

THE EFFECT OF STORY GRAMMAR INSTRUCTION ON RECALL, ACHIEVEMENT
AND COMPREHENSION OF GRADE TWO CHILDREN

by

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B.Ed., The University of British Columbia, 1976

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES
(Department Of Education)

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

September 1983

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Abstract

This study was designed to test the effect of story grammar instruction on the unprompted recall, prompted recall, reading achievement, and comprehension of 165 Grade 2 students in 9 different classes within the Catholic School System. Classes were randomly assigned to one of three conditions: story grammar instruction (based on story structure) modified reading instruction (researcher designed) or regular reading instruction (classroom teacher's method). Pretests for vocabulary, recall and reading achievement were administered and data were collected on age, sex, socioeconomic status and language skills. Reading programs, including ability groupings, reading material, word skills and vocabulary instruction were altered as little as possible in an attempt to preserve usual classroom routines. Researcher designed seatwork activities were given to the story grammar and modified reading groups to help the researcher monitor the story grammar method and maintain the equality of researcher intervention between story grammar and modified reading. The study continued for eleven weeks.

Analysis of covariance, used to test the effect of method, class (nested within method) and sex showed no significant effects for any posttest due to method. However, for the Unprompted Recall test, girls scored significantly higher than boys. Further analyses of covariance, testing the effect of method, class (nested within method) and ability, again indicated no significant main effects for method. However,

ability was significant in each posttest with good readers scoring higher than poor readers. In addition, method interacted with ability for the Prompted Recall Detail posttest, indicating that poor readers receiving story grammar instruction scored significantly lower than good readers in any of the three methods. In contrast, poor readers receiving modified or regular reading did not have a score significantly different from good readers. Method again interacted with ability for the Achievement posttest. Poor readers receiving either story grammar or modified reading instruction scored significantly lower than good readers in any of the three methods. In contrast, poor readers receiving regular reading did not have a score significantly different from good readers. These results differ from those found in previous studies and therefore cannot provide support for story grammar instruction with Grade 2 students.

This study concludes with a discussion of the variables within the study design which may have adversely affected the results. Recommendations for refinements in study design to control for these factors are made.

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Acknowledgement

I would like to acknowledge the help and support of a number of people who made this project possible. I want to thank my advisor, Dr. F. Pieronek, for her encouragement and dedication. Thanks also to my committee members, Dr. J. Catterson and Dr. L. Gunderson, for their advice and involvement.

Thanks to the Catholic School System and the principals of the nine participating schools. My most sincere and heartfelt thanks must be for the nine teachers who allowed me to work with them and their students. These teachers devoted their time and energy as well as sharing their ideas and concerns. Three teachers from the Richmond School District and two teachers from the Vancouver School District are given my thanks for their contribution of pilot classes for the researcher designed tests.

Both Dr. T. Rogers and B. Prosser must be acknowledged for their generous contribution and guidance in the areas of measurement, design and statistical analysis. My thanks as well to a friend, P. White, who acted as a marker to check the interrater reliability of the researcher designed tests.

There are two people who deserve much credit for their involvement. My mother and mother-in-law provided love and support in caring for my baby during this project. Lastly, I want to thank my husband and my baby for giving me the time and opportunity to complete my thesis.

I. INTRODUCTION

Rationale of the Study

Story grammar instruction is receiving increasing attention in the literature on reading comprehension (McCrae, 1982; Singer & Dreher, 1980; Spiegel & Whaley, 1980; Whaley, 1981). Most of the studies done indicate that students benefit from this approach to teaching reading comprehension (Chodos & Mosenthal, 1978; Gordon, 1980; McCrae, 1982; Spiegel & Whaley, 1980). However, one study had negative results, and specific areas of weakness noted in the remaining research may affect the generalizability of story grammar instruction to all ages of children in regular classrooms. There seems to be a need for further research that attempts to overcome the weaknesses noted. These weaknesses and possible corrective actions are discussed in the following paragraphs.

One weakness that may be important is that the research samples were small and mainly represented students in the intermediate grades. New research should draw a sample from the primary grades and increase the number of students in each of the research programs.

A second weakness is reflected in the fact that most experimental programs had been implemented for only short lengths of time. Any new program should be taught for a longer period.

A third weakness in previous research is that some of the techniques or materials for teaching the experimental group trained a skill similar or identical to that measured by the posttest(s). The tests in new research should measure a skill significantly different from that trained by the experimental program.

A fourth weakness identified in the research is that the materials used for teaching reading were often short in length, contrived, or taken from sources other than the usual classroom materials available. New research should utilize the classroom reading material available to teachers.

A fifth weakness that may be important is that the researcher taught the experimental and control groups, therefore introducing bias into the results. Further research should employ the skills of the classroom teachers who are responsible for reading instruction.

A sixth weakness that was identified involved the amount of interaction between the teacher and the students. It appears that the experimental and control programs differed in the amount of interaction required between the teacher and the students. New research should require a similar amount of teacher-student interaction in both the experimental and control programs.

The last weakness is reflected in the fact that the level of interest of some programs was higher for the experimental method than for the control method. Any new method should control the level of interest so that it is the same for both the experimental and control groups.

It was proposed that a study be done that would attempt to correct the weaknesses described on the basis suggested.

Purpose of the Study

The purpose of the study was to investigate the effectiveness of story grammar instruction based on a modification of Gordon's grammar (1980) with Grade 2 students. Specifically, the questions to be answered were:

- a. Will story grammar instruction result in better unprompted written recall for Grade 2 students than modified reading instruction or regular reading instruction?
- b. Will story grammar instruction result in better prompted written recall for Grade 2 students than modified reading instruction or regular reading instruction?
- c. Will story grammar instruction result in better achievement for Grade 2 students than modified reading instruction or regular reading instruction?

- d. Will story grammar instruction result in better reading comprehension for Grade 2 students than modified reading instruction or regular reading instruction?
- e. Will story grammar instruction result in a difference in unprompted written recall for good or poor readers than modified reading instruction or regular reading instruction?
- f. Will story grammar instruction result in a difference for prompted written recall for good or poor readers than modified reading instruction or regular reading instruction?
- g. Will story grammar instruction result in a difference in reading achievement for good or poor readers than modified reading instruction or regular reading instruction?
- h. Will story grammar instruction result in a difference in reading comprehension for good or poor readers than modified reading instruction or regular reading instruction?

Limitations of the Study

There are several limitations to the study. Firstly, random sampling was not possible as class members were determined by the school district.

Secondly, the use of Grade 2 students as subjects prevented the results from being generalized to older or younger students.

A third limitation resulted from the fact that the teachers in the program volunteered their classrooms, therefore their motivation to participate may have affected the results.

A final limitation falls in the area of measurement. The researcher designed tests were not subjected to tests of validity or reliability and the Stanford Reading Achievement Test was not standardized on a Canadian Population.

Definition of Terms

A number of terms used throughout this paper are defined to provide a general understanding of the study. These are defined below.

Story Grammar

Story grammar was defined as a modification of Gordon's (Gordon, 1980) story grammar. Chart 1 presents a comparison between the Gordon story grammar and the modification of that grammar, the Melnyk grammar.

Chart 1 - Comparison of the Gordon and Melnyk Story Grammars

<u>Gordon Story Grammar</u>		<u>Melnyk Story Grammar</u>	
<u>SETTING</u>	Time, place, characters	<u>SETTING</u>	Time, place, characters
<u>THEME</u>	Goal of main character OR Author's purpose for writing story	<u>GOAL</u>	Main goal of main character
<u>PLOT</u>	Episodes 1, 2, 3 ...	<u>PLOT</u>	Happenings 1, 2, 3 ...
<u>Starter Event</u>	Beginning of the episode	<u>Beginning</u>	Beginning of a happening
<u>Inner Response</u>	Emotion, cognition, plan or sub-goal of character	<u>Goal</u>	Sub-goal of a character
<u>Action</u>	Effort to achieve goal	<u>Try</u>	Effort to achieve goal
<u>What Happens</u>	Outcome; success or failure of action	<u>Result</u>	Outcome of Try
<u>Reaction</u>	Character's response to outcome		
<u>RESOLUTION</u>	Final result of the story OR response of the main character to the final state of affairs	<u>ENDING</u>	Final result of the story

As the chart shows, Gordon's original story grammar is shown, as well as Melnyk's modifications to her grammar. Gordon's main categories were modified by relabelling the theme as the goal, and the resolution as the ending. The definition of the goal was simplified by making it the main goal of the main character, instead of the author's purpose in writing the story. Gordon's subcategories were modified by relabelling the episodes as the happenings, the starter event as the beginning, the inner response as the goal, the action as the try, and the outcome (what happens) as the result. The reaction subcategory was completely eliminated.

Story Grammar Instruction

Story grammar instruction was defined as instruction in which children were: a) given specific information about story categories (see Melnyk's grammar - Chart 1), and b) given practice in analyzing the stories of their regular reading program into the designated categories. This instruction constituted a partial substitution for their regular instruction in reading. It was provided both through oral instruction by the teacher (see Appendix A, pages 91 - 93) and specially structured seatwork exercises called Macro-cloze, Story Outline, Reordering Categories, Category Questions, and Incorrect Category (see Appendix A, pages 98 - 100).

Modified Reading Instruction

Modified reading instruction (MRI) is defined as regular reading instruction modified by the addition of instruction in sequencing, detail, inference, cause and effect, comparison and contrast, characterization and pronoun reference. Ideas for teaching these skills as well as seatwork activities for reinforcement were supplied by the researcher.

Regular Reading Instruction

Regular reading instruction (RRI) is defined as the teachers' customary classroom techniques for teaching reading comprehension.

Unprompted Written Recall

For the purposes of the study, recall is defined as a form of comprehension consisting of an unprompted written account of information of factual or inferential type remembered after reading a simple narrative story, and measured by researcher designed tests.

Prompted Written Recall - Detail

This is defined as a prompted written response of the short answer type, eliciting factual information remembered after reading a story and measured by a researcher designed test.

Prompted Written Recall - Inference

This is defined as a prompted written response of the short answer type, eliciting inferential information remembered after reading a story and measured by a researcher designed test.

Comprehension - Detail

This is defined as written responses of the short answer type eliciting factual information after reading a short story and with the text available. This was measured by a researcher designed test.

Comprehension - Inference

This is defined as written responses of the short answer type eliciting inferential information after reading a short story and with the text available. This was measured by a researcher designed test.

Reading Achievement

This is defined as the total reading comprehension score as measured by the Stanford Reading Achievement Test, Primary Level 2, Form B.

Good Readers

Reading ability was measured by the Canadian Test of Basic Skills, Level 7. The test manual gave the grade equivalent for a three month time span from December to March as 2.5, which was too high for a December testing. The 50th percentile for a

December testing was then assigned the grade equivalent of 2.3. This grade equivalent score matched a raw score of 54. Therefore good readers were defined as students who had a raw score of 54 or above on the Canadian Test of Basic Skills.

Poor Readers

Poor readers were defined as students who had scores below the raw score of 54 on the Canadian Test of Basic Skills.

Organization of the Paper

Chapter II provides a review of the story grammar literature. In Chapter III, the study design is described. The results, the discussion of the results and the conclusions and implications of the study are included in Chapter IV.

II. REVIEW OF THE LITERATURE

This chapter presents a literature review that focusses on story grammar theory and story grammar instruction. In the first section of the literature review, the research on story grammar theory is presented in relation to several of the well supported generalizations about story grammar. In the second section, results of research studies in story grammar instruction will be summarized. Finally, an analysis of story grammar instruction research is presented in the third section, providing the purpose for the present study.

Research Related to Story Grammar Theory

Story grammars are written, language-based representations of the hypothesized cognitive structures called story schemata. This written structure enables researchers to experiment and draw conclusions about comprehension of narrative prose. Several different story grammars have been developed (Mandler & Johnson, 1977; Rumelhart, 1977; Stein & Glenn, 1979; Thorndyke, 1977). Although there exist some differences between the various story grammars, Nezworski, Stein & Trabasso state that "the similarities are more common".

The following generalizations about story grammars have been supported by the various studies reported in the literature.

1. Readers and/or listeners have certain expectations to which a story should conform (Mandler & Johnson, 1977; Mandler & Goodman, 1982; Thorndyke, 1977).

3. Expectations based on the story schema are evident in both adults and children. Although there are some effects on recall due to age, studies confirm that all ages have an understanding of story structure (Mandler & Johnson, 1977; Stein & Glenn, 1979; Stein & Glenn, 1982; Whaley, 1981a).

4. Certain story categories are remembered better than others. In much of the literature this is thought to result from the hierarchical nature of story grammars (Guthrie, 1977; Kintch & Keenan, 1973; Stein & Glenn, 1979; Thorndyke, 1977).

5. Poorly structured or unstructured stories will be given a more typical structure when recalled (Mandler & Johnson, 1977; Rumelhart, 1977; Thorndyke, 1977).

These generalizations and the related research are discussed under the following headings: Expectations For Story Structure, Maturation and Story Grammar, Category Saliency and Atypical Structure and Recall.

Expectations For Story Structure

It is generally accepted that adults and children have certain expectations to which stories should conform. These expectations are used during reading to organize information. If stories do not conform to the schemata, then readers will

encounter difficulty remembering.

Thorndyke (1977) studied this effect with adults, who either read or listened to a story that was written with four different grammar structures (the structures became progressively less comprehensible). Thorndyke rewrote a story by moving the theme category from its usual place. The result was a NORMAL story (the theme in the correct place), an AFTER THEME story (the theme at the end of the story), a NO THEME (theme omitted from the story), and a RANDOM story (all the grammar categories rearranged). As the story structure became less typical, subjects had difficulty remembering story events. Subjects were confused when stories did not follow the typical story pattern.

Whaley (1981a) studied students in grades 3,5 and 11. Subjects read unfinished stories and predicted endings. They also completed macro-cloze tasks in which specific story categories (setting, goal, attempts) were missing. The hypothesis that readers expect certain structures was supported.

In a recent study by Mandler and Goodman (1982), the psychological validity of story structure was tested. The purpose of the research was to discover the degree to which story categories influence text processing. Mandler and Goodman hypothesized that reading rate should be slower when processing the propositions from the beginning of a category than when reading the additional information within that category. For the study, highly structured stories with two sentences per

story category were constructed such that each sentence had ten words, and contained the same number of letters, pronoun references within each category were the same for each of the sentences and there were no causal or temporal connectives between categories. The 16 undergraduates participating in the study controlled their own rate of reading by pressing a control button on a computer. The computer recorded reading rate for each sentence. Results indicated that processing time was decreased when students read information from the beginning of a category when compared to reading the additional information within that category. The authors state that these findings provide support for the psychological validity of story grammars.

Maturation and Story Grammar

A number of studies have shown that the story recalls of children as young as five have a basic story structure. Baker and Stein (1981) report that these findings have clarified the work of Piaget (1926), who found that young children often confused the logical sequence when retelling stories. In citing Piaget's work, Baker and Stein infer that Piaget used stories inappropriate for young children due to their length and complexity. However, it appears that some developmental differences with respect to story schema do exist. Adults recall more information than older children who recall more than younger children.

In 1979, Stein and Glenn conducted a study that involved 24

first and 24 fifth grade students who listened to four different stories and then gave oral recalls. They found that Grade 5 children recalled significantly more than Grade 1 children. In addition, the fifth graders also recalled more internal responses (goals) than the first graders.

Mandler and Johnson (1977) analyzed the oral recall protocols from Grade 1, Grade 4, and university students who had listened to two simple stories. They found that the Grade 1 subjects recalled settings, initiating events and outcomes; the Grade 4 subjects recalled settings, initiating events, outcomes, attempts and endings; the University subjects recalled all of these categories plus causes and internal responses. Generally, it was concluded that the older the subject, the more complete the recall.

Age is also a factor in ability to recall illogically or poorly structured stories. Recall is decreased more in younger children than in older children or adults when the story structure does not adhere to that of a typical story grammar. In 1982, Stein and Glenn conducted a study that endeavored to find the reactions of 20 Grade 2 and 20 Grade 6 students to disorganized text. Each story was written in two versions: one with a typical story structure and one with an atypical structure (no temporal markers, no pronoun references at the beginning of sentences, and verbs in the past tense). Each sentence of the story was typed on a separate strip of paper and presented randomly to each child. The subjects' task was to

reorder the strips to make a good story. Results revealed that Grade 6 students were significantly better than Grade 2 students at ordering the atypical story into a story grammar structure.

Similarly, Baker and Stein (1981) cite work by Stein (1976) which "demonstrated developmental differences in the strategies children use to deal with disruptions in logical structure" (p.21). Generally, it was found that the story recalls of the older students more closely resembled a story with a typical grammar structure.

A third developmental difference in story structure knowledge is illustrated when children are asked to tell a story. Baker and Stein (1981) cite a study by Stein (1977) in which Kindergartners and third and fifth graders were asked to produce a story after listening to a story setting. The children's stories were rated according to their resemblance to a traditional story structure. It was found that:

The more sophisticated structures were characterized by their inclusion of purposive behaviors and increasingly well-specified motives and goals....there was a clear developmental progression in the logical complexity of the stories, presumably reflecting increasing knowledge of the constituents of a well-formed story. (p.33)

A further study of story production by children in Kindergarten, Grade 3 and Grade 6 was undertaken by Stein and Glenn in 1982. In their study children listened to three different settings for a story and were then asked to finish the story. The children's stories often resembled the basic story structure called a TRY

as outlined by Rumelhart (1977). The TRY episode contains a main character, his goal, his attempt to obtain the goal and the outcome of the attempt. Only fifty percent of all the Kindergartners told stories with TRY episodes, while 72% of the Grade 3 students and 78% of the Grade 6 students told stories with this structure. Results from the study show the development of the story structure concept from younger to older children. Clearly, it appears children have a basic understanding of story structure which becomes more complex over time.

Memory for Categories

Generally it is believed that the information in certain story categories is better remembered than the information in other story categories. Story category is a good predictor of the information that will be recalled. Some researchers believe that the categories that are better remembered are those that are located highest in the hierarchical story grammar structure (Thorndyke, 1977).

Thorndyke (1977) studied subjects' recall for propositions at different levels of a story. Sixty-four undergraduates at Stanford University read or listened to a highly structured story and then gave a written recall. Thorndyke found that "the hierarchical relationships among propositions resulting from structural analysis of plot were a strong determinant of recall." (p.89).

