		
<u>Hypothesis 1³</u> Sentence sense where the final period has been omitted				*
<u>Hypothesis 1⁴</u> Sentence sense where the initial capital letter and final period have been omitted		*	*	
<u>Hypothesis 4²</u> Spelling errors of lexical carelessness		*		
<u>Hypothesis 5</u> Combined error total for the four major categories of sentence sense, T-units with initial 'and', malformed T-units, and spelling errors.			*	*

*Results significant for the designated group at the .05 level.

-Negative significant finding.

in the ten of the fourteen categories including the combined error total; however, no one group consistently scored the lowest number of errors in all of the error categories.

Nor did any one group consistently decrease the number of errors made from pretest to posttest in all of the error categories. Except for the subcategory of T-units beginning with capitalized 'and', in which three groups decreased while E_3 remained constant, and the subcategory of malformed T-units with words omitted, in which all four groups decreased, there was always at least one group which increased in the number of errors made from pretest to posttest.

The results for the combined error total may be the best indicator of a trend as there were significant differences between group E_3 (delayed silent reading) and group E_1 (immediate silent reading), and between group E_4 (delayed oral reading) and group E_1 . It would appear, then, that the delayed silent reading treatment and the delayed oral reading treatment were most effective in reducing errors in written composition, whereas the immediate silent reading treatment was least effective. The delayed reading versus immediate reading factor rather than the oral reading versus silent reading factor seems to have been significant in assisting pupils in the detection and correction of errors in their written compositions. This significance for delayed reading appears to confirm Moffett's statement concerning written composition and delayed feedback:

. . . we have all had the experience of looking back on something we have written earlier and of responding much as another person might do. Thus, once beyond the moment of writing, the writer himself becomes 'other' and can feedback helpfully to himself.²

This trend for delayed reading is confirmed by the remaining significant findings since, in the four categories of sentence sense, the significant differences were for the delayed reading groups in three out of the five cases where significant differences occurred. The other two cases were significant for immediate oral reading, but in one case, sentence sense where the initial capital letter has been omitted, the difference was significant because group E₂ (immediate oral reading) scored the highest number of errors. The lowest number of errors was scored by the delayed silent reading group, group E₃. Consequently, the significant difference for oral reading in this category can be considered to be a negative significant difference.

Although there was a trend for delayed reading, there also appeared to be a positive trend for oral reading since three of the five significant differences were also significant for oral reading; delayed oral reading (E₄) in two cases, including the combined total for the three sub-categories of sentence sense, and immediate oral reading

²James Moffett, Teaching the Universe of Discourse, (Boston: Houghton Mifflin Company, 1968), p. 191.

(E₂) in one case. This seems to confirm Burrows'³ and Hatfield's⁴ theories that reading aloud will assist a pupil in mastering the correct punctuation of sentences. The pupil apparently can use his knowledge of the pitch and juncture of oral language and transfer it to the written language. For the four categories of sentence sense, then, it appears that a combination of delayed and oral reading was most effective in reducing errors of this type.

The remaining significant findings for the subcategory of spelling errors of lexical carelessness do not fit this pattern, however, since group E₂ (immediate oral reading) scored significantly lower in this error category than either group E₁ (immediate silent reading), or group E₄ (delayed oral reading), but not significantly lower than group E₃ (delayed silent reading). This result confirms the trend found in the analysis of the types of changes made to correct errors during the treatment sessions where group E₂ (immediate oral reading) made the most changes to correct errors of lexical carelessness.

It is not clear why immediate oral reading was most

³Alvina T. Burrows, Teaching Composition, What Research Says to the Teacher Series, No. 18 (Washington: National Education Association of the United States, 1961), p. 24.

⁴W. Wilbur Hatfield, "The Shortest Road to Sentence Sense," Elementary English 33, (May, 1956): 270.

effective in reducing errors of lexical carelessness. For the other significant findings the trend was for delayed reading, rather than immediate reading, to be more effective in reducing composition errors; however, this was not confirmed by the results for errors of lexical carelessness. It may be that obvious errors in the appearance of words can be more readily detected by reading immediately while one's thoughts are still fresh in one's mind and one is still aware of the task involved in transcribing these thoughts into an accurate written representation. When reading at a later date, one may be paying closer attention to the meaning or deep structure and thus one inserts the correct required form without being aware of having done this. When reading orally, one also seems to be paying closer attention to the surface structure than if one were reading silently; thus, obvious inconsistencies in the surface structure can often be detected.

