USING PREDICTABLE BOOKS WITH A NONREADER:
COGNITIVE AND AFFECTIVE EFFECTS

Volume I
DISSertation

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

Evelyn Z. Becker, B.A., B.S., M. A.

* * * * *

The Ohio State University

1995

Dissertation Committee:

Dr. Sandra McCormick

Dr. Johanna DeStefano

Dr. Ayres D'Costa

Approved by

Sandra McCormick
Adviser
Department of Educational Theory and Practice
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To Ralph, and my parents
ACKNOWLEDGMENTS

I wish to express my deep gratitude to Dr. Sandra McCormick whose dedication to helping children was the inspiration for this study. Her motivating guidance and unfailing support throughout this project, as well as her generous contributions of time, patience, and expertise are deeply appreciated. She has challenged and encouraged me throughout the process of completing this dissertation and I owe her more than I can ever express.

Sincere thanks to Dr. Johanna DeStefano for her advice and encouragement over the years and the valuable insights gained in her classes. I am indebted to her, as well, for the many hours spent in reading this report.

My thanks to Dr. Ayres D’Costa for his expert advice and thoughtful suggestions throughout this project. His generous support and many contributions to my development as a student are deeply appreciated.

I would also like to thank Dr. Robert Leighty and the Statistical Consulting Service at The Ohio State University for their considerable assistance with the analysis of data.
A special thank you to the subject of this investigation. Her enthusiastic participation contributed enormously to the successful completion of the study. Working with her was truly a joy.

Finally, heartfelt thanks to my husband, Ralph, for his many sacrifices over the past few years. His encouragement and expert advice are gratefully acknowledged.
VITA

February 15, 1937 . . . . . . . . . . Born - Chicago, Illinois

1959 . . . . . . . . . . . . . . . . . . B.A., University of Cincinnati, Cincinnati, Ohio

1963 . . . . . . . . . . . . . . . . . . B.S. in Education, University of Cincinnati, Cincinnati, Ohio

1960-1976 . . . . . . . . . . . . . . . . Teacher, Oak Hills Local School District, Cincinnati, Ohio

1976-1977 . . . . . . . . . . . . . . . . Substitute Teacher, Southwestern City Schools, Grove City, Ohio

1978-1982 . . . . . . . . . . . . . . . . Learning Disabilities Tutor, Columbus Public Schools, Columbus, Ohio

1982-Present . . . . . . . . . . . . . . . . Associate, Elbern Publications, Columbus, Ohio

1989 . . . . . . . . . . . . . . . . . . M.A. in Education, The Ohio State University, Columbus, Ohio

1992-1994 . . . . . . . . . . . . . . . . Graduate Research Assistant, The Ohio State University, Psychoeducational Clinic, Columbus, Ohio
PUBLICATIONS


Unpublished Paper Presented at a Meeting


ORGANIZATIONS

International Reading Association

Central Ohio International Reading Association

National Reading Conference
FIELDS OF STUDY

Major Field: Educational Theory and Practice

Studies in Literacy: Dr. Sandra McCormick, Dr. Johanna DeStefano.

Studies in Psychology: Dr. Neal Johnson.

Studies in Quantitative Research: Dr. Ayres D'Costa, Dr. John Kennedy.
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CHAPTER I

INTRODUCTION

It has been estimated that approximately 15% of the general population have some difficulty with reading (Harris & Sipay, 1990). About 3% of this group are severely reading disabled. However, how a "severe" disability is viewed differs with different authorities.

Severe disability is often assumed if an individual is reading about 3 years below his/her potential (Rutter, 1970). For younger students, however, a smaller discrepancy may indicate a severe delay. For example, for a primary-grade student Spache (1981) and others say a 1-year discrepancy is enough to indicate serious reading disability requiring instruction in a remedial or clinical program; whereas for intermediate-grade students a 2-year discrepancy would be indicative of such a disability.

Nonreaders are part of a subgroup of the readers who are severely disabled and make up about 1% or less of this population (Harris & Hodges, 1981). These
individuals are among the most needy of all students and many of them grow up illiterate. They often recognize almost no words in spite of years of reading instruction and, if they do have scant word recognition, the words that they do know may be largely unrelated function words (e.g., in, on, to, the). This meager word recognition vocabulary does not enable these students to read meaningful text.

Nonreaders should not be confused with prereaders. Unlike prereaders, who have not yet had reading instruction, nonreaders have had at least a year of reading instruction, and very often more. Despite this, nonreaders have failed to progress past the earliest levels of the prereading stage (Mason, 1980) even though they have average intelligence and no sensory problems or other obvious neurological impairments.

Two factors related to reading instruction seem essential for remediation with this group of students: (a) the need for increased word recognition and (b) attention to affective responses in the reading situation. Both will be explored in this study in conjunction with the use of predictable books and with activities commonly recommended for use with these books.
In regard to word recognition, research has long established the importance of this factor for reading acquisition and comprehension (e.g., Calfee & Piontkowsky, 1981; Gough, 1981; Juel, 1988). Instant recognition of words has been found to be correlated with speed of initial reading acquisition (Gough & Hillinger, 1980; Juel, 1991; Stanovitch, 1985). Research also suggests that word recognition skill may increase comprehension (Chall, 1989; Lesgold, Resnick, and Hammond, 1985; Stanovich, 1985). Instant word recognition provides skilled readers with three important advantages: (a) it allows them to read fluently, improving comprehension, (b) it aids them in using context clues and in overcoming shortcomings of letter-sound correspondences in English, and (c) it eliminates many pauses, allowing the reader to read more, an important factor in reading achievement (Stanovich, 1986).

Although there is a continued recognition of the central importance of reading for meaning as emphasized in the work of Goodman (1967) and Smith (1978), differences in word recognition skill, as well as skill in decoding, have been found to be more important for distinguishing good and poor readers than are any other factors (Gough & Hillinger, 1980).
Stanovich (1990) suggests that accurate, automatic, and rapid word recognition is necessary, though not sufficient, for comprehension for both children and adults. He points out that recent models of reading (e.g., Just & Carpenter, 1987) show a dependency between the meanings activated by lexical access (i.e., the successful recognition of words) and later comprehension processes. In fact, there are a number of studies suggesting that word recognition skill is causal to increases in reading comprehension (e.g., Chall, 1989; Lesgold, Resnick, & Hammond, 1985; Stanovich, 1985). Remediation of deficient word recognition skill is essential if the gap between good and poor readers is to be closed.

Affect is a second factor that influences reading acquisition. Professionals in the area of reading education are increasingly aware of the importance of affect. Students’ interest in and attitudes toward reading are known to impact on their reading achievement (e.g., Alexander & Filler, 1976; Heathington, 1979: Heathington & Alexander, 1977; Linek, Sturtevant, Rasinski, & Padak, 1991; Lipson & Wixson, 1991; Nielson, 1978; Smith, 1992; Sturtevant, Linek, Padak, & Rasinski, 1991; Wigfield & Asher, 1984). Covington (1983) suggests that motivation
influences cognition and that it is likely that there is a reciprocal relationship between affect and cognition. Research (e.g., Diener & Dweck, 1980; Dweck & Bempechat, 1983; Johnston & Winograd, 1985) suggests that repeated failure may produce negative attitudes and lowered expectations leading to a pattern of behavior that Johnston and Winograd (1985) call "learned helplessness" or "passive failure."

It is important that the affective domain be addressed in planning any reading program. This is especially true in planning remedial instruction for severely disabled readers or nonreaders who already may have developed negative attitudes toward reading and toward their own reading ability. Not only do these attitudes impact on what happens in the classroom, but they also determine the students' lifelong reading habits and ability to use reading to enhance their lives.

Methods of instruction that will maximize word learning and positive affective response for severely disabled readers or nonreaders are needed. The use of predictable books in beginning reading programs has recently been an accepted practice with beginning average readers. These books, employing repetitive language patterns, rhythmic language, and often rhyme,
are believed to make reading easier and more enjoyable for young readers (Bridge, 1979; Bridge, Winograd, & Haley, 1983; Chandler & Baghban, 1986; Heald-Taylor, 1987; Reutzel & Fawson, 1989; Reutzel & Fawson, 1991). Because of the obvious text structure and story line, the repetitive language patterns, and the appealing nature of many predictable books, they also have been suggested for use with less able readers. Results of studies by Chandler and Baghban (1986) and Reutzel and Fawson (1991) suggest that using predictable books can aid both comprehension and word recognition for poor readers.