In a review of story grammar literature, Rumelhart (1977) presented a problem-solving schema for stories which he called a TRY. Based on his research he maintained that the information related to the main character's main goal is at a higher level in the story structure than the information related to subgoals. This again supports the theory that recall is related to the hierarchical nature of story grammars.

However, Stein and Glenn (1979) reported on a study in which 24 first and fifth grade students listened to simple stories and gave oral recalls. A careful analysis of the protocols revealed that certain categories were more memorable than others. Stein and Glenn state that:

This consistency in recall demonstrates that specific items clearly differ in terms of their importance in the organization and production of story material.
(p. 98)

It should be noted that Stein and Glenn do not make any direct statements about the height of the categories in the story structure or the relationship between recall and the hierarchical structure of story grammars. Stein and Glenn were interested in the students' memory for the seven categories in the experimental stories. They found that in all four stories, the categories differed in the degree to which they were remembered. Stein and Glenn use the term salience to describe this finding. They found that the salience of each category was consistent for each story and both grade levels, showing that category is the important factor in recall, not the height of

the information in the story structure.

It appears that the distinction between category saliency and category height may be important. In a review of story grammar literature in 1982, Stein outlines her objections to the theory that the information highest in the story structure hierarchy will be better recalled than information at a lower level. She states that the difficulties with this theory are:

1. There are no differences in these theories about events that will be encoded, represented in memory, or recalled. Different processes may be operating for these three facets of text comprehension.

2. There is no method to specify which goal is the most important. Each reader might choose a different goal and therefore a different story structure would result.

3. The causal relationships between events often determines the events' importance in the hierarchy. However, criteria for determining causal relations is not fully developed and too dependent on individual researchers.

On the other hand, in a study by Nezworski, Stein and Trabasso (1982) it would appear that these authors (including Stein) are giving support to the notion that height in the story structure affects recall. Nezworski et al investigated the effect of controlling the semantic content of story categories on recall. The authors cite work by Rumelhart (1977) supporting the notion of the TRY schema in which the main goal, attempt and

outcome are better remembered when they are high in the hierarchy. In designing the study, the authors wrote a typically structured story with a setting and one episode (initiating event, internal response, etc.). The story is about a woman who wants to get a tiger's whisker. There is no reason given in the story for this wish. The authors then constructed extra information for each category that would allow the inference that the woman needs the whisker to make medicine for her sick husband. This extra information could be inserted as an addition into any of the categories in the original story and provide the reader with the necessary information to make the inference. The information in each of these additional categories was written to conform to that category, but all of the categories contained the same content: the sick husband needed medicine.

The authors hypothesized that an event directly related to the main (superordinate) goal would be remembered better than others not as directly related. Specifically, the information allowing the inference about the woman's main goal would be most easily recalled and would not be dependent on the category. There should be no difference "in the frequency of recalling the added information in any of the five altered versions of the stories" (p. 199). However, if recall is dependent on category, then the patterns of category recall found in previous studies would occur. Certain categories would be better remembered than other categories irrespective of the added information.

Children from Kindergarten and Grade 3 participated in the study. There were 72 boys and 72 girls at each grade level. These subjects were assigned to story versions with an equal number of boys and girls for each version. Each subject was tested individually. The children listened to the story and completed four tasks including a verbal recall. Results indicated that the added information relating to the superordinate goal was well recalled. Recall of this information was not related to the category in which it was placed. These findings are different from previous research in which recall appeared to depend on category. The pattern of recall of categories found in previous studies was not supported. The authors state:

In our view, knowledge of human intentionality overrides structural considerations when it comes to comprehension; structural factors...play an important role in the organization and retrieval of discourse information. (p. 206)

Atypical Structure and Recall

Researchers have found that stories which are unstructured or poorly structured will be changed and given a structure more familiar to the individual when recalled. Mandler and Johnson (1977) discuss their story grammar and its implications for recall. The authors state that "the more a story conforms to an ideal structure, the better the recall will be" (p. 132). In their study of recall with Grade 1, Grade 4, and university

subjects, they noted that recall for one of the four experimental stories was definitely poorer as a result of less structure and more ambiguity in that story.

Story Grammar Instruction

Few studies have measured the effectiveness of story grammar instruction on comprehension. Of the eight studies found in the literature, seven reported positive results from teaching story grammar and one study found no positive effects. The studies showing a beneficial effect from story grammar instruction are discussed below chronologically and followed by the one study showing no effect.

The earliest of the seven studies that reported positive results was one conducted by Spiegel and Whaley (1980) who studied the effects of story grammar instruction with 20 Grade 4 students. These subjects were selected from a pool of 50 students on the basis of low scores on a pretest for story structure knowledge. Subjects were randomly assigned to an experimental or control group, with each group receiving six 30-45 minute sessions. The experimental group had lessons in macro-cloze technique (omission of story categories) and in reordering scrambled stories. The control group had lessons in dictionary usage and were required to read the same stories as the experimental group. Post-tests for story structure and comprehension showed the experimental group did significantly better on both measures indicating that instruction had improved the story concept and reading comprehension of students with

poor prior story schemata.

In a study by Gordon (1980), there were two experimental groups: one group received instruction in story grammar and story content, the other in inferencing. However, for the purposes of this paper, only the experimental group receiving story grammar instruction is discussed. The subjects were 42 Grade 5 students from a non-professional lower middle class area. The top 50 percent of the students in three different classes (as determined by the classroom teachers) were chosen to participate in the study and were randomly assigned to the experimental and control groups. All students were reading material from the same basal reader. Each group received instruction for 30 minutes a day for eight weeks. The lessons differed only during the first ten minutes; the subsequent twenty minutes were the same for each group. The experimental group was taught to be aware of the techniques used in understanding narrative and were therefore involved in metacomprehension. The results of numerous post-tests indicated that the experimental group did significantly better than the control group on a test of written recall. Specifically, this group remembered four story categories better than the control subjects. These were: minor settings, initiating events, reactions and resolutions. However, results obtained from a standardized reading comprehension test showed no significant effects from treatment.

Bowman and Gambrell (1981) studied the effects of story

structure questioning on 100 Grade 6 students with a reading level between Grade 3.0 and Grade 9.0. The children who were divided into good readers (level 7.5 - 9.0), average readers (level 5.0 - 7.0), and poor readers (level 3.0 - 4.5) and randomly assigned to the experimental or control group. Each subject had at least three or four training sessions before the posttest.

In the study, the experimental subjects were taught the parts of a schema using a chart. After reading a story, they filled in a chart and answered six schema-based questions. The control subjects were taught the differences between literal, inferential and problem-solving questions with the aid of a chart. They then read a story, completed a chart and answered six questions (three literal, two inferential, and one problem-solving). Results of a free recall test showed no significant difference between the groups. However on a cued recall task, the story structure group did significantly better than the control group.

McCrae (1982) conducted a study with 44 Grade 5 students divided into two classes, an experimental and a control group. Each class received five hours of instruction: the experimental group learned and used a story grammar technique while the control group read the same stories and answered traditional comprehension questions. The stories used were short fables. Post-test results indicated that the experimental group had significantly higher scores on a recall task in which they read

a story and produced a written recall.

Nelson (1982) studied the effect of story grammar instruction with 78 children in Grade 1. The students from three different schools were randomly assigned to story grammar instruction or regular reading instruction. All instruction was done by the classroom teacher. Both groups read the same stories during the five weeks of the study: five stories from the prescribed basal reader and seven stories from a different reader. The experimental group was instructed with the story grammar three days a week for 30 minute sessions. On the first day, the children listened to the teacher read the story, responded to five story grammar questions, and completed a group outline chart. For the second day, small groups of children completed their own story grammar outline charts. On the third day, the children participated in another activity such as macro-cloze, prediction or reordering scrambled stories.

Post-test results indicated that the experimental group obtained significantly better scores on the comprehension subtests of two different standardized reading tests, on a researcher designed multiple choice question test and on a free oral recall task.

A study by Singer and Donlan (1982), was based on story structure questioning. One of the researchers taught reading to 29 Grade 11 students who were randomly assigned to a control or experimental group. Both groups had two 60 minute lessons a week for three weeks. At each session, both groups were given

the story background as well as a vocabulary review. Then each student listened to a recording of the story while following on a copy. Halfway through the story, the experimental group were asked to pose three questions they would like to have answered. The control group were given three questions by the researcher. The story was then finished. At this point, the control group wrote an essay based on the story, while the experimental group discussed story elements based on a story grammar structure stressing problem-solving. These students were taught the schema and shown how to generate specific story questions based on a general question outline for a story schema. Each group answered ten multiple choice questions based on the elements of the story after each reading session. These quizzes were analyzed at the end of the study, and there were no significant differences between the two groups on the first two tests. However, the experimental group performed significantly better on the last four quizzes than the control group.

The study by Beck, Omanson and McKeown (1982) is based on Omanson's centrality theory. A brief review of centrality theory is given before a discussion of the study by Beck et al. This review shows the relationship between centrality theory and story grammar, thereby providing the purpose for including a study based on centrality theory in a review of research in story grammar instruction.

In 1982, Omanson discussed an analysis for narratives in which the reader is searching for text to explain the action(s)

of the main character(s). Omanson's theory of centrality hypothesizes that central units are recalled better than distractive units. Omanson states that his centrality theory differs from story grammars in two main ways: the size of the unit of analysis (clauses versus categories) and the type of processing (data-driven versus schema-driven).

Mandler (1982) and Stein (1982) reviewed the centrality theory proposed by Omanson. Mandler states that centrality text analysis is similar to a story grammar analysis. The basic assumptions that narrative resembles real-life and that knowledge of social actions guides understanding are assumptions basic to story grammar theory as well.

In 1982 Stein also reviewed Omanson's centrality theory and found it almost identical to story grammar theory except the units were not given labels. It appears likely that centrality theory is closely related to story grammar theory, thus making instruction based on centrality theory of interest in a review of story grammar instruction research.

Beck et al studied the effect of instruction based on the assumption that the reading lesson should focus on story content and the readers background knowledge should be activated before reading. Materials for this study were taken from the Ginn 720 program, Level 8 (one story) and Level 7 (one story). The control group received the lesson as directed by the teacher's manual for the program. However, the experimental group received a modified version of the lesson. The lessons were

changed in four ways: the background knowledge, the pictures, the question for pre-reading each silent reading unit, and the questions posed at the end of each silent reading unit. For example, when presenting the background knowledge in the Level 7 story about a raccoon, the regular lesson stresses discussing raccoons as playful. The modified version focusses on habitual behavior and coincidences which are necessary for understanding the story. For the pre and post questions, the regular lesson used poorly focussed or general knowledge questions - the central story line was not emphasized. However, the revised questions were written to highlight central story content. Pictures in the regular stories tended to be cartoonish, and were redrawn for the modified stories to be more lifelike.

Based on results of a standardized reading test, the forty-eight Grade 3 children (low socioeconomic status, 75% black) involved in the study were divided into two groups of 24 skilled readers and 24 less skilled readers. Half of each of these groups were given the regular Ginn 720 lesson, and the other half were given the modified lesson. The skilled group read the story from Level 8, while the less skilled group read the Level 7 story. Each child was taught individually, with the examiner reading the story while the child followed on a copy. A free recall test and then a 35 forced-choice question test were given. Results revealed that the modified group recalled significantly more than the Ginn 720 group and answered significantly more questions.

The seven studies described all showed beneficial results from SGI, when compared to other instructional methods, on some aspect of reading comprehension. A pooling of the results indicates that in at least one instance, students receiving SGI performed significantly better in tasks of unprompted recall, prompted recall, story structure knowledge, comprehension questions, and standardized reading achievement.

The one study reporting no positive effects from story grammar instruction was conducted by Singer and Dreher (1980). This study indicated there were no significant differences between scores on written recalls by subjects receiving story grammar instruction and subjects in a control group. The subjects were 28 Grade 5 students randomly assigned to three treatment groups: story grammar, reading stories, or extra social studies (watching films and listening to commentary). The groups were all involved in three 45 minute lessons. The results showed only that good readers recalled more than poor readers in each group.

Analysis of Story Grammar Instruction Research

The results reported in the literature are somewhat encouraging. Most of the studies report positive effects on reading recall or comprehension when students are instructed with a story grammar technique. Singer and Dreher (1980) found no difference. Unfortunately, it may be premature to accept the positive results as there are not sufficient studies to indicate that story grammar instruction is beneficial in all situations.

Furthermore, there are a number of weaknesses within the studies that can be criticized, challenging the validity of the reported results. There are seven areas for concern that justify the need for further research. These will be reviewed in relationship to the nine studies. The areas for discussion are:

- a. Samples
- b. Duration of the studies
- c. Materials used for teaching
- d. Teachers
- e. Interaction with students
- f. Novelty of the program
- g. Measurement

Each design weakness will be defined and then illustrated with examples from the research.

Samples

With the exception of the studies by Nelson (1982) and Beck, Omanson, and McKeown (1982), the research drew samples from the intermediate grades. This limits the generalizability of the results to intermediate grade students. Although Nelson drew her sample from Grade 1, the instructional techniques and recall post-test were oral, and did not require the children to read. Similarly, Beck et al drew a sample from Grade 3 but the instruction and posttesting were oral. There is a possibility that story grammar instruction will affect reading and writing differently from listening and speaking.

The limited sample sizes also affect the strength of the conclusions. With the exception of the studies by Nelson (1982) and Bowman and Gambrell (1981), the number of subjects participating in each treatment group was less than 25 (the exact number of students in each group in each study was: 7, 10, 12, 14, 15, and 22).

Duration of the Studies

With the exception of Gordon (1980) and Nelson (1982), the other seven studies were limited in respect to time on task and the length of time allowed for students to integrate this new knowledge. In the classroom some concepts or facts require repetition and review, especially with younger students. Teachers need to know if the effect of story grammar instruction will improve with longer exposure, or if a week of lessons is sufficient.

Materials Used For Teaching

There are two concerns about the materials employed in four of the eight studies (McCrae, 1981; Singer & Dreher, 1980; Spiegel & Whaley, 1980). Firstly, no attempt was made to match the experimental reading material with the reading levels of all the subjects. Secondly, the material was unusually short, or contrived, or taken from sources other than the student's usual reading material. In order to generalize the research results to the classroom, the studies must show that students can apply this knowledge to their usual reading material at their own

level.

Teachers

In some studies, it appears that the researcher taught the experimental and control groups (Gordon, 1980; McCrae, 1982). This aspect of many of the studies was not clearly discussed. However, after carefully analyzing the studies, it seems likely that the researcher was often involved as the teacher. When the researcher teaches both programs, there is a likelihood that results are contaminated because of the researcher's interest in the experimental program. It is also possible that his/her bias may influence the results, thus weakening the internal validity of the study.

Interaction with Students

The amount of interaction between the teacher and students may influence study results. In some of the studies (McCrae, 1982; Singer & Donlan, 1982; Singer & Dreher, 1980) it appears that the experimental program required more direct questioning and interaction by the teacher. For example, in the study by McCrae (1982), the experimental group rearranged paper strips printed with the story categories as seatwork, while the control group answered traditional comprehension questions. It may be that the experimental subjects were engaged in a task that is not often used for comprehension seatwork and therefore may have needed more direction, while the control subjects answered questions that are usually given as seatwork and probably

required little or no direction.

Novelty of the Program

Perhaps each new program implemented by a teacher is perceived by the students as different and more interesting. Many of the studies (McCrae, 1982; Singer & Donlan, 1982; Singer & Dreher, 1980; Spiegel & Whaley, 1980) employed experimental designs in which the experimental programs appear substantially different from the control programs. These differences might be in the type of seatwork assigned (cutting out and arranging paper strips versus writing answers to questions), or the interest level of the tasks (reordering scrambled stories versus dictionary usage). For example, in a study by Spiegel and Whaley (1980), the experimental subjects completed macro-cloze exercises while the control subjects had lessons in dictionary usage. It may be that macro-cloze is an exercise that was new and different whereas dictionary usage would be a more familiar exercise.

Measurement

The last weakness in the study designs is in the area of measurement. In the studies by Spiegel and Whaley (1980), Singer and Donlan (1982), Bowman and Gambrell (1981), and Beck et al (1982) the posttests were often similar to or identical to the training materials and techniques. The influence of this factor is difficult to assess because of the lack of description of the programs and/or posttests in the studies. However, if in

fact the experimental program is providing training in the skill needed to complete the posttests, then naturally the experimental group should perform significantly better.

Summary

The literature review highlighted research results from the areas of story grammar theory and story grammar instruction. Criticisms of the instructional study designs were reviewed as well.

Theorists in the area of cognitive psychology have developed several generalizations about story grammar theory. These generalizations provide the basic information underlying schema theory. Researchers continue to test these generalizations as seen in the study by Mandler and Goodman (1982) on the readers' expectations for story structure and the study by Nezworski et al (1982) on the influence of the height of the story information on recall.

Eight studies assessing the effect of story grammar instruction on recall or reading comprehension were reviewed and criticized. Positive results were reported in seven of the studies while no results were reported in one. When the study designs were critically analyzed, several weaknesses were found. Factors that needed more control included sample sizes, length of programs, materials for teaching, interest of the instructor, degree of instructor-subject interaction, novelty of the program and degree of match between the program and posttests.

III. DESIGN OF THE STUDY

Chapter 3 describes the study design. This includes information about the subjects, tests, materials, teaching methods, procedures and statistics. In addition, the specific plans for correcting the design weaknesses found in previous research as cited in Chapter 2 are discussed.

Population

Nine classes of grade 2 children from nine different schools in the Catholic School System participated in this research. The test results from a total of 165 children were used for the statistical analyses. A number of children were not included in the final analysis for the following reasons:

- a. Absent during pretesting (12).
- b. Absent during posttesting (12).
- c. Scores below the fifth percentile on the Stanford Reading Achievement Test or the Canadian Test of Basic Skills (16).
- d. Did not begin the written recall pretest (3).
- e. Changed schools during the program (2).
- f. Other: Crying during the test (1), failure of two or more grades (1), broken arm (1) and eye-drops on the day of testing (1).

All of the schools were located in urban areas: eight schools were in Vancouver, one school was in Burnaby. Teachers were asked to provide information on the following: age,

language skills (English or English as a second language), socioeconomic status (high, middle, or low), and parents (two parents or single parent). Teachers were asked to base their judgements about socioeconomic status according to the parents' profession and in relationship to Greater Vancouver. Table I presents the composition of the SGI, MRI, and RRI groups in relation to these factors.