The one unexpected result of the study was the significant increase in mean T-unit length for group E₄ (delayed oral reading). It had not been hypothesized that any one group would show a significant increase on this measure as growth in T-unit length is normally extremely slow. A possible explanation for this occurrence is that the delay in reading allowed the pupils in this group to stand back from their written compositions and look at them more critically, much as another person might. When oral reading was combined with this delay in reading, the pupils

seem to have been able to 'listen' critically to the 'sound' of what they had written and, thus, were able to notice that they had written short, disconnected T-units. The ultimate result of this process was a significant increase in the length of their T-units.

Changes Made during the Treatment Writing Sessions

In considering the changes made during the treatment sessions, two main types of changes were noted: changes made to correct errors, and changes made by choice where no errors existed.

Analysis of the data concerning changes made to correct errors revealed that, in the majority of individual change categories, the difference between immediate reading and delayed reading seemed to be the critical factor in determining whether changes were made. When each individual change category was considered separately, the two delayed reading groups, E₃ and E₄, made the highest percentage of changes in more individual categories than did the immediate reading groups, E₁ and E₂. The oral reading versus silent reading factor seemed important in determining the number of changes made in only six of the nineteen change categories examined: the three categories of sentence sense, the two categories concerned with T-units with initial 'and' deleted, and the category of all other spelling changes.

This trend did not hold, however, when the combined figures were examined. Rather, the two silent reading groups

made the highest percentage of changes to correct errors. This occurred because the combined figures for sentence sense for group E_1 were substantially higher than the figures for the other three groups, and the figures for E_3 for the category of other punctuation were substantially higher than for the remaining three groups.

In considering changes made by choice, there appeared to be no consistent pattern. Although the two oral reading groups, E_2 and E_4 , made the highest percentage of changes both in the individual categories and for the combined figures, this pattern is not confirmed if the figures are examined in terms of the mean number of choice changes made per subject, since the highest percentage of choice changes per subject were made by group E_3 (delayed silent reading), and group E_2 (immediate oral reading).

When the mean number of changes per subject for both the broad areas of changes made to correct errors and changes made by choice are examined, it can be seen that group E_3 (delayed silent reading) made the highest total number of changes in each of these two areas. This also holds true when the figures are combined to provide a total figure for number of changes per subject.

This trend may be significant since, in the post-test, group E_3 also scored the lowest mean for the total number of errors made. Consequently, there may be some positive relationship between the number of changes made during the treatment writing sessions and the number of

errors made in the posttest.

Interviews

The individual interviews revealed two trends. Firstly, all pupils thought that they were to read over their stories in order to find errors and correct them. This occurred in spite of the fact that the instructions did not specifically tell them to do this. Secondly, the composition changes identified by the pupils in the interviews were congruent with the data presented in Table 38 which summarizes the types and number of changes made during the treatment writing sessions. Thus, the pupils' statements accurately reflected the actual changes made by the pupils in their written compositions. The answers to the other questions showed no consistent pattern.

Some pupils did comment, however, that towards the end of the writing sessions they had become tired of writing so many compositions. It is possible that the results of the posttest were influenced by this factor to the degree that some pupils did not perform as well as they might have in the posttest. This could account for the lack of consistency in the results of the statistical analysis.

CONCLUSIONS

Any conclusions that can be drawn from this study must be considered to be tentative at best since there have been no other studies conducted that can confirm them. The

literature related to the use of oral reading or silent reading as an aid in the self-editing of written composition appears to be based on either intuition or theory. No actual studies have investigated solely this particular aspect of self-editing and written composition. Thus, the conclusions from this study must be considered in the light of the foregoing observations.