Rationale for the Study

The plight of nonreaders is among the most serious of any group of individuals. Up to the present time there has been little research pertaining to these students. The few studies that do address this group tend to deal mainly with causation, rather than instruction. The present study focuses on reading instruction.

Purpose of the Study

The purpose of the present study was to examine the effects of using predictable books on the cognitive
and affective responses of a nonreader. Specifically, the study provides descriptive data of one nonreader's word learning and affective responses when instruction was based on procedures commonly suggested for using predictable books to facilitate early word learning.

**Research Questions**

The following questions were addressed in this study:

1. What effect does the use of predictable books, and associated instructional procedures, have on word learning (i.e., word recognition) for a second-grade nonreader, as assessed by words taken from these predictable books?

2. If positive effects are observed for the use of predictable books, and associated instructional procedures, on the word learning of a severely disabled reader, are there differential effects for recognition of words in isolation versus context?

3. If positive effects are observed for the use of predictable books on word learning, are these effects maintained after a 4-week period following termination of the study? Are the
effects maintained after a 6-week period following the study?

4. How many exposures to words are required by a nonreader for word learning, as assessed by cumulative recording?

5. What effect does the use of predictable books for instruction have on affective responses of a second-grade nonreader, as assessed by a self-report reading attitude scale, an observation checklist, and experimenter anecdotal notes?

Definition of Terms

Assisted Reading - The teacher helps a child read a story by briefly reading along if the child has difficulty at any point. (Chang, & Watson, 1988; Moore, 1990)

Choral Reading - The children read the story from a focus book (defined below) or a chart, in unison, with or without the aid of the teacher. (Lipson & Wixon, 1991).

Cloze Procedures - In cloze procedures students supply words that have been omitted from the text. This
activity can be oral or visual. In **oral cloze** (sometimes called **assisted cloze**) the teacher might read the text aloud once and then on rereadings pause at key words, waiting for the children to orally supply them while looking at text. In **visual cloze** the teacher prints sentences on paper (or on a chalkboard). A word is left out of each sentence. Cards containing the missing words are displayed and read by the children, with help from the teacher if needed. A child volunteer is chosen to find the word that best completes each sentence and clip it to the sentence strip. A second child can confirm the choice by looking in the book (Heald-Taylor, 1987; Moore, 1990; Slaughter, 1993).

"**Concentration**" - A game sometimes adapted for reading practice in which two sets of the key word cards (see above) are made. The cards are turned face down and spread out. Each child takes two cards at a time and tries to find a match. If a match is made the cards are removed. The game continues until all matches are made and all cards removed. (Slaughter, 1993)

**Different Words** - The unique words that appear on an assessment or in a text. This term is similar to the
term "type" in the terminology of "types and tokens" in linguistic theory (Hutton, 1990). For example, the word his appears five times in the posttest in context. If you are counting different words or types you would count his as one word. However, if you are counting occurrences or tokens you would count his as five words. Another example would be the following sentence: "His brother is his best friend." In this sentence, if you were counting types or different words you would say there are 5 words because although there are 6 words in the sentence, the word his appears twice. That is, the first word in the sentence and the fourth word could be thought of as identical (i.e., as the same word). However, if you were counting tokens or occurrences you would say that there are six words because there are six words in the sentence.

Focus Book - A book read aloud by the teacher and then by the students, used as a source for reading instruction.

Framing - The teacher highlights letters, words, or phrases on a chart by cupping his/her hands to form a kind of a mask or frame.
"Key Word Bingo" - A specific activity often used in reading classes for reinforcement of sight recognition of key vocabulary (that is, important words unfamiliar to most of the children). Key words are selected from text and printed individually on small cards. Gameboards for each child are divided into squares with one key word in each square. Each gameboard has a slightly different combination of key words. The children are given disks or cards to cover the words on the gameboards. The words are called out, one at a time, by the teacher and covered by each child. The first child to cover all the words on his/her gameboard calls out "Bingo" and wins the game. At first, to help the children, the teacher may have to display the words as they are called. (Slaughter, 1993)

Independent Reading - Without direct teacher assistance, children read familiar selections orally or silently in small groups, with a partner, or individually. (Chang, 1988; McClure, 1985; Moore, 1990)

Innovating on Text - Making up a new sentence or story based on the structure of the existing text by substituting, adding, or deleting words or phrases.
For example, taking "Baa, Baa, Black Sheep" and changing the word Baa to Moo and then finding it necessary to change other words in order to be consistent:

Moo, moo white cow,
Have you any milk?
Moo, moo, moo, moo
Three buckets full...(Butler, A., & Turbill, J., 1984, p. 65)

**Masking** - Teachers create an adjustable cardboard mask (i.e., a square with a sliding bar) that can be used to highlight letters, words, or phrases on a focus book or on a chart. If a child has difficulty reading a word or phrase in isolation the mask can be removed to reveal the surrounding text. (McClure, 1985; Slaughter, 1993)

**Matching Illustrations with Text** - The teacher takes two sets of cards (one with sections of the text and one with illustrations from the text). The children are asked to match the illustrations and the correct text, using the book if necessary (Slaughter, 1993).
Nonreader - A student who has had at least one year of reading instruction, but still recognizes so few words that s/he cannot read meaningful text. This severe delay in reading acquisition occurs despite average or above intelligence, no serious sensory (vision/hearing) problems, and no obvious neurological impairment.

Occurrences - Each of the times that a given word appeared in any single assessment or text. For example, the word his appears five times on the posttest in context. Therefore, there are five "occurrences" of the word his on that test. The term "occurrences" is similar to the term "running words" which is commonly used in reading literature to refer to the total number of words in a text, including or counting the repetitions of some words. It is also similar to the term "token" as described above under the entry for Different Words.

Phrase Strip Dialogue - First the teacher identifies the repeated dialogue from a predictable book that is suitable for emergent or developing readers, for example, Eric Carle's (1973) Have You Seen My Cat?. Each phrase is printed on a strip of paper by the teacher. Each child in the group is given a phrase
strip. As the teacher reads the story, he/she pauses when a dialogue phrase is reached and points to the child holding this strip to cue him/her to say the phrase (reciting from memory or by reading).
(Slaughter, 1993)

**Predictable Literature** - Books in which it is easy to predict words and ideas because of the use of highly patterned language structures (e.g., repetitive phrases or predictable plots) (Bridge, Winograd, & Haley, 1983; Heilman, Blair, & Rupley, 1986; Huck, Hepler, & Hickman, 1993; Slaughter, 1993; Strickland & Morrow, 1989; Tompkins & Webeler, 1983). Predictable books contain language which is simple and repetitive, illustrations that strongly support the text, and/or concepts that are accessible to children (Slaughter, 1993).

**Questioning and Semantic Expectation** - The use of questions and dialogue to construct the author's message (Chang & Watson, 1988).

**Refrain** - The teacher reads the story and the children read a phrase that is periodically repeated throughout the story. (Moore, 1990; Heald-Taylor, 1987)
Repeating Procedure -

1. The teacher reads one line of text and the students repeat it in unison, first with and then without the teacher's help (Heald-Taylor, 1987).

   or

2. The teacher reads the story and children repeat the story in unison, with and then without assistance from the teacher (Moore, 1990).

Shared Reading - Although the teacher reads, s/he pauses periodically so the children can supply predictable words and phrases. (Bridge, Winograd, & Haley, 1983; Cullinan, 1987; McClure, 1985)

Word Recognition - The immediate or instant recognition of a known word, on sight, without mediation.

Word Identification - The mediated identification of an unknown word through the use of one or more strategies and involving both visual information and nonvisual information. The use of visual information involves the use of graphophonic cues (i.e., letters and word parts and their corresponding sounds). The use of nonvisual information involves knowledge about language
and knowledge about the world (i.e., context cues which include syntactic and semantic cues).

Review of the Literature

This study addresses the need for research related to reading instruction for nonreaders. Early remediation for these students is critical if they are to achieve literacy and survive in the school situation and in society. Without such help, the gap between their potentials and their achievement will widen and they will fall increasingly behind, many eventually becoming dropouts.

This critical area of research has received little attention over the last decade. In a recent search of the literature, this writer was able to find only 13 articles in the Educational Resources Information Center (ERIC) system under the descriptor nonreaders and reading instruction. Moreover, none of the articles presented research related to reading instruction for younger nonreaders. Three were descriptions of instructional methods suggested for younger nonreaders, but with no data given. Two were descriptions of instructional methods recommended for adult disabled readers. Three articles presented research related to instruction for preschool or
kindergarten prereaders. The rest presented authority opinion, described a test for dyslexia, described research unrelated to instruction, or dealt with deaf populations. A search under the descriptor nonreaders and research produced 39 articles. Again, however, most articles dealt with adult disabled readers, reluctant readers, or preschool children who had not received reading instruction. No research was found related to younger nonreaders and reading instruction.