Table I - Demographic Data for SGI, MRI, RRI, for Sex, Language, Socioeconomic Status and Parents

Demographic Data	Teaching Method			
	N	Story Grammar	Modified Reading	Regular Reading
Sex				
Boys	76	42%	46%	60%
Girls	89	58%	54%	40%
Language				
English	78	59%	38%	58%
Other	87	41%	62%	42%
Socioeconomic Status				
High	5	5%	0%	4%
Middle	138	80%	82%	90%
Low	22	15%	18%	6%
Parents				
Two	14	98%	82%	91%
One	151	2%	18%	9%

Data were analyzed from a total of 76 boys and 89 girls with a mean age of 7 years and 5.5 months (range of 6 years 11 months to 8 years 5 months). Fifty-two percent of the children spoke English as a second language and nine percent came from single parent homes. Most of the children (83 percent) represented middle class homes with 13.5 percent from lower class and 3.5 percent from upper class homes.

Instrumentation

For the study two standardized tests and four informal researcher designed instruments were employed. A description of the standardized tests is given followed by a description of the researcher designed tests.

Standardized Tests

The Stanford Reading Achievement Test, Level 2, Form A was standardized on a sample of over 275,000 children representative of the population of children in the United States. Level 2, Form A, of the Stanford Reading Achievement Test was standardized during three months of the year: October, February, and May. In the norms booklet for this test (Madden, Gardner, Rudman, Karlsen & Merwin, 1973), the authors state that validity should be judged by each test user according to an analysis of the test items and a knowledge of the test's development. The reliability (Spearman-Brown) for the vocabulary subtest is .85 while that for the two comprehension subtests is .95 and .96 respectively. A review of this test by Salvia and Ysseldyke

(1981) indicated that the "standardization, reliability and validity are exceptionally good" (p. 168). Two other reviews in Buross (1978) show that the Stanford Reading Achievement Test is considered to be a good standardized test of reading achievement. Although both reviewers questioned some aspects of the test, their comments were mostly favorable. Glass (1978) states:

The test has been thoroughly studied and its properties carefully documented....The content validity of the test appears to be adequate....Curriculum analyses, expert reviews and field tryouts preceded item selection....In technical quality, content validity and completeness, this test is the equal of other major achievement tests. (p.745)

Rankin (1978) makes the following observations:

From a technical standpoint, the test is well constructed....Despite some lapses, technical data are very complete....this recent edition...deserves a high rating. (p. 745)

The Canadian Test of Basic Skills was standardized in 1966 in Canada on a stratified random sample representing an English speaking population. The manual describing the development of the Canadian Test of Basic Skills was incomplete in a discussion of validity and reliability. Information was not available for the Primary Level 7 test.

Researcher Designed Tests

Unprompted Written Recall. Two tests were designed to measure unprompted written recall, one as a pretest and one as a posttest. The unprompted recall (UR) tests were constructed by the researcher to be similar to those in previous studies. The stories appropriate for Grade 2 students were located in a number of basal readers. Then each story was parsed by the story grammar to determine its degree of structure. The stories were chosen based on a high degree of structure, the fact that they were not present in basal readers employed in the study, and the relatively short length of each story. The two stories finally chosen for the recall tests were: 1) A Father, His Boy and A Donkey, and 2) The Garden.

Each story was rewritten to simplify the vocabulary and reduce sentence length, in an attempt to prevent reading difficulties due to readability or vocabulary. The Spache readability for A Father, His Boy and A Donkey was 1.9 while that for The Garden was 2.1. Directions for administering the tests were formulated. Essentially, students were asked to read the story and then print everything that they could remember. Following this, the tests were administered to students in five classes not involved in the study. This helped to determine the suitability of the directions and to provide examples of protocols from which a scoring key could be constructed. Copies of these tests are located in Appendix C.

Prompted Written Recall - Detail and Inference

The test, with its two subtests, was designed by the researcher to measure prompted written recall (PR). The test was constructed in a similar manner to the unprompted written recall test. The procedure for choosing suitable stories was the same. Basal readers were surveyed for short, highly structured, unfamiliar stories. The story selected was The Yellow Moon. It was rewritten for purposes of clarity and simplicity. Next, the researcher constructed fourteen detail and fourteen inference comprehension questions for the story to be answered by short answers. These were given to a class of graduate students in reading education. Each student chose seven factual and seven inferential questions for the story that would best test a child's comprehension of that story. The researcher examined the choices made by the graduate students, giving each question a point every time it was selected. The questions receiving the greatest number of points were included in the test. The seven factual questions form the Prompted Recall Detail Test (PRD) while the seven inferential questions form the Prompted Recall Inference Test (PRI). These two subtests are analyzed separately in Chapter IV, but were administered as a single test during the posttest session.

As with the UR test, the PRD and PRI tests were administered to children in five different classes. This enabled scoring keys to be constructed as well as revisions to the test directions to be made. A copy of the test, the

administration directions and the scoring keys are found in Appendix C.

Reading Comprehension - Detail and Inference. This test with its two subtests was constructed by the researcher to measure comprehension of a simple narrative with the text readily available to the student. As with the UR and PR tests, a story was located that met the following criteria: high degree of structure, relatively short length, and not included in the basal readers employed in the schools. The story finally chosen was called Patrick Lost His Ticket. This story was rewritten to simplify the vocabulary and shorten sentence length.

Questions were then constructed by the researcher (fourteen factual and fourteen inferential) to measure comprehension of the story. The answers to be given were of the short response type. In a procedure used for the PR tests, these questions were given for rating to a class of graduate students in reading. The researcher then selected seven factual questions for the Comprehension Detail Test (CD) and seven inferential questions for the Comprehension Inference Test (CI) based on these ratings. These two subtests are analyzed separately in Chapter IV, but were administered as a single test during the posttest session. In keeping with the UR and PR tests, the CD and CI tests were administered to students in five different classes to enable construction of scoring keys and revision of test directions. A copy of the test, administration directions and scoring keys are found in Appendix C.

Materials

The Ginn 720 or Language Patterns reading programs were used for teaching reading to all three groups (seven classes used Language Patterns, and two used Ginn 720). Both programs are comprised of a series of graded readers prescribed by the Ministry of Education in British Columbia.

Seatwork activities were designed and provided by the researcher for the Story Grammar and Modified Reading groups. A description and samples of these activities can be found in Appendix A for the SGI method and Appendix B for the MRI method.

Methods

The three teaching methods are described in detail, including a description of the teachers' own methods used during 50 percent of the program.

Story Grammar Instruction

This group received SGI based on the theory outlined in Chapter I.

The teachers were asked to follow up this information using a story grammar approach when teaching their reading groups. The teachers were shown the information in Chart 2 (Modifications to Gordon's Story Grammar Categories), and shown how to teach the category labels from the modified story grammar.

Chart 2 - Modifications of Gordon's Story Grammar Categories

SETTING

GOAL

PLOT

Happening A

- a. Beginning A - Beginning of episode
- b. Goal A - Sub-goal in an episode
- c. Try A - Effort to achieve sub-goal
- d. Result A - Outcome of the Try

Happening B - categories will be the same as for
Happening A

Happening C,D,E...

ENDING

The teachers' oral questions about the story were to be formulated to elicit information from the story categories. Each category was discussed in relationship to the type of information with which it was normally associated. This enabled teachers to ask general story grammar questions (What is the setting? What is a try?) and questions specific to a story (How did the mouse try to help the lion?).

Further aspects of SGI needing clarification will be discussed under the following headings: introducing the story

grammars, continued teaching of story grammars, scheduling instruction and suitability of the materials.

Introducing Story Grammar. Teachers were instructed to define only four story grammar categories initially (setting, main goal, happenings, and ending). Then the happening categories (beginning, sub-goal, attempt, and outcome) were introduced. Teachers illustrated the type of information for each category by reading simple stories that had been rewritten by the researcher for the purpose of introducing the story grammars. These contrived stories were short and probably familiar to the children, therefore providing material at their independent reading level (see Appendix A, pages 94 - 95). The researcher suggested that children underline story sentences that matched the various categories with colored crayons. Class outline charts using large paper strips printed with the information corresponding to the grammar categories were also suggested. A copy of the directions on teaching story grammar that was given to the teachers is located in Appendix 1. Two teachers found the colored crayons useful, and two teachers found the outline charts helpful. All three teachers used much oral discussion to teach the story grammar categories.

Continued Teaching of the Story Grammar. Teachers used their regular basal reader to reteach and reinforce story grammar. Seatwork activities, designed by the researcher, were completed by students for ten of the stories read by each reading group during the twelve weeks. These activities were

based on the basal reader used by each group. This insured that no group received more activities than another due to a faster reading pace. The total number of activities, including those from the four contrived stories, equalled twelve.

Suggestions for modifying the difficulty level of these activities were given to the teachers. The modifications did not change the underlying story grammar concept. For example, teachers were instructed to provide part answers or page numbers before xeroxing. For paper strip activities, teachers could number some of the strips.

Teachers distributed the seatwork for the appropriate stories, giving children help in completing them as needed. All three teachers used the sheets for instruction as well as reinforcement by orally previewing the sheets.

The SGI group also received instruction in comprehension skills other than story grammar. There were two reasons for using this approach. Firstly, comprehension techniques are usually taught in conjunction with one another, not separately. Secondly, some of the material in the basal readers, as indicated in the initial parsing of the stories, did not have a story grammar structure.

Scheduling Instruction. For approximately fifty percent of their reading comprehension program, the SGI teachers used the story grammar method and for the other fifty percent, these teachers used their own method. For example, when reading two

stories a week, the teacher might use story grammar instruction for one story and her normal comprehension technique for the second story. In contrast, the teacher might use SGI for one week, and then her own method for the next week. This was checked by the researcher who had access to the children's seatwork and the teachers' reading instruction logs.

Suitability of Materials. The suitability of the materials for a story grammar approach was determined by parsing some of the stories from both sets of readers. Chart 3 presents an example of the parsing of a story from the Ginn 720 program, and indicates that some of the basal stories did represent narratives having a structure similar or identical to the story grammar. Only stories that conformed to this pattern were used for teaching story grammar.

Chart 3 - Parsing of a Story from Ginn 720 Program

SETTING An Eagle, a cat and a pig lived in a tree in the woods.

GOAL Cat wanted to sleep.

PLOT

Happening A

Beginning: Cat went up the tree.

Goal: He wanted to make Eagle and Pig unhappy (inferred).

Try: He told Eagle that Pig was unhappy. He told Pig that Eagle was unhappy.

Result: Eagle and Pig were unhappy, and left the tree.

Happening B

Beginning: Cat went back up the tree to his home.

Goal: He wanted to sleep.

Try: When night came, he couldn't sleep.

Result: He was unhappy.

Happening C

Beginning: At last the morning sun came up.

Goal: Cat wanted to find his friends.

Try: He talked to Eagle and to Pig.

Result: Eagle and Pig wanted to be friends with Cat.

ENDING Eagle and Cat and Pig went back to the tree.

An informal questionnaire, the reading instruction log and the seatwork provided information on the three teachers' instructional methods when they were not using story grammar lessons. The teachers were asked to describe their method for teaching a new story as well as to list the various activities they used for teaching or reinforcing comprehension.

Each teacher used a different method for teaching a story. One teacher previewed vocabulary and discussed the story background before giving a directed silent reading lesson. This teacher then had oral questions and oral reading. The second teacher previewed vocabulary before a directed oral reading lesson. This was followed by questions and discussion. The third teacher used a directed oral reading followed by questions and discussion.

All three teachers assigned comprehension questions as the most frequent seatwork exercises when teaching with their own methods. They also used workbook material for seatwork to practice the following skills: sequencing, true and false, and cause and effect. Only two teachers assigned workbook pages to practice context clues and main idea.

Modified Reading Instruction

The MRI students were taught comprehension skills with the regular basal program but the teacher received extra ideas and activities from the researcher. These ideas and activities were varied and different from those normally used in the classroom

The researcher designed the extra comprehension activities to complement the stories in the basal readers. The teachers were given instructions in teaching such comprehension skills as characterization, cause and effect, pronoun reference, comparison and contrast, detail, inference and sequence. The seatwork was used to reinforce the teachers' presentation of each skill. Every reading group completed twelve of these seatwork activities to provide equality between the amount of material given to the Story Grammar and the Modified Reading teachers. A description and examples of these activities are given in Appendix B.

These teachers taught the Modified Comprehension program for fifty percent of the time and their own program for fifty percent of the time. The informal questionnaire, reading instruction log and samples of seatwork provided information about the teachers' methods. The teachers' methods for teaching the story are discussed below followed by a description of the comprehension skills used for seatwork.

All three teachers introduced the story vocabulary and background. However, each teacher used a different method for

reading the story. The three methods were: directed silent or oral reading, directed oral reading, and an undirected silent reading. The teachers then asked oral comprehension questions to initiate a story discussion. Each teacher included some form of oral reading at this time or during the next reading session.

The following comprehension skills were used for seatwork activities by all the teachers when using their own methods: general questions, sequencing, true and false (or fact and fantasy), cause and effect, inference, context clues and main ideas. The skill most commonly assigned was answering questions about the story. The other skills were used less frequently, and usually obtained from the basal workbook (two teachers).

Two teachers used workbook material for practice in sentence combining and following directions. One teacher assigned prediction for seatwork.

The purpose for including the MRI group was to provide a measure of the effect of researcher intervention on the reading program. The story grammar technique required much discussion between the researcher and the teacher. Furthermore, the activities associated with the SGI were different from those normally used by teachers. As well, the seatwork activities designed by the researcher were supplied to each story grammar teacher to decrease the workload associated with participation in a study. The activities also provided more control over and uniformity within the story grammar method because the researcher was able to check that the activities were being

completed.

It seemed possible that the students receiving SGI might improve because of the novelty of the activities or the fact that their teacher had an outside contact giving her more assistance than was normal. Therefore the MRI group was included to balance this factor.

The Modified Reading teachers received the same special attention as SGI teachers. They also received extra activities to use with their reading program. The teachers were not told that story grammar instruction was the method of interest. These teachers did not have any information about the other teaching methods used in the study.

Regular Reading Instruction

The third group, RRI, was taught comprehension using the teachers' regular program. The teachers of these classes did not receive any additional ideas or materials from the researcher. These teachers were not given any information about the other two teaching methods.

As with the teachers of the Story Grammar and Modified Reading groups, these teachers were asked to complete an informal questionnaire to provide information on their method of reading instruction.

Each teacher used a different method for teaching the story. One teacher used a directed oral reading approach, with

word meaning discussed during the oral reading of the story. One teacher previewed the vocabulary and used a directed silent reading approach with her low group with oral rereading for the second session. However, in the top groups, children read the story silently at their desks and then formed a group for questioning and oral rereading. The third teacher previewed the vocabulary and provided some story background before a directed silent reading of the story. This was followed by oral rereading.

The following comprehension skills were used for seatwork activities by all three teachers: general questions (most frequently assigned skill) and context clues. Uninterrupted sustained silent reading, sequencing, true and false, following directions, inference and main idea were used by two teachers. Only one teacher used sentence combining as a comprehension activity.

Procedures

The procedures are discussed in detail and include: implementation of the program, teaching and supervision of the teachers, and testing.

Implementation of the Program

The study took place over a period of eleven weeks during the months of January through March, 1983. Within the nine classes, the children were grouped by their teacher according to reading level and placed in the appropriate reader. Instruction

in the following skills was not controlled or changed by the researcher: word skills including phonics and structural analysis, study skills including mapping or dictionary usage, spelling or creative writing.

All groups within all the classes read approximately one and a half stories each week. The mean number of stories was 16.5 with a range of 10 to 29. For the story grammar group the mean number of stories read was 14 with a range of 10 to 27. For the modified reading group the mean number of stories read was 18 with a range of 16 to 28. For the regular reading comprehension group the mean number of stories read was 18 with a range of 16 to 20. Two classes used the Ginn 720 program, and seven classes read from the Language Patterns series. The reading groups in the Ginn 720 program read more stories than those in the Language Patterns program. Therefore, this has increased the number of stories read in the MRI and RRI programs because the Ginn program was used in one class from each of these groups.

All classes read the four contrived stories that were used to introduce the story grammar concept. It was possible that reading these stories could influence a student's story grammar concept because the stories were highly structured. Therefore to eliminate this factor, all students read all four stories.

Teaching and Supervision of the Teachers

The teachers met with the researcher twice before the program began. During these meetings the pretesting procedures were discussed and a timetable for testing each class was constructed.

The teachers of the SGI classes were instructed in the story grammar theory (rules and parsing technique), and methods for instruction. An eight page booklet was constructed to facilitate this discussion with the teacher.

The teachers of MRI were shown a variety of ideas for teaching comprehension. Also, a six page booklet was made to facilitate this discussion.

The teachers of RRI were not given any additional help or information in teaching reading. They were instructed to continue teaching in their usual manner.

All teachers were asked to complete a weekly log for each reading group. The teachers recorded the story read, the mode of reading (silent or oral), the type of comprehension stressed (oral and written), and the time spent on comprehension.

Teachers provided the researcher with the name of the reader story that each group would be reading at the beginning of the study. This information was used to construct the seatwork activities for the SGI and MRI programs.

The researcher visited the schools in a random order eight

times during the eleven weeks of the study. The visits lasted from 15 to 25 minutes. The childrens' seatwork and the teachers' logs were checked. Problems with or concerns about the program were discussed and suggestions made for changing the difficulty level of certain activities. For example, teachers may have wanted to provide part answers for some activities. The researcher was able to ensure that the seatwork for the story grammar and modified comprehension programs were being completed. It was also possible to maintain the integrity of each method by checking for researcher designed activities in the regular reading comprehension classes.

Testing

Pretesting and posttesting of the classes was done in a random order. The researcher gave the directions for all tests, then both the classroom teachers and the researcher supervised. The tests did not provide a means of grouping the students within the classroom. The teachers grouped the children according to their own needs.

The pretest session in early December, 1982 lasted approximately three hours per class. The tests administered included the Stanford (vocabulary and comprehension subtests), the Canadian Test of Basic Skills (comprehension subtest) and the UR pretest. The children were given three stretching and resting breaks as well as a recess period between tests. All tests were marked and recorded by the researcher. The UR pretest and the comprehension subtest of the Stanford Reading

Achievement Test, Form A, were computer marked as well to provide an item analysis and reliability coefficient. The Hoyt reliability for the Stanford, Form A was .96.