Based on the results of this study, it cannot be stated conclusively that any one reading method prior to self-editing is superior to another in reducing composition errors of sentence sense, T-units with initial 'and', malformed T-units, or spelling; however, there was a trend which indicated that delayed reading methods were effective in reducing these four major types of composition errors. Secondly, immediate silent reading prior to self-editing seemed to be least effective in reducing these composition errors since the group employing this method scored the highest posttest mean for errors in spite of the fact that this group had made the highest percentage of changes to correct errors during the treatment sessions.

In practical terms, it would appear that either oral or silent reading prior to self-editing would be effective in reducing the composition errors of fifth-grade pupils if this reading is delayed for one week after the composition has been written.

LIMITATIONS

The findings and conclusions of this study must be viewed in the light of certain limitations as the investigator was not able to control for all the possible variables that may have influenced the results.

Firstly, the investigator had no control over the writing experiences of the pupils outside the writing sessions. Although the teachers of the pupils were asked not to utilize the techniques employed in the study, no guarantee can be given that this was the case.

Secondly, the investigator was responsible for the planning and conducting of the entire study. Consequently, there may have been a hidden bias on the part of the investigator which favoured one group over another.

Thirdly, it is not known what effect the length of the study had upon the results. Comments made by some pupils during the interviews suggested that eighteen writing sessions over a nine-week period were too intensive for fifth-grade pupils.

A fourth limitation is related to the order in which the topics and writing nodes were presented during the treatment sessions since it is not known what effect this had on the results.

A fifth limitation concerns the variations in the times for self-editing; in particular, the few occasions when the delayed reading of a composition did not occur

exactly one week after this composition had been written.

IMPLICATIONS FOR RESEARCH

This study suggests several implications for research.

Since there is no empirical evidence available concerning the effects of self-editing upon written composition apart from this study itself, it is essential that this study be replicated. In particular, a study should be made of the correlation between the types and numbers of changes to correct errors made during the treatment sessions and any reduction in the number of errors made from pretest to posttest. The need for this type of study is suggested by the data which showed that group E_3 not only made the most changes throughout the treatment sessions but also scored the lowest error total on the posttest. In addition, group E_2 made the most changes in the subcategory of spelling errors of lexical carelessness and also scored the lowest posttest error total for this subcategory.

In addition, studies need to be conducted among similar lines but with minor variations; for example, over a longer time period with only one writing session per week; with pupils at other grade levels; and with the topics and writing modes presented in a different order.

Since this study investigated only one aspect of written composition, that is the reduction of composition errors, the four reading methods used in this study should

also be examined in terms of the rhetorical aspects of written composition, such as style, rather than just in terms of error reduction. The need for an examination of this aspect of written composition is confirmed by the data presented in Table 38 which shows that many changes were made in the compositions which were not related to the correction of errors; rather they were related to matters of style such as word choice, or the addition or deletion of sentences or paragraphs.

Another aspect of the study that warrants further investigation is a variation in the method of reading used prior to self-editing. Variations which would be worthwhile investigating would be the reading of the compositions to an audience, perhaps another pupil, the class, or the teacher, in order to receive feedback about the compositions, or to have someone else read the compositions to the pupil who had written them.

IMPLICATIONS FOR INSTRUCTION

Although the results of this study were not conclusive, the trends that appeared suggest that either delayed silent reading or delayed oral reading does assist pupils in the detection and correction of common composition errors. Consequently, it is recommended that teachers do not merely tell their pupils to read over what they have written before handing it in in order to self-edit it, but rather provide time to do this on a regular basis, preferably a week after the compositions have been written.