It is imperative that more research be conducted investigating the instructional needs of younger nonreaders. The present study addresses this need by examining the use of predictable books with one second-grade nonreader, a child who had a full year of reading instruction and yet who was able to read virtually no connected text, despite her average intellectual abilities. The cognitive and affective effects of employing predictable books, as well as procedures typically used with these books, were examined with this nonreader. In particular, effects on word recognition and attitude toward reading were the focus of the study.

In this review of the literature, after discussing the reasons for adopting the descriptive model for the present investigation, the following areas will be
examined: (a) theories and research related to word recognition, (b) theories and research related to word learning, (c) affective behaviors (especially attitude toward reading), and (d) predictable literature.

Descriptive Research

Because this study involved a single subject, much of the data did not lend themselves to inferential statistical analysis. A model for examining the data was needed that allowed a more in-depth view of the subject being studied, and one more qualitative in nature. Therefore, a descriptive model with characteristics of a case study and at least one element found in a quasi-experimental study (pretest-posttest data collection and analysis) was used. Data was collected to answer research questions about the present status of the subject under investigation (Gay, 1987), as well as changes that occurred over time and with intervention. Descriptive research, as well as case studies may or may not employ statistical analyses. In the present study, both descriptive and inferential analyses were used.

Descriptive research has sometimes been dismissed as mere "fact gathering." However, it is much more than that. As stated by Van Dalen (1979) in regard to descriptive research methodologies:
Investigators seek more than bare description: they are not—or should not be—mere tabulators. Competent researchers collect evidence on the basis of some hypothesis or theory, tabulate and summarize data carefully, and then analyze the results thoroughly in an endeavor to draw meaningful generalizations that will advance knowledge. (pp. 193 - 194)

Descriptive research is not a formless type of data collection, but encompasses the basic steps employed in any competently conducted study: (a) examining and describing the context of the problem, (b) defining the problem, (c) stating research questions, (d) stating assumptions underlying the research questions, (e) stating assumptions for procedures used, (f) choosing or developing techniques for collecting data, (g) establishing categories for data that will highlight relationships, (h) validating methods of data gathering, (i) making observations that are both objective and discriminating, and (j) describing, analyzing, and interpreting results (Van Dalen, 1979).

In descriptive research, data collection can be from an entire population or a representative sample of the population. If collected from a small population (e.g., all teachers in one elementary school, or one
nonreader), results cannot be generalized beyond that population. Replication is vital for such research if we are to have confidence in interpreting the results and to promote their generalizability. Replication ideally should be with other subjects matched as closely as possible to the original subject on relevant variables and having the same problem. Direct replication (involving the same investigator) of descriptive research can be followed by systematic replication (involving other investigators). This can lead to clinical replication with a larger group of subjects involving the development of treatment packages composed of several interventions that have been found to be effective (Gay, 1987). It is hoped by this investigator that the present research may be replicated and eventually lead to improved instructional methods for nonreaders.

Descriptive studies can express data either qualitatively or quantitatively. The present study will employ both types of data. Qualitative expression of data is useful for describing more general phenomena that are often difficult or even impossible to describe quantitatively. Qualitative data, though less precise than quantitative data, importantly, aids in identifying significant factors to study
quantitatively. They can become a foundation for future research involving quantitative data and/or statistical analysis—providing direction that is more likely to lead to fruitful investigations (Van Dalen, 1979).

There are several types of descriptive research. These include survey studies, interrelationship studies, and developmental studies. The present investigation is a type of interrelationship study, with some characteristics of a developmental study. Interrelationship studies attempt not only to collect facts, but to discover relationships among the facts that may shed light on the subject under investigation. Case studies are one type of interrelationship study. The present research, as a case study, takes an in-depth look at a single subject. It examines her background, present situation, and personal characteristics to understand the causes or the "why" of present behaviors, both cognitive and affective.

This study contains some elements of a developmental study. That is, it will examine changes in behaviors that occur over the 10-week period of the investigation. Systematic data regarding the subject's behaviors will be obtained during that time. The study is both longitudinal and confirmatory in nature—
looking at the same child over a period of time and addressing the question as to whether the use of predictable books and procedures typically used with these books may increase word recognition and produce an increase in positive affective responses towards reading for this nonreader.

There were a number of reasons why this research was undertaken with only one subject: (a) nonreaders are few in number, yet they are in critical need of research that will produce effective reading instruction (b) nonreaders often require individual instruction, and (c) the case study can provide a bedrock study for future investigations.

The subject of this investigation was chosen carefully so as to avoid any irrelevant variables (e.g., hyperactivity, physical handicaps) that might cloud the issues being examined. In addition, an attempt was made to collect data in a variety of ways (e.g., observation, self-report, standardized tests, objective tests, as well as school records and interviews with the parent and teachers) so as to avoid overdependence on any one type of data. This was done to increase the validity of the study and lessen the effects of bias.
The descriptive method is well suited to the purposes of this study involving a single subject. In studying populations such as nonreaders, where large samples are not available and, therefore, it is not possible to use inferential statistics requiring groups, a descriptive study is appropriate. The study provides valuable information about the effects of using predictable books with this nonreader. The information provides insights into the possible value of this type of instruction for similar students and should lead to avenues for future quantitative research involving groups and allowing generalization of results.

Theories and Research Related to Word Recognition

Interactive-compensatory Reading Theory

The theoretical basis for the present study includes the interactive-compensatory reading theory proposed by Stanovich (1981), especially as it relates to word recognition in the reading process.

In this model which builds upon Rumelhart's (1977) work, the reading process is explained as one in which readers rely on information from both the text and other knowledge sources to construct meaning. It is
currently believed by many that earlier bottom-up models (where the reader begins with orthographic information and proceeds to higher level sources of information) and top-down models (where the reader begins with certain hypotheses and predictions which are then verified by sampling the text) fail to explain the reading process for both skilled and unskilled readers.

Stanovich instead argues for a model in which processes, regardless of their level, can compensate for deficiencies at any other level. For example, as relates to word recognition, in poor readers higher-level processes (e.g., use of context) can compensate for deficiencies in word recognition. In good readers lower-level processes (e.g., word recognition skills) can compensate for deficits in knowledge about the topic. In fact, skilled readers may depend less on context than poor readers because the strength of their word recognition skills makes it faster to recognize the words than to use context for prediction (Samuels & Kamil, 1984).

The Just and Carpenter Model

In addition to interactive-compensatory reading theory, the Just and Carpenter (1987) model is another important element in the theoretical basis for the
present study on word recognition. This model of the reading process, like Stanovich's model, allows processes at any level to interact with processes at any other level. Importantly, it also includes a stage of lexical access (i.e., where word meaning is derived from the printed symbols on a page) upon which later higher-level processes are dependent (Stanovich, 1991). As Stanovich states, this suggests, therefore, that word recognition is necessary for comprehension, however, not sufficient.

Encapsulation

Another important theoretical basis for this study is research supporting the view that "poverty of the stimulus" arguments derived from work on speech perception have been overgeneralized (Stanovich, 1991). Stanovich suggests that ambiguity in decontextualized speech is not analogous to written language. While words taken out of conversation often cannot be recognized, written words frequently can be recognized out of context by skilled readers. In written language the physical stimulus (i.e., the graphic representation of the word) presented in isolation is sufficient for identifying the lexical representation (i.e., the "name" of the word), whereas this often is not possible in oral language. In fact, certain advantages related
to speed and accuracy of word recognition ensue with encapsulation (wherein the graphic representation of a word, alone is used for word recognition).