The posttest session was divided into two parts. During the first session, the week after the program ended, the comprehension subtests of the Stanford Reading Achievement, Form B (ACHIEVE) and the CD and CI tests were given. This session was approximately 75 minutes in length. The UR, PRD and PRI tests were administered three weeks after the end of the program in a 45 minute session. All tests were marked and recorded by the researcher. All four of these tests were computer marked as well. The Hoyt reliability for the Stanford was .95.

A teacher trained by the researcher marked a sample (27%) of the UR pretests and posttests as well as a sample (27%) of the PRD, PRI, CD, and CI tests to provide a measure of interrater reliability. The trained teacher marked the protocols according to the scoring keys and directions found in Appendix 2. The interrater reliability measure for the UR pretest was 98.2%, and for the UR posttest was 98.8%. The PRD and PRI tests had a combined interrater reliability of 97.6% and the CD and CI had a combined interrater reliability of 96.4%.

Modifications to Previous Research Designs

A review of the literature on story grammar instruction resulted in the identification of several weaknesses within the study designs of previous research. As mentioned in Chapter 2, the aspects of the study designs requiring modification were: the samples, duration of the study, the materials, the teachers, the amount of interaction required by the program, the novelty of the program, and measurement. The method used in this study to control for or modify each of these factors is discussed.

Samples

This study drew a sample from Grade 2 which differs from the age levels of students in previous research in an attempt to improve the generalizability of story grammar to the primary grades. Secondly, the number of students participating was increased in comparison to previous research to improve the strength of the conclusions.

Duration of the Study

The program in this study continued for eleven weeks. This is in contrast to the relatively short duration of programs in some previous research. It was hoped that a longer instructional time frame would result in significant positive effects from story grammar instruction on the ACHIEVE, PRD, PRI, CD and CI tests.

Materials

This study differs from previous research in which contrived stories were used for instruction by employing the basal readers prescribed for the schools. This procedure ensured that the reading material was representative of narrative commonly used for instruction.

Teachers

In previous research, the instruction was often done by the researcher. This study employed the skills of the classroom teacher for instruction, thereby minimizing the effect of researcher bias. However, the variable of teacher differences becomes a concern. Therefore, three classes were assigned to each treatment to control for teacher differences in this study.

Interaction

The amount of interaction between the teacher and the student required in story grammar instruction may have varied greatly from that required in control programs in previous research. An attempt to control the amount of interaction between the teachers and students in this study was made through the use of the seatwork activities. The activities for both the story grammar and modified reading groups differed from those traditionally assigned for reinforcement and therefore required increased interaction from teachers in both the experimental and control programs.

Novelty of the Program

As cited in Chapter 2, there is a possibility that the novelty of an approach may affect the students' responses to the program. An attempt was made to control this factor by including the modified reading program. The teachers in this program were given some new ideas and activities for teaching reading comprehension in the same way that the teachers of the story grammar program were given new ideas and activities.

Measurement

In this study, the seatwork activities designed for the experimental group are not similar to the recall, reading achievement or reading comprehension posttests. It was hoped that this should minimize the measurement weaknesses cited in Chapter 2.

Statistical Analyses

The research design was a hierarchical analysis of variance with class nested within method. Classes 1, 2, and 3 received Method 1; classes 4, 5, and 6 received Method 2; classes 7, 8, and 9 received Method 3. The University of British Columbia GENLIN statistical program was used to analyze the results. Specifically, the hypotheses to be tested were:

1. There will be no significant difference in unprompted recall:
 - a. between the three methods.

- b. for boys in each method.
- c. for girls in each method.
- d. between the boys and girls.
- e. for the good readers in each method.
- f. for the poor readers in each method.
- g. between the good and poor readers.

2. There will be no significant difference in prompted recall detail:

- a. between the three methods.
- b. for boys in each method.
- c. for girls in each method.
- d. between the boys and girls.
- e. for the good readers in each method.
- f. for the poor readers in each method.
- g. between the good and poor readers.

3. There will be no significant difference in prompted recall inference:

- a. between the three methods.
- b. for boys in each method.
- c. for girls in each method.
- d. between the boys and girls.
- e. for the good readers in each method.
- f. for the poor readers in each method.
- g. between the good and poor readers.

4. There will be no significant difference in reading achievement:

- a. between the three methods.
- b. for boys in each method.
- c. for girls in each method.
- d. between the boys and girls.
- e. for the good readers in each method.
- f. for the poor readers in each method.
- g. between the good and poor readers.

5. There will be no significant difference in comprehension detail:

- a. between the three methods.
- b. for boys in each method.
- c. for girls in each method.
- d. between the boys and girls.
- e. for the good readers in each method.
- f. for the poor readers in each method.
- g. between the good and poor readers.

6. There will be no significant difference in comprehension inference:

- a. between the three methods.
- b. for boys in each method.
- c. for girls in each method.
- d. between the boys and girls.
- e. for the good readers in each method.
- f. for the poor readers in each method.
- g. between the good and poor readers.

Summary

The preceding discussion provided a detailed description of the study design. Information about the students in the population included the number involved, their sex, age, socioeconomic status, and language skills. The standardized tests and researcher designed tests were described with reference to reviews of the standardized tests in Buros (1975) and Salvia and Ysseldyke (1981). The materials used for teaching were briefly discussed with reference to further details in Appendix 1. An outline of the three teaching methods employed in the study was given: the Story Grammar method used the story grammar approach, the Modified Reading method used a researcher designed approach, and the Regular Reading method used the classroom teacher's approach. Each teacher's reading program was described in general terms. Further information on the procedures involved in implementing the program, teaching and supervising the teachers, and testing the students was presented.

In addition, a presentation was included of the methods for controlling variables in the design that had been cited as weaknesses in previous research.

Lastly, the statistical hypotheses were restated and the statistical procedure (analysis of covariance) for analyzing the results was described.

IV. RESULTS, DISCUSSION AND RECOMMENDATIONS

This chapter presents the results of the statistical analyses, followed by a discussion of their relationship to previous and future studies. Specific conclusions about story grammar instruction and suggestions for future research are made at the end of the chapter.

Results

Pretests

Means and standard deviations are reported for the four pretests in Table II. The four pretests included the vocabulary (Vocab) and comprehension (Comp) subtests of the Stanford Reading Achievement Test, the researcher-designed recall test (Recall), and the comprehension subtest of the Canadian Test of Basic Skills (CTBS).

Table II - Means and Standard Deviations for the Pretests
for SGI, MRI, and RRI

		Methods		
Pretest		Story Grammar	Modified Reading	Regular Reading
Vocab	\bar{X}	22.66	21.10	22.56
	s	(5.66)	(5.17)	(5.07)
Comp	\bar{X}	62.61	60.08	66.41
	s	(18.20)	(17.62)	(17.46)
Recall	\bar{X}	4.93	4.90	6.11
	s	(2.48)	(2.16)	(2.69)
CTBS	\bar{X}	53.19	50.84	54.07
	s	(10.50)	(11.23)	(9.91)

Posttests

Analysis of covariance was used to individually test each of the six dependent variables: Recall, Achieve, Comprehension Detail, Comprehension Infer, Prompted Recall Detail, and Prompted Recall Infer. Originally, it was proposed that all four independent variables (method, class, sex and ability) be used as factors in these analyses. However, use of all four factors caused the number of students in some of the cells to be too low (less than two). Therefore, analysis of covariance with method, class (nested in method) and sex as the independent variables was performed for each of the six dependent variables. There was no significant main effect for method for any of the dependent variables. There was no main effect for sex for five of the dependent variables, however there was a main effect for

Unprompted Recall. Considering the results from these analyses, analysis of covariance was next used to test five of the dependent variables: Achieve, Comprehension Detail, Comprehension Infer, Prompted Recall Detail, and Prompted Recall Infer, with method, class (nested in method) and ability as the main factors. The posttest scores for Unprompted Recall were not used in this second set of analyses because of the significant main effect of sex for Unprompted Recall. In order to test the ability factor for significance it would have been necessary to include the factor for sex (i.e. perform a four-way analysis of covariance) and this would have resulted in some cells having insufficient numbers of students. The covariate for all analyses was the Unprompted Recall pretest.

Analysis of covariance was used to test each dependent variable (UR, PRD, PRI, CD, CI, and Achieve) with method, class and sex as independent variables.

The six posttest means (adjusted using the recall pretest as the covariate), and the corresponding standard deviations are reported for boys and girls for SGI, MRI, and RRI in Tables XVII through XXII (Appendix D).

Analysis of covariance was used to test five dependent variables (UR, PRD, PRI, CD, CI, and Achieve) with method, class and ability as independent variables. The five posttest means (adjusted for the covariate) and the corresponding standard deviations are reported for good and poor readers for SGI, MRI, and RRI in Tables XXIII through XXVII (Appendix D).

Analyses with Method, Class and Sex

The results of the analysis of covariance for the six posttests are presented in Tables III through X.

There were no significant main effects for method, and no significant method by sex interactions. Results for each posttest are discussed separately.

Table III - ANOVA for the Unprompted Recall Posttest with Method, Class, and Sex as Independent Variables

Source	df	Mean Square	F-Ratio	Probability
Meth	2	1.21	0.11	0.899
Class	6	23.56	2.07	0.059
Sex	1	77.21	6.80	0.010
Meth x Sex	2	18.76	1.65	0.195
Cl(Meth) x Sex	6	10.26	0.90	0.494
Recall	1	455.03	40.08	0.000
Residual	146	11.35		
Total	164			

Unprompted Recall. Results revealed that method was not significant $F(2,146)=0.11$, $p=.899$ for the Unprompted Recall test (Table III). There was no significant method by sex interaction with $F(2,146)=1.65$ and $p=.195$. Class was not significant $F(6,146)=2.08$ $p=.059$. However, sex was significant ($F(1,146)=6.80$ $p=.010$) with girls scoring higher than boys (Table XVII - Appendix D). The mean score for girls was 11.55 while that for boys was 10.14.

Achieve. Results indicate method ($F(2,146)=.13$, $p=.876$) and sex ($F(1,146)=.39$ $p=.532$) were not significant for the Achieve test (Table IV). Likewise, there was no significant method by sex interaction $F(2,146)=1.36$ $p=.260$. However there was a significant class effect $F(6,146)=2.28$ $p=.039$. Although there was a significant F, both Scheffé and Bonferroni tests failed to show any significant differences in pair means. Perusal of class means for the Achieve test (Table V) showed that class 3 (SGI) and class 6 (MRI) appeared different from class 2 (SGI) and class 9 (RRI). There may not have been a sufficient number of subjects within each class for an analysis by the Scheffé or Bonferroni test to find significance.

Table IV - ANOVA for the Achieve Posttest with Method,
Class, and Sex as Independent Variables

Source	df	Mean Square	F-Ratio	Probability
Meth	2	21.67	0.13	0.876
Class	6	372.75	2.28	0.039
Sex	1	64.00	0.39	0.532
Meth x Sex	2	222.05	1.36	0.260
Cl(Meth) x Sex	6	160.75	0.98	0.438
Recall	1	4455.20	27.30	0.000
Residual	146	163.20		
Total	164			

Table V - Adjusted Means for the Achieve Posttest for the
Classes

Classes									
	1	2	3	4	5	6	7	8	9
\bar{X}	74.12	78.28	69.38	75.69	70.84	75.72	65.15	75.88	78.15
N	22	17	23	11	20	19	10	23	20

Comprehension Detail. There were no significant effects due to any main factor or due to any interaction (Table VI).

Table VI - ANOVA for the Comprehension Detail Posttest with Method, Class, and Sex as Independent Variables

Source	df	Mean Square	F-Ratio	Probability
Meth	2	4.27	1.92	0.150
Class	6	1.07	0.48	0.823
Sex	1	0.31	0.14	0.709
Meth x Sex	2	4.26	1.91	0.152
Cl(Meth) x Sex	6	3.30	1.48	0.188
Recall	1	61.86	27.77	0.000
Residual	146	2.23		
Total	164			

Comprehension Infer. Similarly, for the Comprehension Infer Test, there were no main effects or interactions due to method, class or sex (Table VII).

Table VII - ANOVA for the Comprehension Infer Posttest with Method, Class, and Sex as Independent Variables

Source	df	Mean Square	F-Ratio	Probability
Meth	2	2.13	0.48	0.617
Class	6	2.65	0.60	0.730
Sex	1	0.31	0.069	0.793
Meth x Sex	2	2.73	0.62	0.540
Cl(Meth) x Sex	6	4.89	1.11	0.361
Recall	1	92.77	21.00	0.000
Residual	146	4.42		
Total	164			

Prompted Recall Detail. In Table VIII, it can be seen that there were no significant main effects or interactions due to method, class or sex.

Table VIII - ANOVA for the Prompted Recall Detail Posttest with Method, Class, and Sex as Independent Variables

Source	df	Mean Square	F-Ratio	Probability
Meth	2	1.75	0.41	0.661
Class	6	2.11	0.50	0.807
Sex	1	0.91	0.22	0.642
Meth x Sex	2	6.00	1.43	0.244
Cl(Meth) x Sex	6	6.76	1.61	0.149
Recall	1	86.86	20.63	0.000
Residual	146	4.21		
Total	164			

Prompted Recall Infer. Method was not significant $F(2,146)=.60$ $p=.943$ for the Prompted Recall Infer test (Table IX). Likewise, sex ($F(1,146)=.59$ $p=.445$) and method by sex interaction ($F(2,146)=.52$ $p=.595$) were not significant.

Table IX - ANOVA for the Prompted Recall Infer Posttest with Method, Class, and Sex as Independent Variables

Source	df	Mean Square	F-Ratio	Probability
Meth	2	0.30	0.59E-01	0.943
Class	6	15.05	2.95	0.009
Sex	1	3.00	0.59	0.445
Meth x Sex	2	2.66	0.52	0.595
Cl(Meth) x Sex	6	5.55	1.09	0.373
Recall	1	63.66	12.46	0.000
Residual	146	5.11		
Total	164			

Class was significant $F(6,146)=2.95$ $p=.009$ and therefore both a Scheffé and Bonferroni test were performed. They indicated that no pair of means differed. Although Scheffé and Bonferroni showed no difference, an examination of the class means (Table X) showed that classes 6 (MRI) and 7 (RRI) had higher mean scores than classes 5 (MRI) and 9 (RRI) on the Prompted Recall Infer Test.

Table X - Adjusted Means for the Prompted Recall Infer
Posttest for the Classes

Classes									
	1	2	3	4	5	6	7	8	9
\bar{X}	7.12	6.61	7.17	6.92	6.04	8.45	7.92	7.67	6.15
N	22	17	23	11	20	19	10	23	20

To summarize, there were no significant effects for any posttest due to method or method by sex interaction. Sex was significant for the Unprompted Recall test with girls scoring higher than boys. Although class was significant for the Achieve test and for the Prompted Recall Infer test, the Scheffé and Bonferroni test indicated that no two pairs of means were significantly different.

Analyses with Method, Class and Ability

Results for these analyses of covariance for the five posttests are given in Tables XI through XVI.

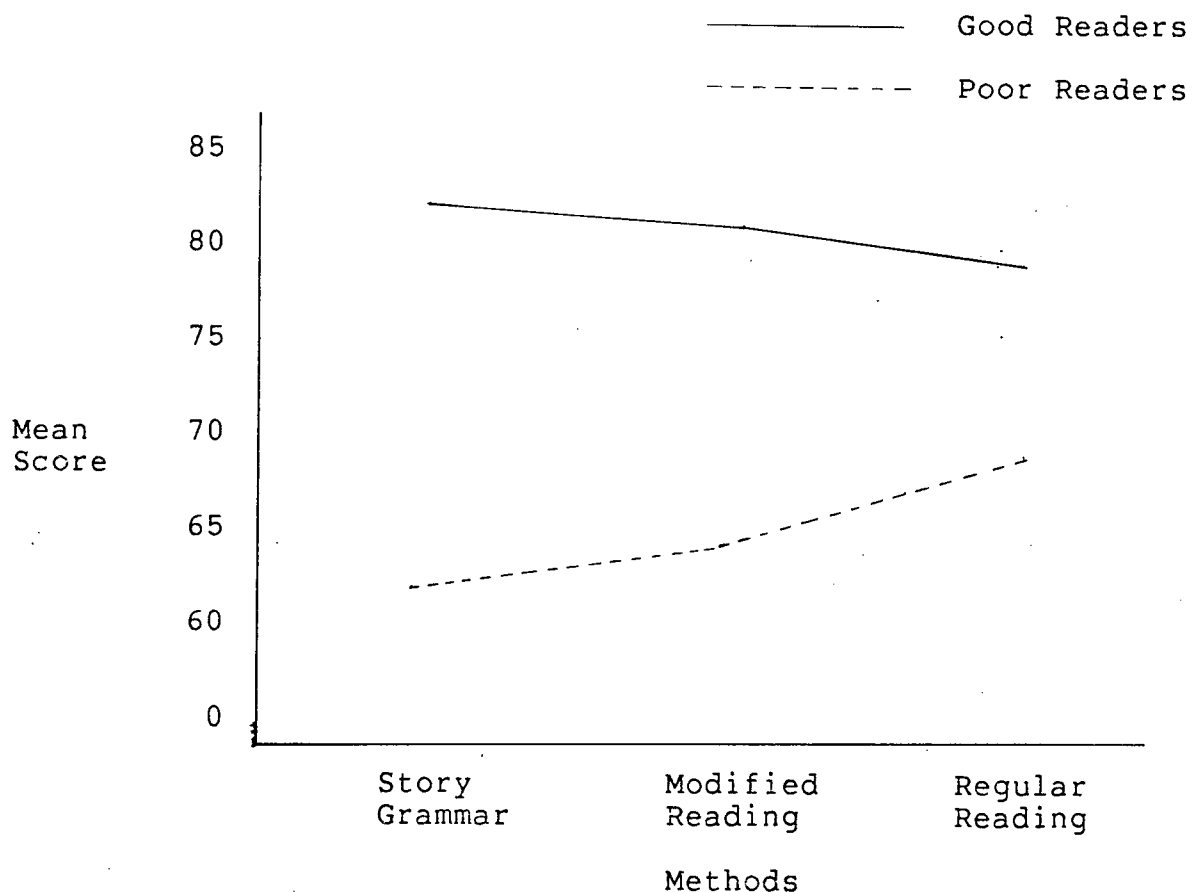
Achieve. Results indicate that method ($F(2,146)=.30$, $p=.739$) and class ($F(6,146)=2.01$, $p=.068$) were not significant for the Achieve test (Table XI). However, both ability and the method by ability interaction were significant. Ability had a main effect $F(1,146)=67.01$, $p=.000$. A Scheffé test (means reported in Table XXIII - Appendix D) showed that good readers ($\bar{x}=80.34$) scored significantly higher than poor readers ($\bar{x}=65.53$).