SELECTED BIBLIOGRAPHY

- Annett, John. Feedback and Human Behaviour. Penguin Science of Behaviour Series, No. 2. gen. ed. B. M. Foss. Harmondsworth, Middlesex, England: Penguin Books Ltd., 1969.
- Ausubel, David P. The Psychology of Meaningful Verbal Learning. New York: Grune and Stratton, 1963.
- Braddock, Richard, Lloyd-Jones, Richard, and Schoer, Lowell. Research in Written Composition. Champaign, Ill: National Council of Teachers of English, 1963.
- Bruner, Jerome S. "The Act of Discovery." Harvard Educational Review 31 (Winter 1961): 21-32.
- Burrows, Alvina T. Teaching Composition. What Research Says to the Teacher Series, no. 18. Washington: National Education Association of the United States, 1963.
- Campbell, Donald T., and Stanley, Julian C. "Experimental and Quasi-Experimental Designs for Research on Teaching." In Handbook of Research on Teaching, pp. 171-246. Edited by N. L. Gage. Chicago: Rand McNally and Company, 1963.
- Chomsky, N. Aspects of the Theory of Syntax. Cambridge, Mass.: M.I.T. Press, 1965.
- Donohue, Mildred R. The Child and the English Language Arts. n.p.: Wm. C. Brown Company Publishers, 1971.
- Gagné, Robert M. The Conditions of Learning. 2nd edition. New York: Holt, Rinehart, and Winston, Inc. 1970.
- Golub, Lester S. "Stimulating and Receiving Children's Writing: Implications for an Elementary Writing Curriculum." Elementary English 48 (January 1971): 33-49.
- _____, and Fredrick, W. C. Linguistic Structures and Deviations in Children's Written Sentences. Technical Report No. 152. Madison, Wis.: Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, 1970.
- Goodman, Kenneth S. "Behind the Eye: What Happens in Reading" In Theoretical Models and Processes of Reading. pp. 470-496. 2nd Edition. Edited by Harry Singer and Robert B. Ruddell. Newark, Del: International Reading Association, 1976.

- Greene, Harry A., and Petty, Walter T. Developing Language Skills in the Elementary Schools. 4th Edition. Boston: Allyn and Bacon, Inc., 1971.
- Hatfield, W. Wilbur. "The Shortest Road to Sentence Sense." Elementary English 33 (May, 1956): 270-273.
- Hensley, J. Higgins, Lewinstein, Jacqueline, and Rabinowitz, F. Michael. "Effects of Children's Spontaneous Verbal Rehearsal on Learning Performance under Delay of Feedback." Child Development 45 (1974): 479-482.
- Humphreys, Phila. "A Greater Independence in Written Expression." Elementary English Review 19 (March, 1942): 93-98.
- Hunt, Kellogg W. Grammatical Structures Written at Three Grade Levels. NCTE Research Report No. 3. Champaign, Ill.: National Council of Teachers of English, 1965.
- _____, and O'Donnell, Roy. An Elementary School Curriculum to Develop Better Writing Skills. Tallahassee, Fla.: Florida State University, 1970: ERIC Document Reproduction Service, ED 050108, 1970.
- Kincaid, Gerald L. "Some Factors Affecting Variations in the Quality of Students' Writing." In Research in Written Composition. pp. 83-95. By Richard Braddock, Richard Lloyd-Jones, and Lowell Schoer, Champaign, Ill.: National Council of Teachers of English, 1963.
- Klassen, Bernard R. "Sentence-Combining Exercises as an Aid to Expediting Syntactic Fluency in Learning English as a Second Language." Ph.D. dissertation, University of Minnesota, 1976.
- Kulhavy, R. W. and Anderson, R. C. "Delay-retention effect with multiple-choice tests." Journal of Educational Psychology 63 (1972): 505-12.
- Martin, James J. "The Development of Sentence-Writing Skills at Grades Three, Four, and Five." D.Ed. Dissertation, University of California, Berkeley, 1968.
- Moffett, James. Teaching the Universe of Discourse. Boston: Houghton Mifflin Company, 1968.
- O'Hare, Frank. Sentence Combining: Improving Student Writing Without Formal Grammar Instruction. NCTE Research Report No. 15. Urbana, Ill.: National Council of Teachers of English, 1973.