In addition, Stanovich suggests that there is considerable advantage to encapsulation in reading as compared to the use of contextual information. In this regard he cites research (e.g., Aborn, Rubenstein, & Sterling, 1959; Gough, 1983; Perfetti, Goldman, & Hogboom, 1979) showing that the likelihood of correctly predicting the next word in a sentence is low. Stanovich makes the point that though context skills are important predictors of differences in comprehension skills, they are not important sources of differences in word recognition abilities. He cites a number of studies that have found that poor readers rely more on context use than do good readers (e.g., Becker, 1985; Briggs, Austin, & Underwood, 1984; Perfetti, 1985; Pring & Snowling, 1986; Schwantes, 1985; Stanovich, 1980; Stanovich, 1986; Stanovich, West & Feeman, 1981; West & Stanovich, 1978). According to Stanovich there is evidence showing that reliance on context for word recognition decreases as reading ability increases and he suggests that reliance on context is a compensatory mechanism used when bottom-up processes for word recognition are deficient.
Theories and Research Related to Word Learning

There have been a number of studies related to word recognition over the last decade. These studies continue to support Gough's (1984) contentions that "Word recognition is the foundation of the reading process" (p.225), as well as his further contention that reading is much more than just that.

Stanovich (1991) states that "Efficient word recognition seems to be a necessary but not sufficient condition for good comprehension in adults, just as it is in children" (p. 419). He cites a number of studies involving school-age children that suggest that increases in word recognition ability produce concomitant increases in reading comprehension (e.g., Biemiller, 1970; Blanchard, 1980; Chall, 1989, Herman, 1985). Stanovich also (1991) states that there is an association between word recognition ability and speed in learning to read, supporting this statement by citing several other researchers (e.g., Bertelson, 1986; Curtis, 1980; Gough & Hillinger, 1980; Juel, 1991; Perfetti, 1985). Stanovich cites studies showing that a considerable amount of the variance in reading ability is accounted for by word recognition ability (e.g., Briggs & Underwood, 1982; Perfetti, 1985; Read & Ruyter, 1985; Scarborough, 1984). However, he also
states that there is evidence that as reading ability increases, the amount of variance accounted for by word recognition decreases—even in adults.

Phases of Word Learning

Phases of word learning have been suggested to explain how children learn to read words at different points in their reading development (e.g., Gibson, 1965, 1972; Chall, 1979, 1983; Mason, 1980; Gough & Hillinger, 1980; Ehri, 1985, 1987; Frith, 1985). A number of studies are presently available substantiating certain suggestions from these theories. Present theories posit four phases of word learning: (a) logographic—in which only visual cues are used to read words, (b) rudimentary alphabetic—in which partial letter-sound cues are used to recognize words, (c) alphabetic—where complete letter-sound correspondences are used to read words, and (d) orthographic—where spelling patterns (i.e., word endings or common letter sequences) are used in word recognition without having to phonologically recode letters within these units (Ehri, 1991).

Since preliminary assessment seemed to indicate that the subject of this study was in the logographic and/or the rudimentary alphabetic phase (see Methods section in Chapter 2) this review focused on those two
phases. There are a number of studies that examine the theoretical phases of word learning specified above and shed light on how each of these phases differs from the others regarding the ways in which words are processed.

The main characterizing attribute of *logographic readers* is their difficulty in learning and remembering words. Research seems to show several reasons why this is the case. Studies have found that logographic readers do not recognize most letter names (Ehri & Wilce, 1985; Mason, 1980; Masonheimer, Drum, & Ehri, 1984). As one example, in a study by Masonheimer et al. (1984), subjects in the logographic stage of reading could not name about 40 percent of the letters.

Recent investigations demonstrate that letter recognition is implicated strongly in word recognition. Contrary to past theories, recent eye-movement research has shown surprisingly, but very consistently, that proficient readers look at each word in a text, as well as the letters contained in that word, regardless of context (Adams, 1990; Balota, Pollatsek, & Rayner, 1985; Ehrlich & Rayner, 1981; McConkie, Kerr, Reddix, & Zola, 1978; McConkie & Zola, 1981; Rayner & Pollatsek, 1989; Zola, 1984), albeit unconsciously. This research has demonstrated that the visual information contained in every letter of each word is
important for good reading (Stanovich, 1991). In fact, according to Zola (1984), "Readers apparently notice small distinctions among letters...even from words that are almost completely predictable from the preceding context... Readers notice specific letter information, down to small distinctions among letters" (p. 281). These data from investigations by cognitive psychologists and reading researchers, some of which have been obtained through recent advances in computerized evaluations of eye movements and other reading behaviors, have changed views of what appropriate models of the reading process are rather dramatically in the last 5 years or so. They also have led to some new understandings about stages of word learning and beginning reading acquisition.

Furthermore, Adams (1990) reports that ability of first-graders to name upper- and lower-case letters, at the beginning of the year, is the best predictor of end-of-year reading achievement. Numerous researchers have found that letter name knowledge and early reading success are highly related (Adams, 1990; Blachman, 1984; Chall, 1967, 1983; 1988; Stanovich, Cunningham, & Cramer, 1984; Tunmer, Herriman, & Nesdale, 1988; Walsh, Price, & Gillingham, 1988).
Since they do not yet have access to letter-name knowledge, there is evidence that children who are in the logographic phase of word learning select striking visual cues rather than examining all cues in a word (Gough & Hillinger, 1980; Gough, Juel, & Griffith, 1992). This can cause problems. For instance, if the child recognizes the word monkey by selecting a striking cue, such as the y that looks like a tail, and ignores other cues, he/she may mistake other words containing this same cue (e.g., pony, donkey, or money) for monkey. Because these readers construct an association between the written form of the word and its name in memory by selecting a salient attribute, when that attribute appears in a word, the word that has been associated with that attribute is recovered from memory (Ehri, 1991). For example, in one study, Gough, Juel, and Griffith (1992) found that when preschoolers taught to recognize words were shown either the first or second part of a word, those children who were able to recognize a word by looking at the first part were unlikely to recognize it from looking at the last part and vice versa.

What is more, there is evidence that knowledge of letter-sound correspondences is strongly related to word reading achievement (e.g., Adams, 1990; Barr,
logographic readers not only are severely restricted in their letter name recognition, but also generally have no knowledge of the sounds associated with these letters (e.g., Ehri & Wilce, 1985; Masonheimer, Drum, & Ehri, 1984), and, therefore, are unable to use these sounds in recognizing words. For example, in a study by Ehri and Wilce (1985), preschoolers and kindergartners were selected and grouped by word-reading ability. Those designated "prereaders" were children who read no words, "novices" were those who read a few words, and "veterans" were those who could read several. Students were taught to read two kinds of words: (a) those with visually distinct letters that had no relation to sounds in the word (e.g., yMp standing for turtle had a large M interspersed between the two lower-case letters, but none of these letters had sounds consistent with the real word turtle) and (b) words with letters corresponding to some sounds in the words (e.g., JRF for giraffe). Results
demonstrated that the prereaders read the words logographically, learning the visually striking words more easily than those with letter-sound correspondences. The other groups, however, learned the phonetic words more easily. Results of this study supported those of other investigations demonstrating logographic readers' lack of letter-sound knowledge and provides another clue as to why they depend on striking visual cues.

All of these factors make logographic readers context-dependent, that is, they may recognize a word in one situation and not another (Dewitz & Stammer, 1980; Ehri, 1991; Goodman & Altwerger, 1981; Harste, Burke, & Woodward, 1982; Heibert, 1978; Juel, 1991; Mason, 1980; Masonheimer, Drum, & Ehri, 1984). For example, in a study by Mason (1980), children were taught to recognize words presented either in lower- or upper-case printing. When words were presented in a different case from that in which initial learning took place, the children were unable to recognize them.

An important difference between logographic readers and those in the next stage of word learning, that is, those who are called rudimentary-alphabetic readers is that the latter group have learned letter names and some letter sounds (Mason, 1980). This
knowledge of letters (i.e., their names and their sounds) may have been acquired incidentally through numerous and various experiences with words or through explicit instruction.

Because they know letters names and at least have partial knowledge of sounds they are able to make use of these correspondences to read words. For example, Ehri and Wilce (1985) found that when students knew letter names and sounds they not only were able to learn phonetically-spelled words taught by the experimenter in contrast to the word recognition of logographic readers, but, in fact, learned phonetically regular words more easily than those which simply had visually striking spellings.

Because students have advanced to using at least some grapheme-phoneme associations they begin to be able to learn more words than logographic readers. One way this can come about is through greater access to text. That is, when examining words these students use the sound/symbol correspondences of which they presently do have knowledge, in conjunction with context, to recognize the word. Being able to recognize more words permits practice with greater volumes of text which in turn promotes more word learning.
However, despite increased effectiveness in word learning, rudimentary-alphabetic readers are still unable to decode many unfamiliar words because of their inability to use complete letter/sound correspondences (Ehri & Wilce, 1987), that is, they have obtained some of the associations they need, but not all. For example, in an investigation by Ehri and Wilce (1987), word-learning processes in rudimentary-alphabetic readers and pupils who were in the third stage of word learning, alphabetic readers, were compared. Children were assigned to the rudimentary-alphabetic group if they had shown evidence of recognizing words by single letter-sound associations and to the alphabetic group if they recognized words by decoding through using complete letter-sound correspondences. The pupils were given several trials to learn 15 words. The majority of those students in the alphabetic stage mastered all the words, however, the rudimentary-alphabetic readers never did get to the point where they learned to recognize all words in a set.