Table XI - ANOVA for the Achieve Posttest with Method, Class, and Ability as Independent Variables

Source	df	Mean Square	F-Ratio	Probability
Meth	2	33.87	0.30	0.739
Class	6	225.09	2.01	0.068
Ability	1	7494.1	67.01	0.000
Meth x Ability	2	466.42	4.17	0.017
Cl(Meth) x Ability	6	90.83	0.81	0.562
Recall	1	921.62	8.24	0.005
Residual	146	111.84		
Total	164			

For the method by ability interaction $F(2,146)=4.17$, $p=.017$, the Scheffé test showed that poor readers receiving Story Grammar and Modified Reading Instruction had significantly lower scores than the good readers in all three programs. However, the poor readers in Regular Reading were no different from the good readers in the three programs. This interaction can be seen more clearly in Figure 1.

Figure 1 - Method by Ability Interaction on the Achieve Test



Comprehension Detail. As shown in Table XII, method, class and the method by ability interaction were not significant for the Comprehension Detail test. Ability had a significant effect $F(1,146)=22.03$ and $p=.000$. A Scheffé test showed that good readers ($\bar{x}=4.64$) scored significantly higher than poor readers ($\bar{x}=3.51$) as seen by the means in Table XXIV (Appendix D).

Table XII - ANOVA for the Comprehension Detail Posttest with Method, Class, and Ability as Independent Variables

Source	df	Mean Square	F-Ratio	Probability
Meth	2	4.08	2.07	0.129
Class	6	1.16	0.59	0.737
Ability	1	43.32	22.03	0.000
Meth x Ability	2	4.98	2.54	0.083
Cl(Meth) x Ability	6	2.23	1.14	0.345
Recall	1	18.47	9.39	0.003
Residual	146	1.97		
Total	164			

Comprehension Infer. It was found that there were no significant main effects due to method or class (Table XIII). In addition, there was no significant method by ability interaction for the Comprehension Infer test. There was a significant main effect for ability ($F(1,146)=19.83$, $p=.000$) with the Scheffé test showing good readers ($\bar{x}=5.09$) scoring higher than poor readers ($\bar{x}=3.59$). The means are reported in Table XXV (Appendix D).

Table XIII - ANOVA for the Comprehension Infer Posttest with Method, Class, and Ability as Independent Variables

Source	df	Mean Square	F-Ratio	Probability
Meth	2	1.48	0.38	0.683
Class	6	2.52	0.65	0.692
Ability	1	77.25	19.83	0.000
Meth x Ability	2	1.61	0.42	0.661
Cl(Meth) x Ability	6	5.14	1.32	0.252
Recall	1	29.21	7.50	0.007
Residual	146	3.89		
Total	164			

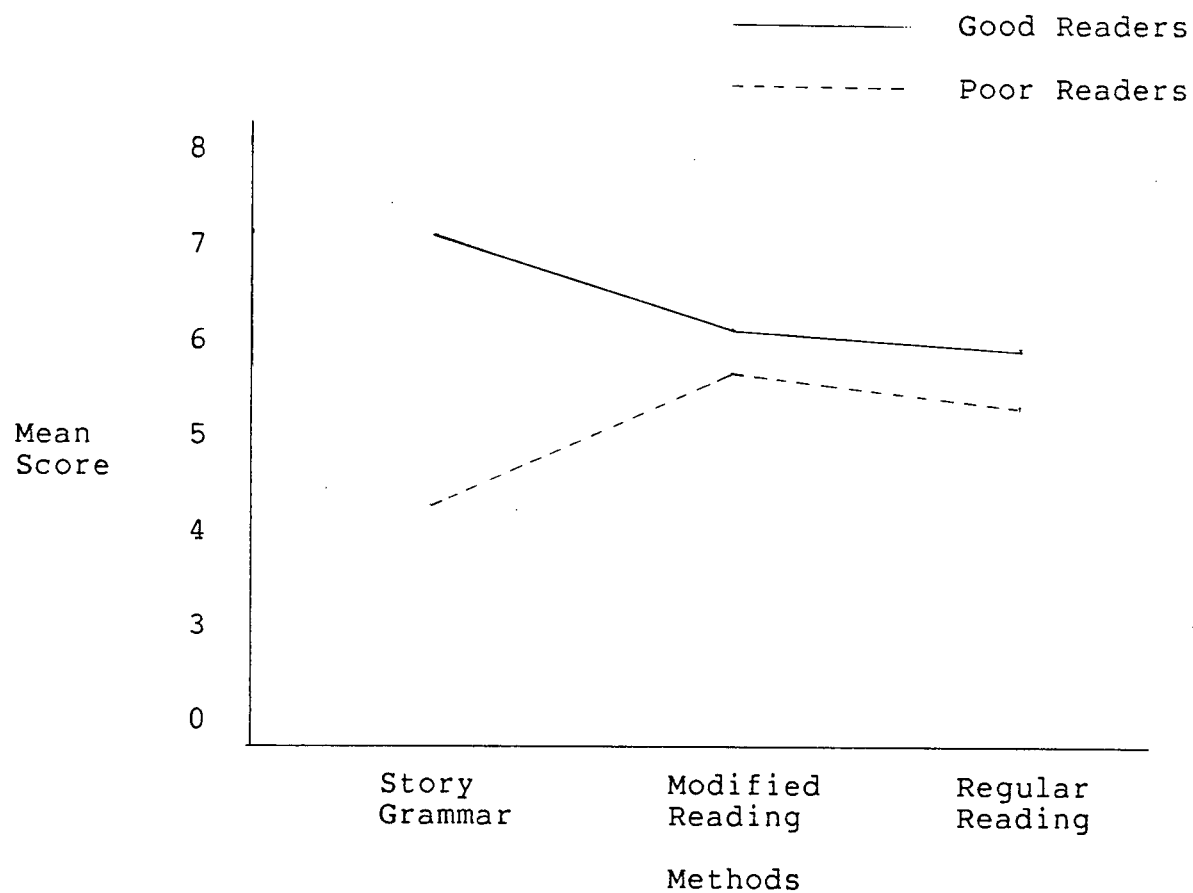
Prompted Recall Detail. As with all the previous analyses, no significant effects for method or class were found (Table XIV). However, ability was significant $F(1,146)=20.13$, $p=.000$ and method by ability interaction was significant $F(2,146)=6.57$ $p=.002$. Scheffé tests indicated that good readers with a mean of 6.48, scored significantly higher than poor readers with a mean of 5.04.

Table XIV - ANOVA for the Prompted Recall Detail Posttest with Method, Class, and Ability as Independent Variables

Source	df	Mean Square	F-Ratio	Probability
Meth	2	2.05	0.58	0.559
Class	6	1.24	0.35	0.098
Ability	1	70.77	20.13	0.000
Meth x Ability	2	23.10	6.57	0.002
Cl(Meth) x Ability	6	6.33	1.80	0.103
Recall	1	23.46	6.67	0.011
Residual	146	3.51		
Total	164			

In addition, poor readers receiving SGI scored significantly lower than good readers from any of the three programs, whereas poor readers receiving MRI or RRI did not have a score significantly different from good readers in any of the three programs (means reported in Table XXVI - Appendix D). This interaction is illustrated in Figure 2.

Figure 2 - Method by Ability Interaction on the Prompted Recall Detail Test



Prompted Recall Infer. Results showed that neither method nor method by ability interaction were significant (Table XV). However, class was significant $F(6,146)=3.98$, $p=.001$. Results of the Scheffé test showed that no pair of means differed. However, the Bonferroni test indicated that classes 9 (RRI) and 5 (MRI) were significantly different than class 6 (MRI). The means are reported in Table XVI. Furthermore, there was a significant ability effect, $F(1,146)=17.89$, $p=.000$. The mean for good readers was 7.75 while that for poor readers was 6.22 (Table XXVII).

Table XV - ANOVA for the Prompted Recall Infer Posttest with Method, Class, and Ability as Independent Variables

Source	df	Mean Square	F-Ratio	Probability
Meth	2	0.68	0.15	0.858
Class	6	17.75	3.98	0.001
Ability	1	79.74	17.89	0.000
Meth x Ability	2	10.83	2.43	0.092
Cl(Meth) x Ability	6	5.95	1.34	0.245
Recall	1	10.71	2.40	0.123
Residual	146	4.46		
Total	164			

Table XVI - Adjusted Means for the Prompted Recall Infer
Posttest for the Classes

Classes									
	1	2	3	4	5	6	7	8	9
\bar{X}	7.15	6.42	7.19	6.54	6.21	8.60	8.42	7.51	6.10
N	22	17	23	11	20	19	10	23	20

Discussion

This discussion focusses on interpreting the statistical results in relationship to the two major purposes of the study. Possible reasons for these results are explored with reference to the study design. Lastly, some of the significant effects found in the analysis, but not directly related to the major purposes, are discussed.

The purpose of this study was to assess the effect of story grammar instruction on the unprompted recall, prompted recall, achievement and comprehension of Grade 2 children. The statistical analyses of the data indicate that none of the three teaching methods used in this study had a significant effect on any of these reading skills. It would appear that story grammar instruction did not improve the students' reading skills above that of the other methods.

The second major purpose of the study was to assess the effect of story grammar instruction in relationship to reading ability. The results show that for two posttests (Achieve and Prompted Recall Detail) there were significant method by ability interactions. Evidence suggests that poor readers from the RRI program did not have scores significantly different from good readers in any of the three programs for the Achieve test. In addition, poor readers from the MRI and RRI groups did not have a score significantly different from good readers in any of the

three programs for the Prompted Recall Detail test. However, poor readers receiving SGI or MRI did have scores significantly different from good readers in all three methods on the standardized reading achievement test. Similarly, only the poor readers receiving SGI had scores significantly different from good readers in all three methods on detail questions when the text was not available. Based on the findings it appears that poor readers did not respond as well to story grammar instruction as did good readers.

There are a number of explanations for the results found in this study, some are related to methods and design. However, additional discussion of previous studies is necessary to explore possible reasons for the inability of this study to provide support for story grammar instruction.

Story Grammar Instruction may not be a more useful teaching method in terms of improving the skills measured in this study than Modified Reading Instruction or Regular Reading Instruction. Perhaps the teaching of more traditional comprehension skills (Modified Reading method and Regular Reading method) overlaps with the teaching of story grammar. All of the teachers in this study used story questions (oral or written) as a comprehension activity. Their questions may have been similar enough to story grammar questions so that the methods overlapped.

There is a possibility that stories in the basal readers were too lengthy to use in Story Grammar Instruction. It may be

that Grade 2 children cannot internalize the grammar when confronted with long, complex stories. However, unless story grammar can be applied to classroom materials, it appears unlikely to be readily accepted by teachers. A second difficulty with materials involves the readability level of basal readers. Most of the children classified as poor readers appeared to be placed in material that was too difficult. The students in the story grammar group had to adjust not only to difficult reading material, but also to relatively new teaching techniques.

In addition, the time devoted to instructing teachers in the story grammar concept and teaching methods may have been insufficient. In order to eliminate researcher bias, instruction was conducted by classroom teachers. Unfortunately this meant the presence of a new factor: teaching the teachers. Although encouraged to ask questions, all of the teachers tended to reassure the researcher that they understood and could teach SGI or MRI. Also, it is possible that their lack of familiarity with these programs caused the teachers to teach these programs less effectively.

Another aspect to consider is the type of seatwork activity designed for the story grammar method. It may be possible that the story reordering, macro-cloze, outlining and incorrect category exercises were not appropriate for Grade 2 students. Perhaps more emphasis on story grammar questions would have produced better results.

Because the researcher was not involved in the instruction, it may be that the teachers helped the children complete the seatwork exercises but did not apply the story grammar technique when reading the basal stories thus compromising the method due to lack of oral practice, discussion and review.

The interaction between method and ability showed that poor readers receiving SGI scored differently from good readers. However, poor readers within the MRI or RRI groups did not score differently from good readers. An effect due to perhaps, teachers finding the methods difficult to apply. They may have tended to be less thorough with their low groups because of the extra time and effort they required when introducing new activities. On the other hand, it may be that poor readers are not at a level at which they can comprehend story grammar structure, especially when combined with complex and lengthy stories.

Lastly, there remains the possibility that the design weaknesses in previous studies combined to create positive results from story grammar instruction in those studies. Although the results of this study cannot be interpreted as proof that story grammar is not beneficial to reading skills, it is true that the study does not lend support to story grammar instruction. Perhaps by modifying the design of previous studies, the effect of story grammar instruction in this study was not as great. It may be that the theory underlying story grammar instruction is not sufficiently developed to be applied

to the classroom.

Recently, a number of researchers have criticized story grammar theory. Much of the criticism is focussed on what is perceived to be the theory's inability to account for the influence of personal knowledge, emotional reaction and reader bias in comprehension. In a perusal of the early research work in story grammar theory, one is struck by the emphasis on the relationship between story structure and comprehension and the lack of discussion of content or reader variables. The criticisms by Omanson (1982) and Spiro (1982) were certainly influenced by this apparent omission of the influence of reader and content variables on comprehension. On the other hand, some story grammar theorists have refuted these criticisms. They maintain that the underlying assumptions of story grammar theory have always included the understanding that variables other than structure influence text comprehension.

Spiro (1982) discusses the limitations of schema-based theories of comprehension, maintaining that although story grammars are representational frameworks for story content and structure, they cannot represent the affective aspects of a text. Therefore, the grammars cannot account for the reader's affective response to the reading material. Spiro states that:

Experiences are felt, and to the extent that feeling contributes to understanding...a representation...programmed on a computer will be deficient. (p. 83)

Spiro argues that readers engage in meditative thinking while reading, relating the story to themselves and the world as well as integrating the feelings generated from reading into their background experiences. This personal evaluative understanding is what "schema theory will be inadequate to deal with, and that is never reached in laboratory texts" (p. 80).

Both Omanson (1982) and Weaver and Dickinson (1982) criticize story grammars when contrasting them with their new text analyses. Omanson believes the story grammars are ineffective because they are not based on the reader's motivation and understanding of social actions. Weaver and Dickinson criticize story grammars for their assumption that content and reader knowledge are separate from syntactic structures. These authors state that:

Story grammar theory suggests that story content has status which is independent of syntactic categories.
(p. 236)

Mandler's (1982) response to Weaver and Dickinson's criticisms, was that story grammars do not exclude the effect of other text variables such as sentence structure, word meaning, or emotional content. She believes that story grammars cannot be dismissed because they do not account for all aspects of text processing, but that story grammar must be used in conjunction with our knowledge of other aspects of memory and recall. When responding to Omanson's criticisms, Mandler states that story grammar theorists also believe that narration resembles real-

life and that knowledge of social actions guides reading. Mandler proposes the different text analyses be combined to provide a more comprehensive analysis.

It becomes apparent from these criticisms that story grammar theory requires further research.

Findings of this study do not support the notion that story grammar instruction is superior to other techniques for Grade 2 students. There were no significant differences on any reading skill in favor of Story Grammar Instruction. Various possible explanations have been presented to account for these results.

Recommendations for Future Research

Based on the findings of the study, several recommendations for future research can be made, some to correct weaknesses in the study design, while others are made in response to more recent findings about story grammars. Recommendations are:

1. It is recommended that in a nested design study with three or more factors, each class have a sufficient number of students (25 or more). This should help to solve the problem of inadequate cell numbers, especially for classes in which there is an uneven distribution of boys and girls and good and poor readers.

2. In studies where teachers must learn a new teaching method, it is recommended that they receive training and supervision during the year before the study, to ensure that

each is competent in applying the method and has internalized it sufficiently to be confident when teaching.

3. It is also recommended that all seatwork material be tested for difficulty level during the year before the study. Then perhaps two levels of each activity can be produced - one for competent readers and one for less skilled readers.

4. For a classroom study requiring use of reading materials, it is necessary that every precaution be taken to ensure that students are reading from material at their instructional level. This, too, might best be done during the year before the study. Perhaps the teachers can agree to administer a placement test in September of the study year. Results from this test could be analyzed by the teacher and researcher and used to assign children to reading material at appropriate levels.

5. A review of the literature suggests a recommendation about measuring devices. Perhaps the story grammar concept could be measured more accurately by asking children to recall poorly organized stories (Stein, 1982). It may be that children taught with a story grammar would be better at recalling disorganized text because they would have a method for restructuring the passage.

Summary

The purpose of the study was to assess the effect of story grammar instruction on Grade 2 students in an environment that was as closely related to the regular classroom as possible. This involved applying story grammar by using the school's basal readers. Furthermore, it necessitated involving classroom teachers who required training and supervision. The study also attempted to address design weaknesses found in previous studies by increasing the number of subjects, including a second control group, applying the method to primary grade students, and lengthening the treatment time. Finally, the results and discussion were presented accompanied with recommendations for future research.

APPENDIX A - STORY GRAMMAR INSTRUCTION

This appendix contains the following materials:

- a. A description of how to introduce the story grammar concept that was given to the SGI teachers.
- b. The four stories used to introduce the story grammar concept (all nine classes received these stories).
- c. Seatwork activities to complement the four contrived stories (only the SGI group received these materials).
- d. A list of the seatwork activities given to the SGI group.
- e. Examples of the activities given to the teachers of SGI.

Introducing the Story Grammar Concept

The directions to the teachers were as follows: Use the four stories provided by the researcher (The Lion and The Mouse, The Gingerbread Man, The Big Race, and The Fox and The Crow).

Initially teach the story categories (setting, goal, happenings, ending) to the whole class. Illustrate the categories by reading The Lion and The Mouse to the children. Then reread the story and break it into the four main categories. Discuss the story information that belongs in each category. Ask the children questions to elicit their comprehension of the categories (General: What do we learn in the setting? What is the goal? What are the happenings? Specific: What is the goal in this story (lion)? What is the setting in this story? What is the ending in this story?).