- Pound, Larry D., and Bailey, Gerald Douglass. Immediate Feedback Less Effective than Delayed Feedback for Contextual Learning? Reading Improvement 12 (Winter, 1975): 222-224.
- Ruddell, Robert B. "Psycholinguistic Implications for a Systems of Communication Model." In Theoretical Models and Processes of Reading. 2nd Edition. pp. 452-469. Edited by Harry Singer and Robert B. Ruddell. Newark, Del.: International Reading Association, 1976.
- Sassenrath, J. M., "Theory and Results on Feedback and Retention." Journal of Educational Psychology 67 (1975): 894-899.
- Stratta, Leslie, Dixon, John, and Wilkinson, Andrew. Patterns of Language. London: Heinemann Educational Books Ltd. 1973.
- Strickland, Ruth G. The Language of Elementary School Children: Its Relationship to the Language of Reading Textbooks and the Quality of Reading of Selected Children. Bulletin of the School of Education, Indiana University, 38 (July, 1962). Bloomington: Indiana University, 1962.
- Surber, G. R., and Anderson, R. C. "Delay-retention effect in natural classroom settings." Journal of Educational Psychology, 67 (1975): 170-173.
- Thorn, Elizabeth, with Braun, Carl. Teaching the Language Arts: Speaking, Listening, Reading, Writing. Toronto: Gage Educational Publishing Limited, 1974.
- Tovatt, Anthony, and Miller, Ebert L. "The Sound of Writing." Research in the Teaching of English 1 (Fall, 1967): 176-189.
- Vygotsky, L. S., Thought and Language. Edited and translated by Eugenia Hanfmann and Gertrude Vakar. Cambridge, Mass.: M.I.T. Press, 1962.
- Winer, B. J. Statistical Principles in Experimental Design. 2nd ed. New York: McGraw-Hill Book Company, 1971.
- Wolf, Richard M. Choosing an Appropriate Statistical Procedure. New York: American Book Company, 1972.

APPENDIX A
PRETEST AND POSTTEST
INSTRUMENTS

PRETEST AND POSTTEST INSTRUMENTS

All instructions were first given orally and then written on the blackboard. The pupils were encouraged to ask for clarification if required.

PRETEST

Narrative

The pupils were shown a coloured picture of a young boy standing by a window with three pies cooling on the ledge. The boy is licking his fingers after having tasted one of the pies.

The following comments were made and instructions were given both orally and in written form on the blackboard.

"Here's a boy who has been putting his fingers in the pies. I think he will probably get into trouble because someone has spent a lot of time making those pies.

Tell a story about someone who got into trouble. It can be about you or someone else and it can be a true story or a made-up story. Tell about how the person got into trouble and what happened to the person afterwards."

Expository

The following list of words was written on the blackboard:

turkey
ham
tree

decorations
candy
red and green

gifts
wrapping paper
special cakes and
cookies

The pupils were asked to state what the list suggested to them. They stated that it suggested the festival of Christmas. They were asked if they knew that some people did not celebrate Christmas and replied that they were aware of this fact. After some discussion on this they were given the following instructions:

"Tell someone what Christmas is all about. This person knows nothing about Christmas. Tell about what happens before Christmas as well as what happens on Christmas Day."

Descriptive

The pupils were asked if they knew what scientists did. After some discussion it was agreed that scientists observed the things they were studying very carefully. They were then told that they were to be like scientists and observe things very carefully. The following instructions were given:

"Look carefully around you at all the people and things you can see. Try to be like a scientist and describe exactly what you see. Tell what the people and things look like."

POSTTEST

Narrative

The pupils were shown a box wrapped in brown paper, tied with string, and addressed to a person in Vancouver. When the box was shaken, something could be heard moving about inside the box. The pupils were then told that there was a mystery about the box as a friend of the researcher, while driving out in the country, had seen some men in a

black car hide the box in the bushes. She had picked up the box and given it to the researcher.

The pupils were then asked to write a story about a mysterious box.

Expository

The following list of words was written on the blackboard:

mitts	cold
toque	snow
jacket	ice
scarf	white

The pupils were asked to state what the list suggested to them. They stated that it suggested winter. They were then asked if they knew that some areas of the world did not experience winter such as they experienced in Manitoba. They affirmed that they were aware of this fact. After some discussion they were given the following instructions:

"Try to explain to someone what it is like to play outside in the winter. Explain some of the activities and games that you enjoy in the winter. Explain what you have to wear to keep warm."

Descriptive

A coloured picture of a village school in Kenya was shown to the pupils. The picture portrayed a group of boys and girls playing games outside the school building which was open-air with a grass roof. The following instructions were then given.