A number of studies have shown that when readers use fewer letter cues in learning to recognize the original words, they have more difficulty in differentiating between the original and new words (Ehri, 1991; Gilbert, Spring, & Sassenrath, 1977; Juel,

Finally, studies with both logographic and rudimentary-alphabetic readers show they need many exposures to words to learn to read them (e.g., Adams, 1990; Carpenter & Daneman, 1981; Ehri, 1991; Ehri & Wilce, 1987; Gates, 1931; Gough, Juel, & Roper-Schneider, 1983; Mason, 1980; Spring, Gilbert, & Sassenrath, 1979), as might be expected from the research cited above. Logographic readers need more exposures than rudimentary-alphabetic (Mason, 1980) and both need more than readers in stages three or four of word learning (Ehri & Wilce, 1987; Mason, 1980).

These investigations related to students in the logographic and rudimentary-alphabetic stages of word learning suggest reasons why older nonreaders who have not progressed beyond these word learning phases have grave difficulties moving into early stages of reading acquisition. They also have implications for instruction, that is, these students' instruction should be based on their current capabilities as they move through the stages. For example, instruction should include attention to the internal features of words to lessen dependence on striking visual features. Words need to be presented in a variety of contexts to
aid children in becoming less context dependent and to encourage them to use the internal features of words for recognition. Instruction should also encourage the learning of correspondences between the printed and the spoken word. In addition, the number of exposures to words should be appropriate for the learning phase of the child—with many exposures for logographic readers and decreasing numbers of exposures for each succeeding learning phase. The number of exposures can be increased through the use of predictable text using repetitive words and phrases, in conjunction with shared readings, assisted readings, choral readings, and repeated independent readings, as well as by presenting the words in a variety of activities and contexts.

Instruction and Word Learning

The importance of understanding how average readers learn to read words is recognized; information on the way average readers process print can aid in understanding how poor readers learn (Ehri, 1991). Some understanding is gained by examining theory and research on stages of word learning, but other research on word recognition/identification of average readers also is considered here. Three issues related to word learning important for this study will be discussed:
(a) the amount of practice needed, (b) context versus isolation, and (c) phonemic awareness instruction. Two additional and related issues: (a) the level of imageability (from concrete to abstract) and (b) the grammatical function of words will also be discussed as these factors relate to word learning.

The first issue to be discussed related to word learning for average readers is practice. It is accepted that words which occur frequently in text are more likely to be recognized accurately and automatically than words which occur less frequently. The explanation for this is that frequent words are met more often and, therefore, receive more practice (Ehri, 1991). During the logographic and rudimentary-alphabetic phases of word learning the issue of the amount of practice needed for word learning is especially critical. Ehri explains that logographic and rudimentary-alphabetic readers of an alphabetic language such as English require more practice for word learning to take place than is necessary for readers at more advanced stages. Associations between "striking" visual cues and words are difficult to remember and require frequent practice because of their arbitrary nature. Remembering becomes increasingly difficult as the number of words learned increases because many
different words contain the same visual cues. This is the same case when only partial sound cues are used.

Amount of practice may affect what readers remember about the cues in words, as well as affecting transfer. A study by Spring, Gilbert, and Sassenrath (1979) tested this hypothesis by giving a group of readers who had difficulty learning words additional practice time. The scores of this group then equaled those of another group who had learned words more easily. These results support the hypothesis that what readers remember about the cues in words may be a result of amount of practice reading the words. Many other investigations over an extended period of time have supported the effects of practice (e.g., Anderson, Evertson, & Brophy, 1979; Barr, 1984; Carpenter & Daneman, 1981; Ehri, 1991; Ehri & Wilce, 1987; Gates, 1931; Gough, 1984; Juel, 1989; Juel, 1991; MacKinnon, 1959; Nagy & Anderson, 1984; Stallings, Needles, & Stayrook, 1979; Stanovich, 1986). For example, in studies by Anderson, Evertson, and Brophy (1979) and Stallings, Needles, and Stayrook (1979), a positive correlation was found between amount of practice and increases in the number of words recognized. In addition, Williams (1975) compared word learning programs for normal and retarded children. Results
showed that for both groups of children word learning was greatest in the condition providing the most repetition. More recently, Gough (1984) has contended that frequency of occurrence affects both accuracy and latency of word recognition. As stated earlier in this report, logographic and rudimentary-alphabetic readers require more practice to learn words than do readers in later phases of word learning (Mason, 1980; Ehri & Wilce, 1987). For this reason repetition of target words is built into the procedures used in the present study. Increased practice is achieved through the use of texts with repetitive words and phrases and through presenting the words in a number of different types of activities, both in and out of context.

A second issue of importance related to word learning and average readers is context versus isolation. The discussion on encapsulation presented earlier in the present report concluded from the research cited that there are considerable advantages for encapsulation (i.e., the condition where the reader relies on no information beyond the graphic representation of the word for word recognition) in reading words as compared to the use of contextual information. Two such advantages are: (a) the absence of distorting influences of background knowledge on
word recognition and (b) the increased speed of recognition. Stanovich (1991) cites a number of studies showing that predicting words from sentence context is neither an easy nor an accurate process (e.g., Alford, 1980; Gough, 1983; Perfetti, Goldman, & Hogoboam, 1979).

There is considerable evidence that poor readers rely more on context than do good readers (e.g., Becker, 1985; Perfetti, 1985; Pring & Snowling, 1986; Schwantes, 1985; Stanovich, 1986). In fact, good readers can recognize words based on graphic information faster than they can generate hypotheses about the word based on contextual information (McKonkie & Rayner, 1976; Samuels, Begy, & Chen, 1975-1976; Wildman & Kling, 1978-1979). In addition, there is considerable research showing that the probability of predicting the next word in a sentence is only between .20 to about .35 (e.g. Aborn, Rubenstein, & Sterling; Gough, 1983; Perfetti, Goldman, & Hogoboam, 1979). Moreover, meaning-carrying content words can only be predicted about 10 percent of the time.

The question of whether practice in isolation or in context is more effective for word learning, as well as the transfer effects of different types of practice have been examined by a number of studies. Research
(Ceprano, 1981; Ehri, 1976) suggests that there can be advantages for introducing words in context (e.g., as in complete, but predictable books, as in the present study), however, practice may be both in isolation and in context (Ceprano, 1981). For transfer to real text, practice in isolation or in context are equally effective for word recognition (Kibby, 1975).

Additional evidence is given by Torgesen, Waters, Cohen, and Torgesen (1988) who focused on variations of a computer program that presented words both in isolation and in context. The purpose of the study was to increase the word reading vocabulary of 17 reading disabled children in grades one, two, and three. Results of the study suggested equal effectiveness for the instructional conditions in increasing speed and accuracy of word recognition, with no significant difference in the number of sessions required to achieve accuracy under each.

The research cited above suggests that the use of context for word learning is, at best, an inefficient process. This is particularly true in an alphabetic language. However, students in early word learning stages (logographic and rudimentary-alphabetic) must rely on context to a degree because as yet other cues are not available to them. To a degree,
instructionally, implications here are that one must bring into play cues readers can use (including contextual presentations of words) and as well seek to eliminate weaknesses (assisting attainment of encapsulated word recognition—i.e., ability to recognize given words in any context).

Another issue related to word learning is phonemic awareness instruction. Phonemic awareness is the understanding that spoken words are made up of a series of separate phonemes (i.e., meaningless sounds) that are present in many different words (Juel, 1991). There have been a number of studies which suggest that this understanding is necessary for learning to read an alphabetic language such as English (e.g., Blachman & James, 1985; Bradley & Bryant, 1983; Juel, Griffith, & Gough, 1986; Lundberg, 1984; Stanovich, 1986; Tunmer & Nesdale, 1985).