Show the children a demonstration chart with the outline (refer to Chart 5). Review the categories. Take the story strips for the four main categories and have children read them aloud. Ask the children where each paper strip should be placed.

Give copies of the story to the children. Read the story again with the children. Ask them category questions again. Then give the children colored pencils. Use one color for each category. Ask them to underline each category with a different color. Children will need a lot of direction for this activity. Then allow time for independent practice with the seatwork activity for The Lion and The Mouse.

Chart 4 - Example of Outline Chart

Setting:

Goal:

Happenings:

Ending:

The lion wanted to eat the mouse.

A mouse met a lion walking in the woods.

A mouse is not too little to help a lion.

The lion let the mouse go. Then the mouse helped the lion get out of the net.

The children fill in an outline sheet of their own patterned after the class chart. You might also print two or three category questions on the blackboard for the children to answer (i.e. What is the setting of the story? What is the lion's goal? What happened to make the lion like the mouse?).

On the next day, review the four story categories. Review the story outline chart for The Lion and The Mouse.

Teach the sub-categories in the Happenings category (beginning, sub-goal, try, result). Use the same story (Lion and Mouse) to illustrate these new categories. Reread the Happenings category of the story to the class. Read it again and indicate the new categories by naming them as you read.

Show the new outline chart for the Happenings category. Read through the sentence strips and ask children to place them in the correct category. Ask category questions. Then give each child a copy of the Happenings part of the story as well as colored pens. Proceed as on the first day - have a child read a category and then underline with a colored pen. Provide independent practice by having children complete the outline chart for seatwork.

The next day, review all the story categories. Illustrate using The Lion and The Mouse chart. Ask oral category questions. Have children place the story strips into the chart.

Read the story The Gingerbread Man to the children. Then read the categories on the outline chart for The Gingerbread Man. Ask children to read category sentence strips for the chart. Place the strips on the chart in the correct order. Note that not all the information in the story is used in the outline. Some information is not necessary to the basic story outline. This should be pointed out to the children. Remove all the strips from the chart and mix them. Ask children to identify each category strip and place it on the chart again.

Give copies of the story to the children. Read the story again. You may want to use the colored pens to underline categories. Independent practice should be provided by using the outline chart seatwork provided for the story.

During the next week, use the next two stories: The Fox and The Crow and The Big Race. Seatwork activities have been provided for both stories. The children should complete these during an independent practice time.

Work through the stories in the basal reader, using the story grammar for 50% of the comprehension time. Some stories do not conform to the story grammar and during that week, you will not teach story grammar. Therefore, during the next week, you will use story grammar for the entire week.

Keep reviewing the categories and the information appropriate to each category. Use the seatwork provided to provide independent practice.

Contrived Stories

The Lion and The Mouse

One day a mouse met a lion in the woods. The lion was hungry. He wanted to eat the mouse. The lion caught the mouse in his paws. The mouse was afraid. He did not want the lion to eat him. The mouse said, "Wait. Please let me go. I will help you one day if you let me go." The lion said, "How will a mouse help a lion? You are too little. But I will let you go." So the lion let the mouse go.

The lion went off to get some water. But on his way, the lion got caught in a big net. The net was made of rope. The lion wanted to get out of the net. But he could not get out by himself. The lion called, "Help. Help." The mouse came back to the lion. The mouse bit the ropes in the net and made a hole. The lion got out of the net.

The lion said, "Thank you Mouse. Now I see that you are not too little to help a big lion."

The Gingerbread Man

An old woman and an old man lived in a house in the woods. They had a good house but they were sad. They wanted to have a little boy. The old woman made a gingerbread man. She put him on the pan to bake. But the gingerbread man wanted to run and play. He hopped off the pan. Then he ran away and said, "Run, run as fast as you can. You can't catch me I'm the Gingerbread Man."

The gingerbread man met a horse. The horse was eating grass. But the grass was not very good. The horse wanted to eat the gingerbread man. He thought the gingerbread man would taste good. The horse said, "Come and play with me." But the gingerbread man ran away and said, "Run, run as fast as you can. You can't catch me I'm the Gingerbread Man."

Then the gingerbread man came to a river. It was cold and deep. He wanted to get across the river. He tried to swim, but could not. He did not know what to do. The gingerbread man was sad because he could see the old woman and the old man. They were running along the road to take him home.

Then the gingerbread man met a fox. This fox was smart. The fox wanted to eat the gingerbread man. He liked to eat gingerbread because it was so good. The fox said, "I will help

you to cross the river. Get on my back. Then I will swim to the other side." The gingerbread man got on the fox. The fox swam into the river. Then the fox stopped. He opened his mouth and ate the gingerbread man.

The old woman and the old man went home alone, but the fox had a good lunch.

The Fox and The Crow

A long time ago, a fox was walking in the woods. The fox saw a crow sitting in a tree. The crow had some grapes in her mouth. The fox wanted to eat the grapes because they looked so good. So the fox went over and sat under the tree. He wanted to make the crow drop the grapes. The fox said, "Mrs. Crow! Will you sing for me? You must have a beautiful voice." The crow thought the fox was so nice that she opened her mouth to sing. Then the grapes dropped out of her mouth. The fox caught the grapes and had a good lunch.

The Big Race

One beautiful summer day, a rabbit was walking in the woods. The rabbit wanted to have a race with a friend. He liked to win races.

Then the rabbit saw a turtle having a nap. He wanted the turtle to race with him. The rabbit said, "Turtle, wake up. Will you have a race with me?" The turtle was a good friend, and he said, "Yes. I will race with you."

They started the race and began to run to the pond. The rabbit was faster than the turtle. Soon the turtle was far behind. But the rabbit ran so fast that he got tired. Suddenly, the rabbit wanted to go to sleep. He sat down in some flowers, and fell fast asleep.

The turtle was near the pond. He couldn't see the rabbit. He thought the rabbit must be lost. Suddenly, the turtle wanted to win the race. He ran as fast as he could. He was getting tired. But, he kept running, and then he won the race.

The rabbit was still asleep, and didn't know that he had lost the race.

Seatwork Examples

The following exercises illustrate the type of activity that was given to the students of the experimental program after they had read the contrived stories.

Outline Chart and Category Strips

The mouse said he would help the lion, if the lion let him go. Then the lion got caught in a net and the mouse helped him get out.

The lion wanted to eat the mouse.

A mouse met a lion in the woods.

A mouse was not too little to help a big lion.

The previous sentence strips were cut out by the children and pasted onto the following chart in the correct categories:

Setting:

Goal:

Happenings:

Ending:

Macro-cloze

One beautiful summer day, a rabbit was walking in the woods. The rabbit wanted _____

Then the rabbit saw a turtle having a nap. The rabbit wanted _____

The rabbit said, "Turtle, will you have a race with me?" The turtle said, "Yes, I will."

Soon the turtle was far behind. But the rabbit was tired. He wanted to go to sleep. He sat down in some flowers and

The turtle was near the pond. He couldn't see the rabbit. Suddenly, _____

He ran as fast as he could. _____

The rabbit was still asleep, and didn't know that he had lost the race.

Seatwork Activities

The following activities were used for seatwork for the children receiving story grammar instruction.

- a. Macro-cloze. The researcher deleted a story category (e.g. attempt) from a whole story printed on a sheet of paper. Blank lines indicated the deleted section. Students filled in the appropriate sentence or sentences to make a complete story.
- b. Story Outline. The researcher parsed the basal reader story and printed each story category on a strip of paper. She then printed the category titles (e.g. setting, goal, try, result) on a sheet of paper in the correct order. The students matched the sentence strips with the category titles to make a story outline.
- c. Incorrect Category. The researcher substituted information in categories from one story into a second story. The students located the incorrect information and crossed it out.
- d. Category Questions. The researcher constructed questions that would elicit information from specific categories.
- e. Reordering Categories. The researcher printed each story category from a basal reader story on strips of paper. These paper strips were then scrambled. The students had to rearrange the strips in the correct order.

Seatwork ExamplesMacro-cloze

Dawn needed to find water. Dawn was going to go up the mountain. She wanted to look for water. _____

At last she became so tired that she sank down on a rock to rest. "If only a fairy would help me," said Dawn. She wanted some help to find the water. As she spoke there was a little sound of falling stones. _____

Incorrect Category

Directions: There are four sentences that do not belong. Cross them out.

The animals were having a birthday party for their friend Rusty. Sandy wanted to find somewhere for his winter sleep.

Sandy couldn't go to his old spot because the tree was gone. Barny wanted Sandy to rest in his cave. Sandy said he had a problem. His problem was snoring. Rusty blew out the candles on the cake.

One morning Sandy knew it was time to go to Barny's cave. He lumbered along until he met Barny. Rusty wanted the other animals to play hide and go seek. Then Barny and Sandy went to sleep in the cave.

Category Questions

1. What is Sandy's goal in the story?
2. How did Sandy try to get this goal?
3. What is the result of Sandy's try?
4. What is the ending in this story?

Reordering Categories

Directions: Cut out the paper strips and place them in the right order.

The turtle was near the pond
A rabbit wanted to have a race
The rabbit lost the race
The rabbit went to sleep
The turtle said he would race to the pond
The race started
Soon the turtle was far behind

APPENDIX B - MATERIALS FOR MODIFIED READING INSTRUCTION

This appendix contains the following materials:

- f. A list of the activities given to the MRI teachers.
- g. A description of how to teach specific comprehension skills that was given to the MRI teachers.
- h. Examples of some of the seatwork activities given to the MRI teachers.

Seatwork Activities

The following activities were designed by the researcher for use as seatwork for the children in the modified reading program.

- a. Sequencing Strips. A story is divided into parts, with each event printed on a separate slip of paper. Students rearrange these paper strips to form a correctly sequenced story.
- b. Characterization. Students are taught a certain number of personality traits such as: vanity, jealousy, greed, kindness, generosity, cooperation, cruelty, selfishness, and honesty. These are printed on a sheet of paper. After a story is read, students draw two or three characters and print words for the appropriate traits onto the picture. The students must print a sentence to justify their word choices.
- c. Inferencing. The researcher printed inferences on paper. Students found the story facts from which the inferences were drawn. This activity was also reversed. The researcher printed the facts, and the students made the inferences (the researcher printed page numbers beside the questions to simplify the task).
- d. Cause and Effect Strips. The researcher printed causes on half the paper strips and effects on the other half. Students matched the strips to produce the correct cause-effect pairs and pasted them into their books.
- e. Details. The researcher printed WHO, WHAT, WHEN, WHERE, WHY, and HOW on the paper beside page numbers from the story. The students generated questions beginning with the key words.

- f. Pronoun Referents. The researcher rewrote a section of the story on paper. Above some of the pronouns, the researcher printed a number. The students printed the word to which the pronoun referred beside the number.
- g. Comparison and Contrast. The researcher made a chart to compare two (three, four, five) different characters or objects on a specific number of qualities. For example, in a story about three children at school, the chart might ask the students to compare: attitude to school, clothing, lunch, hair color, and distance from school.

Introducing Seatwork Activities

The following suggestions were given to the teachers of the modified comprehension classes:

- a. Sequencing: Prepare a series of pictures. Put the pictures on the blackboard in the wrong order as you tell a story (your story will be in the wrong sequence as well). Ask the children to tell you what is wrong. Repeat this procedure, but use sentences from a simple story. Put each sentence on a strip of paper and tape to the board. Get the children to rearrange the strips to make a good story.
- b. Characterization: Discuss personality traits with the children. Develop some simple explanations for certain traits and post them on the walls (i.e. vanity: thinking that you look good; jealousy: want something that someone else has; generosity: sharing your things with others; etc.). Then as a group, read a story and decide on the traits that the character exhibits. Children should defend their choices in oral discussions.
- c. Inferencing: Explain that sometimes we can make a guess about people or things, from the information we see, hear, or read. This will require much group practice and teaching.
 - i. Begin with pictures. Show a picture of children in coats and mitts (no scenery), and ask what the weather must be like. Then ask how the children knew the answer.
 - ii. Use simple stories and ask the group to give you the inference (i.e. The boy went into the kitchen. He got out an apple. What can you guess about what he will do? What can you guess

about why he will eat the apple? It is a hot day. Bill is too hot. He gets out a towel. What can you guess about what Bill will do?).

- iii. Make riddles about objects and have children guess the object.
- iv. Show the children the facts in the story and ask them to make an inference. Do this as a group activity. Pretend you are a detective with all the clues in a case, and you must discover the answer.
- d. Cause and Effect: Explain that some actions cause other events to happen (e.g. A ball thrown at a window causes the window to break). This is a difficult concept and will require group practice and repetition.
 - i. Give some causes and let children predict the effects (i.e. Leaving the water on in the sink causes... Giving your friend a present causes... In a car, putting on the brake causes... If you plant seeds in the ground, the water and sun cause...).
 - ii. Give some effects and let the children find the causes (i.e. What causes ...snow? ...your Mom to be mad? ...your Dad to be happy? ...a fire? ...the police to turn their siren on?). Some effects have many causes (i.e. fires, broken windows, lateness for school, etc.).
 - iii. Prepare large cause and effect strips for use with the whole group. Have the children match the strips to produce acceptable sentences.
 - iv. Use pictures: Put a picture of a burning candle, an open can of soup, a messy room, a broken cup and a birthday cake on the blackboard. Ask children to give the causes for these pictures.
 - v. Then discuss cause and effect with specific reference to a story in the reader.
- e. Details: Print simple sentences on the blackboard and have the children decide what question each sentence answers. Let the children match question words (who, what, how, etc) with the sentence answers.
- f. Pronoun Referents: This skill is difficult and requires much group teaching and practice. You may want to use pictures in teaching this skill. For example, you can make up an easy story about a dog, a

cat, a boy and a house. Put pictures of these characters right in the story. Tell the children that they are going to try to find different words with which to replace the pictures.

- i. Begin by printing short sentences on the blackboard (i.e. The ball is round. It is yellow). Ask the children what "it" refers to.
 - ii. Oral read sentences with pronouns in the reader. Ask what the pronouns refer to.
 - iii. Print sentences without pronouns and ask the children to supply them (i.e. The snow is white. We like to play in _____).
- g. Comparison and Contrast: Initially, complete a chart with characteristics of the children in the classroom. Put their names in the rows, and the characteristics on the columns. Fill in the information. Then ask questions such as: How is Bob different from James? How is Karen the same as Susan? Which three people have the same hair color? Then complete a chart with the students but use the information from a simple story. Ask questions that stress comparing and contrasting qualities and characters in the story.

Seatwork Examples

Cause and Effect

Directions: Print a sentence to tell what these things cause in the story.

1. Seeing a star caused _____

2. Seeing two men on horses caused the raccoon _____

3. The small rock rolling down the hill caused _____

Directions: Cut out the cause and effect strips. Match them and then paste them in your book.

CAUSE STRIPS

EFFECT STRIPS

The raccoon's hunger caused	the men to run away
The branch making a cracking noise caused	the old woman to build a barn
A rabbit running down the road caused	the first man to say "What was that?"
The raccoon's black mask in the moonlight caused	the men to think someone was following them

Pronoun Referents

Directions: Some words have numbers above them. Print a word that means the same as the numbered word.

A hungry old fox was hunting for his ¹ supper. He saw a fat partridge in the brush. He ² did not want to frighten her ³ away, so he sat down and spoke softly.

"What a beautiful bird you ⁴ are."

1. _____

3. _____

2. _____

4. _____

Characterization

Directions: Draw the partridge and the fox. Then choose three words that will tell about each animal. Print the words beside the animal. Then print a sentence that tells why you chose those words.

greedy

vain (think you look good)

sad

shy (afraid of people)

kind

generous (share with others)

smart

jealous (want something that a friend has)

honest

sly (play mean tricks)

Inference

Directions: Sometimes a story will not tell you everything. But the story will give "clues" or "hints". Then you must make a good guess.

1. page 117 Andrew put his hands above his eyes. Guess why he did that: _____

2. page 118 Andrew said "Can whales walk?" Guess how old Andrew is: _____

3. page 119 But Sue knew something was wrong. Guess how she knew. _____

Comparison and Contrast

Directions: Use the information from the story to complete the chart.

	BEAVERS	DOGS
Tell how they look:		
Tell what they do if they see danger:		
Tell where they live:		
Tell what they eat:		

APPENDIX C - TESTS, DIRECTIONS, SCORING KEYS, AND SAMPLE PROTOCOLS

This appendix contains all of the materials related to the tests and test procedures. This includes the following:

- a. Copies of the researcher-designed tests.
- b. Directions for administering the researcher-designed tests.
- c. Scoring procedures for the tests.
- d. Scoring keys for the tests.
- e. A sample scoring guide for a recall test.
- f. Samples of student protocols and their scores.

Researcher Designed Tests

Unprompted Recall Pretest

The Father, His Son, and the Donkey

A father and his boy had a little donkey that was not very good. They needed to plant some wheat. But they had no seeds.

"We must trade the donkey for some seeds," said the father. So they began to walk to the market to trade the donkey for some seeds.

On the way, the father and his boy met some children. "Look at them!" said a girl. "The father makes his little boy walk!" The father heard the little girl. He said, "I'll let the boy ride. Donkeys are made to ride on." So he put the boy on the donkey. The man walked beside the boy and the donkey. They went on their way to the market.

Soon they met a little old woman. "I'm surprised at the boy," the old woman said. "He makes his poor old father walk." The boy heard the old woman. The boy said, "Stop, Father. I'm going to walk and let you ride." The boy got down from the donkey and the man got up. They went on their way.

Soon they met a man. "Where is that big man going on the poor little donkey?" asked the man. "You will break its back." So the father jumped down and picked up the little donkey. The boy helped, and they put the donkey on the father's back. They walked down the road.

At last, they came to a hill. Just then, the father fell over a rock. Down he went with the donkey on top of him. The boy ran to help his father.

"What a day!" the father said. "From now on, I won't let people tell me what to do. I'll do what I think is best."

Unprompted Recall Posttest

The Garden

Frog was in his garden. Cat came walking by. Cat said, "You have a fine garden, Frog." Frog said, "Yes, it is nice, but it was hard work."

"I wish I had a garden," said Cat. Frog said, "Here are some flower seeds. Plant them in the ground. Soon you will have a garden."