"This is a picture of a school in Kenya. It's quite different from schools in Canada. I would like you to tell me as much as you can about what you see in the picture."

APPENDIX B
PRETEST AND POSTTEST TIMETABLES

PRETEST TIMETABLE

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	MONDAY
	9:00-9:45 Group E ₄ Narrative	9:45-10:30 Group E ₄ Expository		9:00-9:45 Group E ₁ Descriptive	
	11:00-11:45 Group E ₂ Narrative	11:00-11:45 Group E ₂ Expository		10:45-11:30 Group E ₂ Descriptive	
	1:00-1:45 Group E ₃ Narrative				1:00-1:45 Group E ₃ Descriptive
2:15-3:00 Group E ₁ Narrative		2:30-3:15 Group E ₃ Expository	2:30-3:15 Group E ₁ Expository		2:30-3:15 Group E ₄ Descriptive

POSTTEST TIMETABLE

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9:00-9:45 Group E ₁ Narrative	9:00-9:45 Group E ₁ Expository	9:00-9:45 Group E ₁ Descriptive	9:00-9:45 Group E ₄ Descriptive	9:00-10:00 Group E ₁ Interviews
11:15-12:00 Group E ₂ Narrative	11:15-12:00 Group E ₂ Expository	9:45-10:30 Group E ₄ Expository	9:45-10:45 Group E ₄ Interviews	10:45-11:30 Group E ₂ Descriptive
	1:00-1:45 Group E ₃ Narrative		10:45-11:30 Group E ₃ Descriptive	11:30-12:00 Group E ₂ Interviews
	1:45-2:30 Group E ₄ Narrative	2:30-3:15 Group E ₃ Expository	1:00-2:00 Group E ₃ Interviews	

APPENDIX C
TIMETABLE FOR THE
TREATMENT SESSIONS

TIMETABLE FOR THE TREATMENT SESSIONS

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9:00-10:15 Group E ₁	9:00-10:15 Group E ₄	9:00-10:15 Group E ₁		9:00-10:15 Group E ₃
10:45-12:00 Group E ₂		10:45-12:00 Group E ₂		
	1:00-1:15 Group E ₃			1:45-2:15
				2:30-3:30 Group E ₄

APPENDIX D
TOPICS USED TO STIMULATE
WRITING DURING THE TREATMENT
WRITING SESSIONS

TOPICS USED TO STIMULATE WRITING
DURING THE TREATMENT WRITING SESSIONS

All instructions were first given orally and then written on the blackboard. The pupils were encouraged to ask for clarification if required. The writing sessions followed the order of the topics as they are presented.

Narrative 1

The following instructions were given to the pupils:

"I would like you to write an adventure story. For example, you might write on 'Marooned on a Desert Island' or 'Lost in Space'.

The pupils were then asked to suggest their own titles. Some of the titles suggested were:

They Thought I was Dead.
The Hidden Cave.
The Devil's Triangle?
Lost at Sea.

They were then told that they could write on any topic they liked as long as they wrote an adventure story.

Narrative 2

The following instructions were given to the pupils:

"Write a story with someone or something invisible in it. Tell how the person or thing became invisible and what happened afterwards."

Narrative 3

The instructions for this session were:

"Write a story in which you change into someone or something else; for example, like Dr. Jekyll and Mr. Hyde. Tell about how you changed and what happened afterwards."

Expository 1

First the short narrative "Mr. Bell Invents the Telephone"¹ was read to the class. Then the following instructions were given:

"Try to imagine that you are able to go back in time about 200 years. Try to explain to someone who lived then about a few of our modern inventions such as cars, televisions, refrigerators. Explain what some of the things are used for and how they work."

Expository 2

The pupils were asked to suggest things they liked to do when they were allowed to do anything they wanted. Some of the activities suggested were:

Horseback Riding
Ski-dooing
Building Snowforts
Watching TV

The following instructions were then given:

"Write about one or more of the things that you really like to do. Explain what you do and why you like doing these things."

¹Katherine B. Shippen, "Mr. Bell Invents the Telephone", in Time for Biography, compiled by May Hill Arbuthnot and Dorothy M. Broderick (Glenview, Ill.: Scott Foreman and Company, 1969), pp. 115-16.