Phonemic awareness can be developed through instruction. According to Juel, the use of text that is patterned or rhymed in oral reading, is one route to promoting phonemic awareness. In the present study finger pointing will be used in conjunction with the oral reading of predictable text. Through incidental learning the child may begin to learn letter-sound correspondences of initial consonants and her awareness
of phonemic elements in words may be developed in this way. This, in turn, should aid the child in developing a sight vocabulary by increasing the number of letter-sound associations s/he is able to include in an access route to the word in memory. Ehri (1991) and Juel (1991) suggest that by developing phonemic awareness of students in the rudimentary-alphabetic phase of word learning they are better able to use letter identity information for word recognition.

Two final issues related to word learning are the level of imageability (from concrete to abstract) and the grammatical function of words. Reasons for the superiority for learning of concrete words over the learning of abstract words have been addressed by two theories. Paivio (1986) has postulated a dual-coding theory suggesting the existence of two distinct representational systems that operate in verbal processing—the logogen system that operates using verbal links and the imagen system that operates using images. Concrete words have been found to have stronger referential connections to the imagen system than do abstract words, though concrete and abstract words are similar in their verbal links (Paivio, 1986). Researchers have found that lexical decisions and word recognition are superior for concrete words. Paivio
(1986) suggests that because the effects of imagery reactions are greater than those of verbal processes, the advantage for concrete over abstract words in lexical processing may be ascribed to the greater availability of the imagen system for concrete than for abstract words. Schwanenflugel (1991), however, presents an alternate hypothesis--context availability theory--suggesting ease of retrieval of information in general, rather than just sensory information, as the reason for superiority of concrete over abstract words in lexical decisions and verbal comprehension. That is, information about concrete words is more easily retrieved from prior knowledge than is information about abstract words and, therefore, concrete words are easier to comprehend. This suggests that the more concrete the words the quicker they may be learned and the more likely that recognition may be retained.

The literature suggests that familiar, concrete (highly imageable) words, especially those in a child's own speaking vocabulary, are easier to learn than are less concrete (medium and low imageability), unfamiliar words (Cunningham, 1980; Johnson & Pearson, 1984). According to Johnson and Pearson, words that have concrete meaning (e.g., nouns and other highly imageable words) from a child's speaking vocabulary may
be meaningful and interesting to a child and, therefore, easier to learn than function words (i.e., articles, prepositions, and conjunctions) which lack concrete meaning and are more easily confused with other similar words. Also, there are a number of vocabulary studies indicating that abstract words (words without direct sensory referents or images) tend to take longer to become part of a child's reading vocabulary than concrete words (words that have direct sensory referents or images--many of which are nouns) (Brown, 1957; Kiraly & Furlong, 1974; Schwanenflugel, 1991; Schwanenflugel & Akin, 1994; Yore & Ollila, 1985). Coltheart, Laxon, and Keating (1988) also found that students are less accurate in reading abstract words than concrete words.

While no studies were located that specifically explored the effects of grammatical function on word recognition, imageability and grammatical function appear to be highly related. For example, many nouns and adjectives such as horse and black are highly imageable (i.e., concrete)—while prepositions such as at and of have low imageability (i.e., are relatively abstract.
Disabled readers and word learning instruction.

There is no dispute about the importance of word recognition for the reading process. Effective instruction aimed at increasing word learning is especially important for reading disabled children. Research has found that the most severe reading problems of children with reading disabilities exist at the word level, rather than higher levels of text processing (Stanovich, 1986). Slower rates of speed in recognizing words (i.e., less automatic word recognition) (Manis, 1985), as well as difficulties related to decoding (Ehri & Wilce, 1983) are a serious problem for these children (Manis, 1985). Several studies have shown that poor readers recognize words more slowly than good readers (e.g., Ehri & Wilce, 1983; Mason 1978; Stanovich, 1980) and some theorists (LaBerge & Samuels, 1974; Perfetti & Lesgold, 1977; Samuels & Eisenberg, 1981) have suggested that there is a limited capacity in working memory and that fast, automatic word recognition frees space for higher order comprehension processes.

Several studies have addressed the issue as to whether greater attention to the internal features of words will increase word learning. Although some studies have not shown profitable results (e.g., Cohen,
Torgesen, and Torgesen's [1988] program with moderately disabled readers), the weight of the evidence supports these procedures especially for nonreaders and other readers in the logographic and rudimentary-alphabetic stages. Montgomery (1977) found that practice focusing on the orthographic features of words is needed for some students who do not notice this on their own. In addition, McCormick (1991) and McCormick (1994) found attention to orthographic features of words eliminated severely disabled readers' confusions with similar words and hastened learning of all words by replacing the use of arbitrary striking cues (e.g., two o o s seeming like "eyes" in look) with more reliable cues based on letter arrangements. Ehri (1991) cites many reasons for including these procedures in word learning programs for logographic and rudimentary-alphabetic readers, as does Juel (1991). Vellutino and Denckla (1991) have suggested that noticing the order of letters aids word recognition. Also, according to Adams (1990) and Whittlesea (1987) spelling out words by copying them assists word learning by calling attention to the whole sequence of letters in words. Masking procedures and certain word learning games will be used to call attention to the internal features of words in the
present study.

The effects of what has been called "multisensory instruction" on the word reading accuracy have been investigated by some, for example, Thorpe and Borden (1985). Seven through 9-year old students in their study had severe discrepancies between functional and expected achievement. Their investigation found visual-auditory (VA) instruction accompanied by teacher praise, effective with these subjects. The VA procedure involved steps in which the teacher modeled the words and students repeated the words in unison, procedures analogous to some components typically used with predictable books and as will be done in the present research.

A study by Lovett, Warren-Chaplin, Ransby, and Borden (1990) involving 54 severely reading disabled children explored the issue of whole-word instruction versus training in recognition of words via letter-sound correspondences. Although the words were learned in both conditions, no advantage for instruction that trained grapheme-phoneme correspondences over whole-word training was found. The authors speculate that students with severe reading disabilities may need a different approach to grapheme-phoneme correspondence training or longer periods than typical to benefit from
such instruction. However, they also suggest that it may be that reading disabled students need more training in phonological awareness and in segmenting syllables into smaller units before they can benefit from this instruction. No indication was given of stages of word learning of these subjects, but present research and theory would suggest that this, too, has a bearing. This study is one of several in which whole-word instruction has successfully influenced word learning with seriously delayed learners.

The special case of nonreaders. Nonreaders are a special subgroup of severely disabled readers—those with the most serious and perplexing problems. There has been little research related to instruction for nonreaders as defined by this study. Most research specifying the subjects as "nonreaders" has involved: (a) adults, (b) students who, though termed "nonreaders," are actually reluctant readers (i.e., they are able to read, but do little reading), or (c) preschool or kindergarten children who, understandably, enter school without knowing how to read. The most often cited instructional procedure for nonreaders was devised by Grace Fernald and Helen B. Keller in 1921. This method used a multisensory approach called V-A-K-T (visual, auditory, kinesthetic, tactile) which involved
seeing, hearing, writing, and tracing words. Evidence of its effectiveness has been conflicting (Bryant, 1979; Hulme, 1981).

Only two recent investigations involving a school-age nonreader (McCormick, 1991; McCormick, 1994) have been located after a careful search of the literature. Also two current articles were found that, while not research reports, do provide fairly comprehensive descriptions of instruction the authors recommend for dealing with nonreaders who have had at least one year of formal instruction in reading (Cunningham, 1988; Cuyler, 1988). A number of facets of the research investigations have close bearing on the present study, therefore, these will be discussed in some length.

A recent investigation (McCormick, 1994) involved a middle-class, Caucasian male nonreader with above average intelligence who at the onset of the study recognized only four words, even though he had completed second grade. McCormick reports that the language experience approach, a typical beginning method of reading instruction using dictated stories, had not been successful with this nonreader, nor with certain other nonreaders in a university-based clinic though quite successful with other less severely delayed pupils. She hypothesized that there were two
reasons for this failure: (a) the oral language skills of nonreaders exceeds their reading ability causing the stories they dictate to have too many different words, with insufficient repetitions for learning to occur and (b) the use of context is precluded because of the limited reading vocabulary of nonreaders. In addition, phonics instruction had not been observed to be successful for these students; this latter method requires the nonreader, whom research has shown to have poor phonological processing skills, to use the phonological aspects of language as a basis for word learning (Barron, 1978; Perfetti & Hogoboam, 1975; Rozin & Gleitman, 1977).