Cat ran home. Cat wanted to plant the seeds. He dug some holes, and planted the flower seeds. Cat walked around the garden waiting for the seeds to grow. Cat wished the seeds would grow. Cat put his head close to the ground and said loudly, "Now seeds, start growing." Then Cat put his head very close to the ground and shouted, "NOW SEEDS START GROWING." Cat looked at the ground. But the seeds did not start to grow.

Frog came running up the path to Cat's garden. Cat said, "My seeds will not grow." Then Frog told Cat what to do. He said, "You are shouting too much. Leave the seeds alone for a few days. Let the sun shine on them, let the rain fall on them. Soon your seeds will start to grow."

That night, Cat looked out of his window. But the seeds were not growing. Cat thought the seeds must be afraid of the dark. So Cat went out to his garden with some candles. Cat said, "I will read the seeds a story and they will not be afraid." Cat read a long story to his seeds. The next day, Cat sang songs to his seeds. And the next day Cat played music for his seeds. Cat looked at the ground. But the seeds still did not start to grow.

Cat was tired and he fell asleep. Then Frog came walking by. Frog shouted. "Cat, Cat, wake up, wake up. Look at your garden." Cat looked at his garden. Little green plants were coming up out of the ground.

Cat said, "At last my seeds have stopped being afraid to grow. But you were right, Frog. A garden is very hard work."

Prompted Recall Detail and Inference Posttest

Patrick Lost His Ticket

Patrick was in first grade. He could go to school on the bus and cross the street at the stop light. He had his very own key and could open his own front door.

Patrick got ready for school by himself. He put on his blue jacket and cap. He put on his blue mittens and picked up his lunch.

Then his mother asked, "Have you got your bus ticket?" She came into the hall and gave him a kiss. Mother said, "Yes, I see you have your ticket." Then she opened the door.

Patrick ran down the front walk and then walked slowly along the sidewalk. He said good morning to the big police dog in the Smith's yard. He did not really like that dog, but he wanted it to like him. The light at the corner was green, and Patrick marched across the street.

He stopped at the bus stop and put his books and his lunch on the bench. He took off his mitt and felt in his pocket. His ticket was not there. He took off his other mitt and felt in his pocket. The ticket was not there.

He unzipped his jacket and felt in his jeans pocket. His ticket was not there. And the bus was coming. He opened his lunch, but the ticket was not there. And the bus was coming.

The bus stopped in front of Patrick, and the door opened. Patrick got on the bus and said, "I've lost my ticket." The bus driver laughed. The people in the front seat laughed. Everyone could see where Patrick had put the ticket.

The bus driver reached over and took the ticket out of Patrick's cap. The ticket had been stuck in the front of Patrick's cap. The bus driver said, "You are funny, Patrick." Patrick said, "Oh, I forgot."

Then Patrick jumped up on the big seat and pretended he was driving the bus. He thought about his lost ticket. Tomorrow, he would put it in his mitt so he could feel it as he walked to the bus stop.

Story Questions

1. Did Patrick live close to school? (inference)
2. How did Patrick get to school every day? (detail)
3. Tell 2 things that Patrick did to get ready for school. (detail)
4. Why did Patrick need the ticket? (inference)
5. What did mother ask when Patrick was ready for school? (detail)
6. How did Patrick feel about the dog.? (inference)
7. Why was Patrick upset at the bus stop? (inference)
8. Give two places that Patrick looked for the lost ticket. (detail)
9. What did the bus driver do when he saw Patrick? (detail)
10. Why did the people on the bus laugh? (inference)
11. How did the bus driver help Patrick? (detail)
12. Where was the ticket? (detail)
13. What will Patrick do when he gets off the bus? (inference)
14. How do you think Patrick felt when the people laughed? (inference)

Comprehension Detail and Inference Posttest

The Yellow Moon

It was a very dark night. All the bugs in the garden were going home. All of a sudden the ladybugs said, "Look! The moon has fallen. It has fallen into the garden. It is right here on the path." A little ant looked too. She saw that the moon had fallen. She told every ant she met. And they all said, "The

moon has fallen! The moon has fallen!"

A big grasshopper saw something on the path. He looked at it. He hopped over it. Then he called, "Look here, everybody. The moon has fallen!"

A toad hopped out of the pond and came to see. "What's going on?" she asked. The ladybugs and the ants told her that the moon had fallen. "Don't be so silly," said the toad. "The moon can't fall out of the sky." "But it did," said the ladybugs and the ants. "Just look over there, Mrs. Toad."

The toad looked, and there was the moon. She told them to rub their eyes and it would go away. So they all rubbed their eyes. But the moon was still there - big and round and yellow. The toad went up close to it. "I know what happened," she said. "The moon didn't fall down. Somebody pulled it down. There's a string on it." They all thought about what they should do.

The toad said, "I'll put it back. I'll kick it just like a football. I'll kick it back into the sky. Everybody got out of the way. Then the toad kicked it with all her might! Bang! The moon was gone!

They all looked up into the sky. The moon was back in the sky. The toad looked very pleased with herself.

Just then a little girl ran down the path. "Who broke my yellow balloon?" she asked. "I left it here before supper." But the ladybugs and the ants and the grasshopper and the toad didn't care. There were so happy the moon was back in the sky.

Story Questions

1. What did the bugs see on the path? (detail)
2. Who came out of the pond to see what happened? (detail)
3. Why did the toad tell them not to be silly? (inference)
4. What is the first thing the toad and bugs did to make the moon go away? (detail)
5. Why did the toad think that someone pulled the moon down? (inference)
6. Why did everyone get out of toad's way? (inference)
7. How did the toad put the moon back? (detail)
8. Why did the toad look pleased with herself?

(inference)

9. What did they see in the sky after the toad kicked the moon? (detail)
10. Why did the little girl run down the path? (inference)
11. What did the girl ask? (detail)
12. How did the animals feel about the girl's balloon? (inference)
13. Who broke the girl's balloon? (detail)
14. Where was the moon when the bugs couldn't see it? (inference)

Directions For Administration

Some general comments about the administration of the tests in this study are given followed by the specific directions for each test.

The UR pretest had a time limit of 15 minutes, which was ample for most students. The UR posttest had a time limit of 20 minutes. The time was increased because it was felt that the students probably had better writing skills than before. The researcher or teacher distributed the stories and as the children finished and raised their hands, the researcher or teacher took the story from the child and gave him/her a piece of foolscap with the directions "Put your name on the top".

The PRD and PRI, and CD and CI tests had time limits of 17 minutes.

Unprompted Recall Tests - Directions

You are going to read a story (examiner displays story). When you finish reading, you will print down everything you remember from the story. You will try to tell me the story. But you will not be able to look at the real story to help you. You must try to tell me everything that happened in the story.

First, I will give you the story. Then when you finish, put your hand up. I will take the story away and give you some paper. You print the story on the paper. You cannot look at the real story when you print it on the paper. You are going to try to remember as much of the story as you can. You should

tell the story just the way you would tell your mother about a story you had read at school.

Remember: read the story; put your hand up. I will give you paper. Print down everything you remember. Do the best you can. Try to remember as much as you can. Do not worry about spelling. It does not matter.

I will tell you what to do again. Listen carefully. Read the story. Put your hand up. Print the story on the paper. Remember as much as you can.

The story is called ... (examiner gives the name of either the UR pretest or the UR posttest).

Prompted Recall Detail and Inference Test Directions

You are going to read a story and answer 14 questions. I am going to show you some examples of questions and how you should answer them. First, let's read the short story on the blackboard (Children read the following story: Tom was at the zoo. He saw the animals. Tom was happy.). Now let's answer the questions (Children read the following questions: Who was at the zoo? What did Tom see? Why is Tom happy? Where will Tom go now? The examiner elicits the following responses: 1. Tom; 2. animals; 3. because he is at the zoo or because he saw the animals; 4. he might go home, or to school, or to a friend's house, or any other place that is reasonable). You do not have to answer with a complete sentence. Sometimes, just one word is enough. But sometimes, you need to put a longer answer (Examiner will also point out that some questions are thinking questions and might not be in the story).

You are going to read a story and answer some questions. I will give you the story to read. When you finish, put your hand up. Then I will give you the questions to answer. You will not be able to reread the story to find the answers. You are going to try to remember the answers by yourself. Do not worry about spelling. Spelling does not matter. Remember, read the story. Then put your hand up. I will give you the questions and some paper. Put the answer on the paper. Put the numbers of the questions on the paper too. The name of the story is Patrick Lost His Ticket.

Comprehension Detail and Inference Test Directions

The directions for this test are the same as paragraph 1 for the Classroom Comprehension (No Text Comprehension). Then the following directions are given: You are going to read a story and answer some questions. I will give you the story, the questions, and the paper for you to print the answer. You should read the story and then answer the questions. Remember to print the numbers of the questions on the paper. Spelling does not matter. Do not worry about spelling. Remember, read the story. Then read the questions and answer them on the piece of paper. Put the numbers of the questions on the paper. The name of the story is The Yellow Moon.

Scoring Procedures

Some general rules for scoring these tests were formulated and then a separate scoring key was made for each test. The general scoring procedures will be discussed followed by a description of the scoring keys. Then a scoring key for each test has been included as well as a score sheet for marking student responses (Chart 4) and sample student protocols marked according to the scoring keys.

All of the tests were marked in accordance with the following rules:

- a. Incorrect spelling was not an error. The examiner was allowed to interpret according to the context of the story in which the spelling error was made. For example, 'pant' was acceptable as 'plant' in the recall posttest (The Garden).
- b. Incorrect verb tense was not an error. For example, 'the man get on donkey' was acceptable.
- c. Omission of connecting words such as and, a, the, to, and but was not an error.
- d. Incorrect capitalization or punctuation were not errors.
- e. Incomplete sentences were not errors.
- f. Certain word substitutions were allowed as indicated on each scoring key.

Chart 5 - Score Sheet for Unprompted Recall Posttest

Characters	a	b	c	d
Place	a	b	c	
Goal	a	b	c	
Beginning 1	a	b		
Goal 1	a	b		
Try 1	a	b		
Result 1	a	b		
Beginning 2	a	b	c	d
Goal 2	a	b		
Try 2	a	b	c	d
Result 2	a	b		
Beginning 3	a	b	c	
Goal 3	a	b		
Try 3	a	b	c	
Result 3	a	b		
Beginning 4	a	b		
Goal 4	a	b		
Try 4	a	b	c	
Result 4	a	b		
Beginning 5	a	b		
Goal 5	a	b		
Try 5	a	b		
Result 5	a	b	c	d
Ending	a	b	c	

- g. References within the subjects' protocols to previous text are allowed and marked as correct. For example, the student might print: The father wanted to get on the donkey and so he did. According to the scoring key, this represents only a goal (the father wanted to get on the donkey). The second half of the sentence (and so he did) does not match the possible responses on the scoring key for the category called a try. However, the words "and so he did" refer to the fact that the father did get on the donkey. Therefore the student is given credit for the try category and the sentence is marked as: The father wanted to get on the donkey and so he got on the donkey.

Description of Scoring Keys

The keys for the tests were formulated to be as objective as possible. The tests were administered in two different schools with five different classes. The protocols from these schools were analyzed and the correct responses categorized into the story grammar (UR tests) or into the question numbers (PRD, PRI, CD, CI). The resulting scoring keys look like a multiple choice test.

Each UR story was parsed into the various story categories and subcategories. Each of the PR and comprehension

stories were divided into 14 items. These test items were then divided into single or double point items. For example, in a UR test, the category "characters" might have included 2 people or animals. The possible points might be awarded as follows: mention of 2 characters would receive 2 points; any 1 character would receive 1 point, and no mention of characters would receive 0 points. For the PRD and PRI, CD and CI tests, the question might require 2 answers (i.e. tell two places Patrick looked for the ticket). Two correct responses would receive 2 points; one correct response would receive 1 point and no response or an incorrect response would receive 0 points. A score sheet as shown in Chart 5 was then completed for each student for each test based on his or her written protocols. The subject's written responses had to match one of the possible answers on the scoring key in order to score points.

The possible answers on the scoring keys are written in as concise a manner as possible with slashes to indicate the word "or" and brackets to indicate parts of sentences. For example, the following might be listed as a possible response: (go/rode/went/walk/taking donkey to) (city/town/store). This would allow any of the following student sentences to receive a point: Dad went to city; Boy walk town; Go store; rode to town. A second example would be: (Dad/Boy) (put/took/got) donkey on (dad/back/shoulders/top) OR Donkey (was on/got on) (top/dad/back/shoulders). This would allow any of the following sentences to receive points: He put donkey on top; Donkey got on shoulders; Boy took donkey on back.

The general format of the scoring keys is as follows. The category (UR test) or question number (PRD, PRI, CD, CI) are in the left hand column. The possible responses are printed in the next four columns. However, the column for no response and incorrect response has been deleted from the scoring keys for purposes of clarity. No responses and incorrect responses were recorded when marking the protocols, and awarded 0 points. The points awarded for the responses are directly under the possible responses.

Scoring Keys

Unprompted Recall Pretest - A Father, His Son, and the Donkey

The following word substitutions are allowed in all of the subjects' written protocols:

Father: Dad, man, he, I, you

Son: boy, child, he, I, you

Father & Son: they, the, their, we, us, Dad & Boy (or any other combination involving the separate substitutions for Father or for Son). There is one item for which pronouns cannot be substituted for nouns. The written protocols must use the words Father, Dad, or Son, Boy to score points in the character category.

met: saw, heard, came to, looked, passed

trade: sell, change

donkey: he, it

people: them, they, persons, anyone, nobody, someone,

kids: boys, girls, children

Category	Response A	Response B	Response C
Charac.	Father	Son	Response A and B
	1	1	2
Place	(go/rode/went/walk/ taking donkey to) (city/town/store) town/store)	(taking donkey to/ go/rode/went)(food- market/supermarket/ market)	
	1	1	
Goal A	sell donkey	(for/buy/plant/get/ want/need) seeds	Response A and B
	1	1	2
Goal B	(need/plant/get/for/ want/grow) wheat		
	1		
Begin.1	they met kids		
	1		
Goal 1	Man want boy (ride/ get on/go on) donkey OR Man said boy (can go/ get on/can ride) donkey OR		

	Man said (get on/go on/jump on) boy		
	1		
Try 1	Boy (hopped on/get up/get on/go on/jump on/went on/went up) donkey	Dad (put/made/let) boy (ride/on/get on) donkey	
	1	1	
Result 1	Boy (sat on/was on/rode) donkey	Father walk	Response A and B
	1	1	2
Begin.2	They met (lady/woman)		
	1		
Goal 2	Boy want Dad (get on/ride/get up) OR Boy said Dad (can go on/get on/take) donkey	Boy walks	Response A and B
	1	1	2
Try 2	Boy (jumped off/came off/climbed down/get off/went off/jumped off/went down/came down/down from) donkey		
	1		
Result 2	Dad (rides/on/get up/get on/went on/climbed up/came on/jump on)		
	1		
Begin.3	They saw man		
	1		
Goal 3	Dad didn't want (hurt/break) donkey's back		
	1		

Try 3	Dad (went/jumped down/got off) 1	(picked up/carried) donkey 1	Response A and B 2
Result 3	(Dad/Boy)(took/put/ got) donkey on (dad/ shoulders/back/top) OR donkey (was on/got on) (top/dad/shoulders/ back) 1		
Begin.4	They saw (hill/ mountain) 1		
Goal 4	(need/want/had to) (climb/go up) 1		
Try 4	Dad (stumbled/fell/ tripped) 1	(over/on)(rock/ stone/boulder) 1	Response A and B 2
Result 4	Donkey (fell/landed) OR (fell/tripped) with donkey 1	(on top/over/on) 1	Response A and B 2
Ending	Dad (won't/don't)(let/ want/allow) people (decide/tell me what to)(think/do) OR Dad (won't/don't)(let/ want/allow) people boss (me/him) OR Dad said people (won't/don't)(tell me what to do/boss) 1	Dad do what is (best/good/right) 1	Response A and B 2

Unprompted Recall Posttest - The Garden

The following word substitutions are allowed in all of the subjects' written protocols:

seeds: sunflower seeds, them, it, flowers, plants, flower seeds

Frog: toad, he, cat, she, me, I, other animal

Cat: frog, he, toad, me, I, other animal

garden: yard, ground, soil

shouted: yelled, tells, said, screamed

grow: come up, come up out of, came up, sprout, turn into

want: would like, wish

afraid: scared, frightened

plants (verb): put in

Category	Response A	Response B	Response C
Charac.	frog/toad 1	cat 1	Response A and B 2
Place	house/place 1	garden 1	
Goal	I (want/like) some seeds OR Can I have seeds OR said he didn't have (seeds/garden) 1	want (one/plants/grow/garden) OR Can I (have/get/make) garden 2	

Result 2	(seeds/garden)(would/ do) not (grow/come) OR There were no plants OR Nothing grew 1		
Begin.3	Frog (walked by/came/ passed by/ran up) 1	Frog (came/walked/ ran)(up/down/along) (garden/house/path) OR Frog (came/ran) cat's (garden/house) 2	
Goal 3	Frog (wants to find out/asked) about noise OR What (is/the)(noise/ shouting/racket) OR (Why you/Who/How come) shouting 1		
Try 3	Frog said (because you/ not to/to stop) shout OR You (make much noise) bugging them) OR Wait (until/for)(rain/ sun) OR (Let/they need)(rain/ sun)(shine/pour/fall/ come on them/get on them) OR Leave in (rain/sun) OR Let seeds (grow in/sit in/have)(rain/sun) OR Frog (explained/told cat) what to do OR	Two responses from Column A	

	Leave seeds (alone/for a while/for days) OR (Give them/they need) (a break/time) OR (Wait/it takes)(a few days/a couple of days/ some days/a while) OR Let them (rest for day/grow by themselves)		
	1	2	
Result 3	Seeds grow		
	1		
Begin.4	Cat looks out		
	1		
Goal 4	Cat doesn't want seeds to be afraid OR Cat (thinks/said) seeds afraid OR Seeds (scared of dark/ afraid at night)		
	1		
Try 4	Cat (light/goes with/ brought/put/got/went with) candle OR (sing/read/do nice stuff/play music/read story/try everything to make garden grow)	Two responses from Column A	
	1	2	
Result 4	Seeds do not grow		
	1		