Expository 3

For this session, a number of pupils asked to write on some of the topics suggested for the previous session (Expository 2). This they were permitted to do. The other pupils were shown a series of coloured pictures of animals such as a skunk, a lion, and a hippopotamus. When questioned, the pupils agreed that these animals would make unusual pets. The pupils then suggested the following titles:

An Unusual Pet
My Favourite Animal

Descriptive 1

This list of "imaginary animals" was written on the blackboard:

grundiboob	zipperumpazoo
snuffelufagous	ookpik
jabberwocky	honkabeest
heffalump	squiqqlopolis
potamus	gariff
crankabeest	

The following instructions were then given:

"Imagine that you visited a zoo full of these strange animals. Describe three animals that you saw there. Tell what each one looks like, how it smells, the sound(s) it makes, how it moves, what it eats etc."

Descriptive 2

For this writing session, the pupils received these instructions:

"Imagine that you had a horrible dream in which you met a monster. This monster is the most horrible, scariest monster you have ever seen. Tell what the monster looks like, how it moves, how it smells, what it eats (perhaps it eats you!), and the sound(s) it makes."

Descriptive 3

The instructions for this session were:

"Describe two (or more) people whom you like. (You do not have to give their names if you don't want to.) Tell everything you can about each person - size, colour of hair, colour of eyes, anything unusual about his or her appearance, what he or she usually wears. Give as many details as possible. Last of all tell why you like each person."

Before the next writing session each child was encouraged to anonymously make a list of any topics he or she would like to write on but had not yet had the opportunity to do so. The remainder of the topics reflect the input of the pupils taking part in the study.

Narrative 4

Several coloured pictures portraying dangerous situations were shown to the class; for example, firemen fighting a fire, a spaceman blasting off into space.

The following instructions were then given:

"Write a story in which you or someone else gets into a dangerous situation. Tell how you get into this dangerous situation and how you escape (if you do). It could be about space, the future, meeting and fighting a wild animal or monster, diving underwater, fighting a fire, driving in a car race, almost drowning in a boat accident, being in an earthquake, etc."

Narrative 5

The instructions for this session were:

"Write a story beginning with one of the following sentences:

1. Hollywood at last! Here I was . . .
2. I was walking home one night from my friend's house when, suddenly, out of the night sky appeared . . .
3. As I was digging, my shovel unexpectedly hit . . .
4. Slowly, I approached the old tumbledown house when . . .

5. I could hardly believe my ears! I had won . . .
6. Today was the big day! I was going to . . ."

Narrative 6

For this session three incomplete sentences were given to the pupils. They were then asked to suggest some incomplete sentences of their own. The instructions for the session were the same as for Narrative 5.

Incomplete sentences suggested by teacher;

1. I had just gone to bed after watching the Chiller Movie, when I thought I heard . . .
2. The day had finally arrived! I was ____ years old . . .
3. I was feeling very nervous. How could I explain to my parents . . .

Some incomplete sentences suggested by pupils;

1. Suddenly the lights went out . . .
2. I saw my name in the newspaper . . .
3. The plane was just taking off when . . .

Expository 4

First, the pupils were asked to suggest any games, sports, hobbies, or activities that they enjoyed. Typical suggestions were hockey, crafts, badminton, Girl Guides.

These instructions were then given:

"Write about one or more games, sports, hobbies, or activities that you enjoy. Explain the following things:

Games, sports

number of players
equipment needed
rules of the game/sport
uniforms (if any)
how the game is played
group or individual

Hobbies, activities

equipment needed
group or individual
What is involved in your hobby
or activity?

Last of all, tell why you like the game, sport, hobby, or activity."

Expository 5

Each pupil made lists of likes and dislikes. From these they were asked to choose five likes and five dislikes.

The following instructions were then given:

"Some of the things I really like are . . .
Tell about five things you like and why you like them.

Some of the things I really don't like are . . .
Tell about five things you dislike and explain why you dislike them."