Because these methods of instruction were unsuccessful with these nonreaders, the Multiple Exposure/Multiple Context Strategy (M-E/M-C) was developed. In this strategy there are many opportunities for practice with words, but no drill. Instead, exposures to words take place within many different functions and situations (i.e., in different contexts) (McCormick, 1994). As stated by the author, the M-E/M-C Strategy includes elements bridging the language experience approach (in which whole discourse is the basis for instruction) and grapheme-phoneme approaches (in which letters and sounds make up
the units of instruction). This strategy takes into consideration the differences in cognitive processing of nonreaders, by focusing first on the word level.

The following steps occur in The M-E/M-C Strategy. First, a high-interest-level book series is selected for instruction to keep the attention of the nonreader (Asher & Markell, 1974). These books generally have short chapters with a small number of different words, and are handled more easily by nonreaders at this early stage of reading acquisition (Chomsky, 1978). The child reads the first chapter of the first book in the series aloud as a pretest. Unknown words from the first chapter are practiced in a variety of ways and in multiple contexts. Word practice occurs in contextual and context-free situations. Practice focusing on the orthographic features of words is provided, attention that is needed by some students who do not notice these features on their own (Mason, 1984; Montgomery, 1977). This has proven to be a valuable part of the M-E/M-C Strategy, aiding children in detecting letter patterns and distinguishing specific words. Some use of game-like activities occurs to increase attention and on-task behavior (Friedman & Medway, 1987). Varying the activities and contexts increases motivation (Ryan, Short, & Weed, 1986),
reduces boredom, and, importantly, promotes transfer (Sulzer-Azaroff & Mayer, 1977; Walker & Buckley, 1972). Also, repeated exposures have been found to be an important factor in word learning (Anderson, Evertson, & Brophy, 1979; Gough, 1984; Stallings, Needles, & Stayrook, 1979), aiding initial learning, as well as automaticity—which in turn frees cognitive capacity for comprehension (LaBerge & Samuels, 1974; Stanovich, 1986).

After words have been learned, the student rereads the first chapter aloud. The successful reading of this chapter demonstrates to the student his ability to succeed with reading tasks. The next chapter is read as a pretest and the same procedures are used as for the first chapter. When all chapters have been read successfully, the child reads the entire book orally in one sitting; this is the first time nonreaders will have had the experience of reading a whole book. At this point, the child is ready to begin the next book in the series.

The M-E/M-C Strategy includes other elements that should be mentioned. First whenever unknown words are introduced, known words are included to promote learning—this practice is supported by research by Neef, Iwata, and Page (1977) and also is included in
the present research. Second, in addition to the procedures outlined above, the teacher reads to the child from good literature for 5 to 10 minutes during each session. This exposes the child to the syntactic and semantic features of connected text to which he does not yet have access. The stated purposes, of the latter, are to: (a) build awareness that reading is a meaning gathering process and (b) to increase the student's ability to predict from text.

The author reports that the M-E/M-C Strategy has produced increases in the rate of word learning as the students move through the program. Eventually word learning rate "approximates the norm", with students able to read the stories after only a brief introduction to unknown words, and the amount of practice needed to maintain word recognition is no more than that needed by average beginning readers. When this occurs, the M-E/M-C Strategy is replaced by a more typical remedial program that includes large amounts of connected text reading and reading strategy instruction.

This longitudinal case study employing the ME/MC Strategy with a nonreader, resulted in dramatic increases in word learning. With the language experience approach initially used, a full quarter of
instruction resulted in his adding only 11 words to his word recognition vocabulary, and the sessions were observed to be both difficult and confusing for him. A decoding method resulted in no words learned after a 4-week period. Using the M-E/M-C Strategy, after one academic quarter he had learned 65 new words and his rate of learning had increased. He also had begun self-correcting his miscues. During the next 8-week quarter using the M-E/M-C Strategy, the student successfully completed a second preprimer and a primer-level book, and learned 105 additional new words. In addition his ability and willingness to persevere, improved. Because of this progress a modified version of the M-E/M-C Strategy was initiated and by the end of the quarter the student was reading at second-grade level. By this time, 56 hours of instructional time had involved use of the M-E/M-C Strategy. During this period the student had progressed from being a nonreader to reading at second-grade level. During the 2 1/2 years of instruction prior to this, the student had made little or no progress, learning only 4 words. It was then decided that the student was ready to benefit from more typical remedial methods and the M-E/M-C Strategy was replaced with a more balanced program.
The researcher continued to monitor the student's progress for eight additional quarters. There was evidence during the tutoring sessions of his continued growth in reading, as well as improvement in his persistence and attitude toward reading. By the second half of the student's last quarter of instruction he was reading above his level and it was deemed unnecessary for him to continue in the clinic. Results of this study demonstrate that even students with long histories of reading failure can become successful readers. This investigation suggests that nonreaders require intensive instruction during the early stages of word learning. This study also suggests that these gains can be maintained over time and that learning can transfer to other reading situations, as evidenced by observer notes indicating that the student was able to successfully read trade books, stories, chapter books, and expository selections during follow-up instructional quarters.

The experimenter does not suggest this method as a "panacea" for the problems of nonreaders. It is presented as one data-based contribution to the almost nonexistent literature on instruction for this needy group of students and the researcher calls for more research in this area.
A second study investigated use of the Multiple Exposure/Multiple Contexts (M-E/M-C) Strategy with a different nonreader and a different method of data collection (McCormick, 1991). The subject of the study was an 8-year-old, middle class, Caucasian male with average intelligence, enrolled in third grade. The student had traditional basal reader instruction in a regular classroom, as well as language experience and phonics instruction in a learning disabilities classroom.

General preassessment involved the use of two informal reading inventories, and tests of word recognition in isolation and in context. The student performed below preprimer level on these assessments. He was also pretested on the 55 different words in what was called Book 1 (a preprimer from an easy-to-read, high-interest series) both in context and in isolation. Despite his third-grade status, from the general and the Book 1 pretests combined there were only 21 words the student could recognize consistently and 40 words from Book 1, a book normally used in the earliest part of first grade, were unknown.

In this single-subject multiple-baseline across behaviors study, after baseline data collection, a set of words were exposed to intervention (the M-E/M-C
Strategy). A new set received intervention when a stable trend of recognition was achieved in the previous set. The student received instruction 3 days a week. Words were studied 10 at a time, using the ME/MC Strategy until recognition occurred. He progressed through two books during the study.

Results of the study indicated that the M-E/M-C Strategy effected statistically significant improvement for context-free word recognition between pretests and posttests and as well transferred to reading in context. At the end of the study the student was able to move to a more balanced program and was reading at third-grade level after five additional quarters of typical instruction. He was reported to be showing continued progress two quarters after leaving the clinic program. This second study investigating the use of the M-E/M-C Strategy with a different subject and employing a different design, lends support to the efficacy of using this strategy with nonreaders. It also supports the contention that nonreaders can learn given the right instructional procedures.

Cunningham (1988) presents a recommendation, though she offers no data, in which she suggests a method of instruction for young nonreaders in elementary school. Her method is based on two ideas:
(a) that children learn to read by reading and (b) nonreaders need to be able to read a real book as soon as possible. In her method the teacher records an easy book the child wants to read (predictable books are recommended) and the student listens while looking at the book. After several sessions of listening to the tape, the child tapes a part of the book he can read. When the child can "read" the whole book, he reads it to small groups of younger children.

After completing the first book successfully, activities related to book reading and sentence construction with words from the book are employed—as is done in the present research. These include: making word banks, word/text matching, rereading, auditory discrimination activities, and rhyming exercises (using word families).

Culyer (1988) recommends another method of reading instruction for nonreaders, again presenting professional opinion rather than research. She stresses the importance of belief in the child's ability to learn to read, the use of materials that are meaningful to the child, as well as the need for opportunities for success as fundamental for implementing this strategy. Culyer's method entails the use of Single Concept Cards (SCC) that have a
picture and a word on the front (the teaching side) and the word, only, on the back (the testing side). Culyer suggests that the number of words assigned children should be no more than five, unless it becomes evident that the pupil can handle more.

A study strategy is introduced and reviewed each day until the child is able to use it independently. This strategy entails pronouncing the word using first the teaching side of the card and later the testing side, as well as completing an activity that calls attention to the beginning letter of the word. Culyer also suggests a number of reinforcement activities to promote transfer in different situations. These include using each of the new words in different sequences, or presenting them in different types of print (upper and lower case), different sizes, and different colors. Game-like activities are suggested for additional practice and a number of activities are recommended for word and sentence reading practice.