Prompted Recall Detail and Inference - Patrick Lost His Ticket

The Yellow Moon

Any of the following word substitutions are allowed in all of the subjects' written protocols:

Patrick: he, him

ticket: it

cap: hat

jacket: coat

bus driver: he, him

mittens: gloves

Category	Response A	Response B	Response C
1 (infer)	No/nope/didn't OR Did not live (close/ near) school OR Lived far 1		
2 (detail)	Bus 1		
3 (detail)	(put/got in/take/got/ wore/picked up/did not forget)(lunch/cap/ jacket/mittens) 1	Two responses from Column A 2	
4 (infer)	to get (school/ride/ on bus) OR else he couldn't get to school OR		

	<p>couldn't go without ticket</p> <p>OR</p> <p>he give it bus driver</p> <p>OR</p> <p>for bus</p> <p>1</p>		
5 (detail)	<p>if (he/you)(had/got) ticket</p> <p>OR</p> <p>(have/did/do) you (got/bring/have)ticket</p> <p>OR</p> <p>have your ticket Patrick?</p> <p>1</p>		
6 (infer)	<p>(not good/unhappy/bad/ucky/awful/mean/angry/not happy/sorry/sad)</p> <p>1</p>	<p>(afraid/unliking/worried/hate/didn't like/scared)</p> <p>OR</p> <p>(want/wish/felt) (friends/like him)</p> <p>OR</p> <p>thought dog bad</p> <p>OR</p> <p>would be nice dog</p> <p>OR</p> <p>wanted (dog be nice to him/to like him)</p> <p>2</p>	
7 (infer)	<p>(could not find/did not have/lost/had no/did not find) ticket</p> <p>OR</p> <p>ticket (gone/lost)</p> <p>OR</p> <p>didn't know where ticket was</p> <p>1</p>		
8 (detail)	<p>(mitten/glove/lunch/jacket/coat/pocket/pant/shirt/jeans)</p> <p>1</p>	<p>Two responses from Column A</p> <p>2</p>	

9 (detail)	laughed 1		
10 (infer)	ticket (where he put it/in front) OR ticket (stuck in/on/ in/under) cap OR said lost ticket	people (saw ticket/ know where it is) OR he lost ticket but it wasn't lost OR Patrick lost ticket but didn't OR said didn't have ticket but did OR Patrick (couldn't/ didn't) (know/see) ticket	
11 (detail)	(finding/taking/ getting/giving) ticket OR (pull/took) ticket out OR took ticket (off/out) OR took cap gave ticket	(get/pull/take/ find) ticket (out of/from/off/under) (cap/him/hat) OR OR look on hat and found ticket	
12 (detail)	(cap/hat) 1	 2	
13 (infer)	(play/work/cry/cross street/think about it/ thank bus driver)	(go to/walk to) school	
14 (infer)	(happy/excited/funny/ surprised/unhappy/sad/ mad/scared)	(embarrassed/upset/ ashamed/nervous/ shy/concerned/dumb/ shameful/silly/ worried)	

Comprehension Detail and Inference - The Yellow Moon

The Yellow Moon

The following substitutions are allowed in any of the subjects' written protocols.

toad: frog, he, she, I

bugs: ants, insects, ladybugs, animals, they

girl: she, child, boy

moon: it

balloon: ball

broke: popped, wrecked, exploded, destroyed

Question	Column A	Column B	Column C
1 (detail)	ladybugs 1		
2 (detail)	moon (fallen/down) 1		
3 (infer)	Any reasonable answer 1		
4 (detail)	(rubbed/wiped) eyes 1		
5 (infer)	toad(looked at/saw/ touched)(rope/twine/ string) OR (moon had/because of/ there was) string/ rope/twine)		

	<p>OR</p> <p>string (attached/was on) moon</p> <p>1</p>		
6 (infer)	<p>(moon was not down/ toad get moon up)</p> <p>OR</p> <p>toad (kick/put) moon</p> <p>OR</p> <p>(so toad would not kick bugs/might hit them)</p> <p>OR</p> <p>bugs thought (toad could put moon up again/moon would fall on them)</p> <p>OR</p> <p>they (didn't want to get kicked/could have got hurt)</p> <p>OR</p> <p>moon might (pop/hit someone)</p> <p>1</p>		
7 (detail)	<p>kicked</p> <p>1</p>		
8 (infer)	<p>everyone was happy/ toad was brave/animals saw moon</p> <p>OR</p> <p>toad (kicked/put/got) moon (back/in place/up)</p> <p>OR</p> <p>moon (went up/in sky/ back)</p> <p>OR</p> <p>toad did (something helpful/something amazing/a good thing)</p> <p>1</p>		
9 (detail)	<p>moon</p> <p>1</p>		

10 (infer)	balloon (popped/not there/gone/missing) OR to see who pop balloon OR someone pop balloon	(dropped/look for/ had lost/forgot/ left/couldn't find/ trying to find) balloon OR (see if/because) balloon was there OR (see/get/find/for) balloon	
	1	2	
(11) (detail)	who wrecked balloon		
	1		
12 (detail)	(didn't/no one/never) (care/mind/worry) OR not sorry OR no one (care/mind/ worry)		
	1		
13 (infer)	toad		
	1		
14 (infer)	sky	(under/hidden by/ behind)(cloud/tree/ house/smoke) OR up in clouds	
	1	2	

Samples of Student Protocols

Ten student protocols are included for illustrating the scoring procedures. They have been typed for purposes of clarity but are otherwise unchanged. After each protocol, there is a specific score given for the student's responses. Examples from all of the researcher designed tests are given.

Unprompted Recall Pretest Protocols

Student A

The fother was on The Doncky and
he fell down the hill.

This subject was given credit for the following categories: Characters (1 point); Result 2 (1 point) and Try 4 (1 point). As Subject A did not mention the Boy from the story, he/she only received part marks in the characters category. This example illustrates protocols that received low scores on this test.

Student B

frthar whet to the mrkit.
The docky wush bad.
They whr coen to plats.
A men bot the docky

Points were awarded as follows: Characters (1 point) and Place (2 points). This subject used a format that was typical for many of the protocols. The story was written in point form. Each thought on a new line. The last two sentences received no points.

Student C

Once there lived a man with a boy and a
donkey. The man ad the boy hade no
wheat for there donkey so they
went to the store to get some seeds.
on there way to the store they met
some children. there

Student C represents protocols from students using a story format during recall. Some children attempted to write a story including as many details as possible. Usually they were only able to include the very beginning of the story. Points for Student C were given for these categories: Characters (2); Place (1); Goal A (1) and Beginning 1 (1).

Unprompted Recall Posttest Protocols

Student D

The frog had a Petty graden
 The cat sed you heve a nice graden
 here teck the sass and pant the
 sass wuot not grow so the shud then
 the cam bye and the cat sad my sass

Points for Student D were given for these categories: Characters (2), Place (1), Beginning 1 (1) and Result 2 (1). This protocol illustrates the type of responses that received low scores. Also, it should be noted that the student's sentence "so the shud then the cam bye" was not given points because some key words are missing and cannot be inferred by reference to previous text. The student would have had to print "so cat shouted at seeds frog came by" in order to score points.

Student E

the seds wudint grow
 he sang a song
 he sed a store
 te seds didnt growe
 the frog told him to plant
 the seds

The following points were given for this protocol: Characters (1), Result 2 (1), Try 4 (2) and Result 4 (1). The spelling mistakes (wudint, sed) and punctuation and capitalization mistakes were ignored..

Student F

Frog was in the garden
 when cat came walking and

said What a fine garden
 you have I wish I could
 have one. said cat well
 here is some seeds for
 you to planet. So off
 went cat. to planet his
 seeds when he came
 home. he went in the grass
 to dig a hole and then
 when he was done he
 put seeds and then waited
 for them to grow. after
 a while later cat started
 to yell at the plant he
 yell Start growing plant
 Frog came running to
 what was wrong.
 Then he could see what
 was wrong cat was yelling
 at the planet. Frog said
 don't do that you are
 destorving them. then after
 and an hour or so fell
 night that night

This protocol represents recalls from students receiving high scores. Points were awarded as follows: Characters (2), Place (2), Goal (2), Beginning 1 (1), Try 1 (1), Result 1 (1), Beginning 2 (1), Try 2 (1), Beginning 3 (1) and Try 3 (1). There is an example of a reference of previous text in this protocol. The students wrote, "Then he could see what was wrong cat was yelling at the planet. Frog said don't do that you are destorving them". In the scoring key, these sentences correspond to the Try 3 category. However, for this category the student must write "Frog said to stop shout/yell". But Student F did not use these words. Student F wrote "Frog said don't do that". however the word "that" refers to "yelling at the plants". Therefore, Student F is given credit for Try 3.

Comprehension Detail and Inference Protocols

Student G

1. Yes he did live across the school
2. at the bus stop
3. his blue mittins and coat
- 4.
- 5.
6. sad

7. he loast his Ticket
- 8.
9. happy
10. He tride to loke for it
11. find it
12. under the stars
13. glad that he fond
- 14.

Student G did not answer questions 4, 5, 8 and 14 and therefore scored 0 points for these questions. Furthermore, the answers to questions 1, 2, 3, 9, 10, 12 and 13 are incorrect and therefore receive 0 points. The only correct responses were question 6 (1) and 7 (1). This protocol is an example of those receiving extremely low scores. It also demonstrates a scoring procedure in which context can influence the final score. For question 3, the student response is "At the Bus stop". The correct response is "bus". The question was: How did Patrick get to school every day? Although Student G had the word "bus" in the answer, no points were given because the context in which "bus" is printed is incorrect as an answer.

Student H

1. NO
2. by bus
3. Put on his blue jacket, and cap
4. for the bus
5. did he have the ticket
6. he wanted to like him
7. he thout he lost his ticket
8. in his poket and in his jeans
9. laugh
10. the ticket was in his cap
11. he showed him wher the ticket was
12. in his cap
13. go to school
14. shamful

This protocol illustrates responses from students receiving high marks for this test. Points were awarded as follows: question 11 was incorrect and received 0 points; questions 1, 2, 4, 5, 7, 9, 10, and 12 received 1 point; Questions 3, 6, 8, 13 and 14 received 2 points.

Prompted Detail and Inference Protocols

Student I

1. dugs
2. The moon fell
- 3.
- 4.
- 5.
6. SO toad can kik it
- 7.
8. Beus She kik The moon dack
9. moon
10. To get her balloon.
11. wher was her balloon.
- 12.
13. animals
14. In the path

Student I was awarded points as follows: 3, 4, 5, 7, and 12 (0 points - no answer); 11, 13, 14 (0 points - incorrect responses); 1, 2, 6, 8 and 9 (1 point) and 10 (2 points). This protocol received a relatively low score.

Student J

1. All the bugs in the garden.
2. The moon has fallen.
3. Because the moon can't fall out of the sky.
4. Rub their eyes
5. Because there was a string on it.
6. Because the toad told them to.
7. By kicking it.
8. She put back the moon.
9. The moon.
10. To get her balloon.
11. Who broke my yellow balloon.
12. They didn't care.
13. The toad.
14. Up in the sky behind the clouds.

This is an example of protocols receiving high scores for this test. Notice that the spelling, capitalization and punctuation are good. Many of the children who had high scores were able to print in a similar manner. However, there were some children who could print the correct answer, but with many more mistakes. The points were awarded as follows: question 6 (0 points - incorrect response); questions 1, 2, 3, 4, 5, 7, 8, 9, 11, 12 and 13 (1 point); questions 10 and 14 (2 points).

APPENDIX D - TABLES OF MEANS AND STANDARD DEVIATIONS FOR
POSTTESTS

This appendix contains the Tables with the adjusted means and standard deviations for the posttests for both the analysis of covariance with method, class and sex as independent variables and for the analysis of covariance with method, class and ability as independent variables.

Table XVII - Adjusted Means and Standard Deviations for
Boys and Girls for the Teaching Methods and Total Population for
the Unprompted Recall Test

		Story Grammar	Modified Reading	Regular Reading	Totals
Sex					
Boys	\bar{X}	9.54	9.72	11.02	10.14
	s	(4.19)	(3.21)	(3.23)	(3.70)
Girls	\bar{X}	12.40	11.59	11.02	11.55
	s	(4.43)	(3.12)	(3.96)	(3.88)
Totals	\bar{X}	11.01	10.72	10.94	10.90
	s	(4.52)	(3.25)	(3.68)	(3.91)

Table XVIII - Adjusted Means and Standard Deviations for Boys and Girls for the Teaching Methods and Total Population for the Achieve Test

		Story Grammar	Modified Reading	Regular Reading	Totals
Sex					
Boys	\bar{X}	72.91	70.47	76.22	73.28
	s	(16.45)	(14.61)	(11.73)	(14.75)
Girls	\bar{X}	73.37	76.60	73.80	73.28
	s	(15.03)	(12.83)	(12.37)	(13.38)
Totals	\bar{X}	73.51	73.75	74.72	73.97
	s	(15.66)	(13.84)	(12.00)	(14.05)

Table XIX - Adjusted Means and Standard Deviations for Boys and Girls for the Teaching Methods and the Total Population for the Comprehension Detail Test

		Story Grammar	Modified Reading	Regular Reading	Totals
Sex					
Boys	\bar{X}	4.70	3.77	4.30	4.19
	s	(1.52)	(1.58)	(1.61)	(1.59)
Girls	\bar{X}	4.18	4.31	3.83	4.11
	s	(1.65)	(1.80)	(1.48)	(1.62)
Totals	\bar{X}	4.43	4.08	3.90	4.15
	s	(1.59)	(1.70)	(1.52)	(1.60)

Table XX - Adjusted Means and Standard Deviations for Boys and Girls for the Teaching Methods and Total Population for the Comprehension Inference Test

		Story Grammar	Modified Reading	Regular Reading	Totals
Sex					
Boys	\bar{X}	4.70	3.88	4.61	4.39
	s	(2.15)	(2.66)	(2.30)	(2.35)
Girls	\bar{X}	4.46	4.48	4.44	4.49
	s	(2.17)	(2.17)	(2.16)	(2.08)
Totals	\bar{X}	4.56	4.23	4.50	4.44
	s	(2.15)	(2.28)	(2.19)	(2.21)

Table XXI - Adjusted Means and Standard Deviations for Boys and Girls for the Teaching Methods and Total Population for the Prompted Detail Test

		Story Grammar	Modified Reading	Regular Reading	Totals
Sex					
Boys	\bar{X}	5.90	5.52	5.80	5.78
	s	(2.56)	(2.02)	(1.89)	(2.21)
Girls	\bar{X}	5.86	6.48	5.58	5.93
	s	(2.65)	(1.84)	(1.75)	(2.11)
Totals	\bar{X}	5.89	6.03	5.66	5.86
	s	(2.58)	(1.96)	(1.79)	(2.16)

Table XXII - Adjusted Means and Standard Deviations for Boys and Girls for the Methods and Total Population for the Prompted Inference Test

		Story Grammar	Modified Reading	Regular Reading	Totals
Sex					
Boys	\bar{X}	7.04	6.75	6.94	6.94
	s	(2.72)	(2.57)	(2.20)	(2.51)
Girls	\bar{X}	6.96	7.53	7.23	7.22
	s	(2.66)	(2.37)	(2.18)	(2.40)
Totals	\bar{X}	7.02	7.17	7.10	7.09
	s	(2.67)	(2.46)	(2.19)	(2.46)

Table XXIII - Adjusted Means and Standard Deviations for Good and Poor Readers for the Teaching Methods and Total Population for the Achieve Test

		Story Grammar	Modified Reading	Regular Reading	Totals
Ability					
Good	\bar{X}	81.66	81.16	79.13	80.34
	s	(7.05)	(6.83)	(9.46)	(7.88)
Poor	\bar{X}	61.93	64.92	69.77	65.53
	s	(15.20)	(13.57)	(13.26)	(14.49)
Totals	\bar{X}	73.18	74.16	74.71	73.97
	s	(15.66)	(13.84)	(12.01)	(14.05)

Table XXIV - Adjusted Means and Standard Deviations for Good and Poor Readers for the Teaching Methods and the Total Population for the Comprehension Detail Test

		Story Grammar	Modified Reading	Regular Reading	Totals
Ability					
Good	\bar{X}	4.98	4.75	4.15	4.64
	s	(1.08)	(1.55)	(1.59)	(1.43)
Poor	\bar{X}	3.69	3.24	3.64	3.51
	s	(1.69)	(1.37)	(1.34)	(1.50)
Totals	\bar{X}	4.43	4.09	3.89	4.15
	s	(1.59)	(a.70)	(1.52)	(1.60)

Table XXV - Adjusted Means and Standard Deviations for Good and Poor Readers for the Teaching Methods and Total Population for the Comprehension Inference Test

		Story Grammar	Modified Reading	Regular Reading	Totals
Ability					
Good	\bar{X}	5.21	4.97	5.04	5.09
	s	(1.45)	(1.89)	(2.08)	(1.88)
Poor	\bar{X}	3.68	3.30	3.83	3.59
	s	(2.42)	(1.94)	(2.15)	(2.19)
Totals	\bar{X}	4.56	4.20	4.51	4.44
	x	(2.15)	(2.280)	(2.19)	(2.21)

Table XXVI - Adjusted Means and Standard Deviations for Good and Poor Readers for the Teaching Methods and Total Population for the Prompted Detail Test

		Story Grammar	Modified Reading	Regular Reading	Totals
Ability					
Good	\bar{X}	7.08	6.17	6.01	6.48
	s	(1.77)	(1.61)	(1.56)	(1.70)
Poor	\bar{X}	4.24	5.81	5.33	5.04
	s	(2.34)	(2.26)	(2.06)	(2.33)
Totals	\bar{X}	5.86	6.07	5.66	5.86
	s	(2.58)	(1.96)	(1.79)	(2.16)

Table XXVII - Adjusted Means and Standard Deviations for Good and Poor Readers for the Teaching Methods and Total Population for the Prompted Inference Test

		Story Grammar	Modified Reading	Regular Reading	Totals
Ability					
Good	\bar{X}	7.92	7.74	7.35	7.75
	s	(1.93)	(2.19)	(2.14)	(2.06)
Poor	\bar{X}	5.75	6.48	6.92	6.22
	s	(2.79)	(2.52)	(2.29)	(2.61)
Totals	\bar{X}	6.99	7.21	7.11	7.09
	s	(2.67)	(2.47)	(2.19)	(2.46)

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