Expository 6

For this session two incomplete sentences were written on the blackboard and the pupils were asked to choose one as a topic. The incomplete sentences were:

1. I think young people should be allowed to . . .
2. If I could change anything in the world, I would change . . .

Descriptive 4

The pupils were asked to choose one of two topics;

1. The person I admire the most.
What does this person look like? What kinds of things does this person do that makes you think he or she is worth admiring?
2. The person I would like to be.
What would you look like? What kinds of things would you do?

The person you write about could be someone real or imagined. It could be someone you know, or have read about, or seen on TV or the movies.

Descriptive 5

A coloured slide of a street scene in a rural village in India was shown. The scene showed rather dilapidated buildings, several oxen pulling carts, pedestrians, and open air shops. The following instructions were given:

"Tell as much as you can about the picture. Describe the people, animals, and buildings."

Descriptive 6

The class was shown five large (2 feet x 3 feet) coloured pictures and asked to describe one. A description of each picture follows:

1. This picture depicted an open air shop in a city in Kenya. All kinds of clothing and other goods were for sale. Several people in western dress were buying articles.
2. This depicted a rural village in Kenya where several women in native dress were grinding cornmeal outside a thatched hut.
3. This was a scene of a school in Mexico in which a group of young boys were learning to box. The teacher was instructing two boys in the playground while the other boys crowded around.
4. In this picture a group of old and young Mexican men were mending fishing nets on a beach near their huts.
5. This showed the interior of a Mexican peasant home in which the family, consisting of a mother, an older son and a young daughter, were eating their lunch.

The pupils were asked to choose one picture and tell as much as they could about the picture.

SOURCES CONSULTED FOR THE TOPICS USED
DURING THE TREATMENT WRITING SESSIONS

- Carlson, Ruth Kearney. Sparkling Words: Two Hundred Practical and Creative Writing Ideas. Berkeley, California: Wagner Printing Company, 1965.
- _____. Writing Aids Through the Grades. New York: Teachers' College Press, 1970.
- Gerbrandt, Gary L. An Idea Book for Acting Out and Writing Language K-8. n.p. National Council of Teachers of English, 1974.
- Hennings, Dorothy Grant, and Grant, Barbara M. Content and Craft; Written Expression in the Elementary School. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1973.
- Petty, Walter T., and Bowen, Mary E. Slithery Snakes and Other Aids to Children's Writing. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967.
- Shippen, Katherine B. "Mr. Bell Invents the Telephone". In Time for Biography, pp. 115-16. Compiled by May Hill Arbuthnot and Dorothy M. Broderick. Glenview, Ill.: Scott Foresman and Company, 1969.

APPENDIX E
INTERVIEW QUESTIONS

INTERVIEW QUESTIONS

The pupils interviewed were asked the same basic questions.

1(a) (For the silent reading groups.)

What did you think you were supposed to do when you were given the instructions, "Read over your story silently to make sure that it says what you wanted to say. You can make any changes to the words or sentences that you want to or think are necessary"?

1(b) (For the oral reading groups.)

What did you think you were supposed to do when you were given the instructions, "Read over your story orally to make sure that it says what you wanted to say. You can make any changes to the words or sentences that you want to or think are necessary"?

2(a) (For pupils who made a lot of changes.)

I noticed that you (almost) always made changes to your writing after reading it over. Why did you do that?

2(b) (For pupils who made few changes or none at all.)

I noticed that you (almost) never made changes to your writing after reading it over. Why did you do that?

2(c) (For pupils with no consistent pattern of changes.)

I noticed that sometimes you made changes to your writing after reading it over, and sometimes you didn't. Why did you do that?

3 (For pupils who made changes.)

What kinds of things did you change the most?

4(a) (For the silent reading groups.)

Why do you think you were asked to read your stories silently instead of orally? Would it have made any difference to have read them orally?

4(b) (For the oral reading groups.)

Why do you think you were asked to read your stories

orally instead of silently? Would it have made any difference to have read them silently?

5(a) (For the immediate reading groups.)

Why do you think you were asked to read over your stories immediately after writing them? You could have read them a week later.

5(b) (For the delayed reading groups.)

Why do you think you were asked to read over your stories a week after you wrote them? You could have read them immediately after writing them.

6 Have you ever read over your stories at times besides when you were writing for me?