In reviewing the two research investigations (McCormick, 1991; McCormick, in press) and the two instructional suggestions (Culyer, 1988; Cunningham, 1988) discussed in this section, there are some important similarities and differences that may be noted. Three different strategies for reading
instruction were presented in the four reports. Similarities that exist among the three strategies include: (a) practice of words both in context and in isolation, (b) many opportunities for exposure to each word in a variety of situations, (c) opportunities for the child to be successful, (d) limiting the number of new words introduced at any given time, (e) opportunities to attend to the internal (orthographic) features of the words. In the literature on using predictable books with beginning readers and learners with literacy problems many of the activities used in each of these instructional strategies also have been recommended.

A major difference between the three strategies reviewed here is that only in the first two strategies (McCormick, 1991 and McCormick, 1994, as well as Cunningham, 1988) do students have the opportunity to read real books. This provides a different way to practice words in the context of a meaningful text, greatly increasing the opportunities for exposures to the words and providing an opportunity for transfer of the skills learned in isolation as they are applied in connected text reading (Harris, 1981). In addition, reading real books is an important factor for improving
the self-concept of the nonreader and helping him or her to develop a more positive attitude toward reading.

In reviewing these reports it is important to note that because the two research studies did not involve a large sample of students, no generalizations can be made about the efficacy of using the ME/MC strategy with nonreaders. However, these studies, along with the suggestions for instructional activities found in the two additional reports do suggest some avenues for future research, as well as possible ways to effect remediation for students similar to those described.

Affective Behaviors

The importance of the affective domain for achievement motivation has long been a subject of interest to researchers (Atkinson & Raynor, 1974; Nielsen, 1978). Specifically, there is agreement on the importance of positive attitudes toward reading for maximum success with print (Alexander & Filler, 1975; Heilman, 1972; Nielsen, 1978; Pierson, 1984; Wigfield & Asher, 1984).

It is essential that educators aid children in developing positive attitudes toward reading, and positive self-concepts. A number of studies have shown that elementary-school-age children who have
experienced many failures in school are not as prone to exhibit "learned helplessness as a result of these failures as are older students. In "learned helplessness" there is the tendency to feel helpless in the face of failure, and failure is attributed to lack of ability rather than lack of effort. The child is, therefore, less persistent in the face of failure and less likely to use strategies (Johnston & Winograd, 1985). There is some evidence that these attitudes can be changed (Healy, 1963). Therefore, it is imperative to help children succeed in reading as early as possible and for instruction to provide many opportunities for success (Resnick & Robinson, 1975; Rholes, Blackwell, Jordan, & Walters, 1980; Wigfield & Asher, 1984). Obviously, children must possess the necessary skills to achieve if success is to ensue (Wigfield & Asher, 1984).

According to Nielsen (1978), reading programs need to address the affective realm in these ways: (a) by fostering successful reading experiences, especially for low-achieving students, to keep these children from becoming insecure regarding their ability--thus causing them to avoid reading; and (b) by capitalizing on the interests of children.
Several studies related to the attitudes of elementary students toward reading and the underlying factors that influence these attitudes toward print have been found (e.g., Alexander & Filler, 1976; Pierson, 1984; Saracho, 1988). Some variables that have been explored related to the present study are: (a) teacher expectations, (b) teacher behaviors and (c) reading materials. Heathington (1979) also points out that different age groups have different physical, social, emotional, and intellectual needs. Therefore, reading programs need to respond to these differences.

The literature cited above clearly supports the importance of positive attitudes and positive self-concepts for achievement motivation in reading. There is also evidence that attitudes can be changed through successful encounters with reading. The influences of teachers and materials have been shown. More research is needed to determine how particular factors within each of these realms influence the child's development as a reader.

Affect is especially important for poor readers who already have experienced failure. The provision of successful reading experiences is critical for these students. Without such experiences and the subsequent development of positive attitudes they are often
unwilling to attempt to read. For this reason, in addition to cognitive assessments, the present study includes assessment with two attitude scales, one observational and one self-report, as well as employing an anecdotal record of both cognitive and affective behaviors on a daily basis to provide needed information in this area. More information concerning these assessments is provided in the "Affective Assessment" section of the present study.

Predictable Literature

In the present study predictable books were employed with the hope of influencing word learning and positive attitudes with one nonreader. Predictable books facilitate the prediction of words and ideas because of their use of highly patterned language structures (e.g., repetitive phrases or predictable plots) (Bridge, Winograd, & Haley, 1983; Heilman, Blair, & Rupley, 1986; Huck, Hepler, & Hickman, 1993; Slaughter, 1993; Strickland & Morrow, 1989; Tompkins & Webeler, 1983). They contain language which is simple and repetitive, illustrations that strongly support the text, and concepts that are accessible to children (Slaughter, 1993). There are a number of specific types of predictable books. To clarify the differences
between each category, definitions describing the attributes, titles of books representing the category, and sample pages from each book illustrating the type are presented. Lipson and Wixson (1991) is the source for these categories.

Some predictable books provide repeated exposure to high-frequency words in context through the use of repetitive sentences or phrases throughout the story. One example of this type of predictable book is (a) Bill Martin’s (1970) *Brown Bear, Brown Bear, What Do You See?*. The following are sample pages: (Numbers indicate page numbers in the book)

1. Brown bear,  
   Brown bear,  
   What do you see?

2. I see a red bird  
   looking at me.

3. Red Bird,  
   Red Bird,  
   What do you see?

4. I see a yellow duck  
   looking at me.

Other predictable books contain plots that allow the reader to predict what will happen next. An
example of this type of predictable book is Lorna Balian's (1972) *Where in the World is Henry?*. The following are sample pages from *Where in the World is Henry?*:

1. Where in the world is Henry?
2. I think he's under the quilt.
3. Where is the quilt?
4. The quilt is under the bed.
5. Where is the bed?
6. The bed is in the bedroom.
7. Where is the bedroom?

There is another category of predictable books which contain repetitive-cumulative patterns where a word or phrase is repeated in each new episode and each time a word or phrase is added to the sentence. An example of this type of predictable book is Audrey Wood's (1984) *The Napping House*. The following are sample pages from *The Napping House*:

1. There is a house,
   a napping house,
   where everyone is sleeping.
2. And in that house
   there is a bed
   a cozy bed
in a napping house,
where everyone is sleeping.

Other predictable books contain a **repetitive refrain** that is repeated throughout the story. An example of this type of predictable book is Wanda Gag’s (1977) *Millions of Cats*. The following are sample pages from *Millions of Cats*:

4. Cats here, cats there,
   Cats and kittens everywhere,
   Hundreds of cats,
   Thousands of cats,
   Millions and billions and trillions of cats.

11. They came to a pond.
   "Mew, mew! We are thirsty!" cried the Hundreds of cats,
   Thousands of cats.
   Millions and billions and trillions of cats.

Many predictable books use **rhyming patterns**, often combined with repeated words or phrases and cumulative-repetition. An example of this type of predictable book is Dr. Seuss’s (1960) *Green Eggs and Ham*. 
The following are sample pages from *Green Eggs and Ham*:

1. I am Sam
2. I am Sam
3. Sam I am
4. That Sam-I-am!
   That Sam-I-am!
   I do not like
   that Sam-I-am!
5. Do you like
   green eggs and ham?
6. I do not like them,
   Sam-I-am.
   I do not like
   green eggs and ham.

Books that contain word play patterns where words are explained through the pictures that support the text are also predictable. One example of this type of predictable book is Fred Gwynne’s (1970) *The King Who Rained*. The following sample pages are taken from *The King Who Rained*:

1. Daddy says there was a king
   who rained for forty years.
   (The picture opposite this text shows
   rain drops coming from a king.)
2. Daddy says there are forks in the road.
(The picture shows dinner forks that form a roadway.

Sequenced books are a final type of predictable book to be presented here. This type of predictable book includes alphabet books or number books as well as books about colors, days, months, or seasons. One example of this type of predictable book is Eric Carle’s *The Very Hungry Caterpillar*. The following are sample pages from *The Very Hungry Caterpillar*:

4. On Monday he ate through one apple.
   But he was still hungry.

5. On Tuesday he ate through two pears,
   but he was still hungry.

6. On Wednesday he ate through three plums,
   but he was still hungry.

*Research on Predictable Books and Reading Instruction*

Strickland & Morrow, 1989; Thornell, 1991). Authorities believe the repetitive, rhythmic language patterns, natural language, and familiar, predictable plots of many of these books enable students to predict the words and episodes more easily than with more commonly used materials, such as basal readers (Bridge, Winograd, & Haley, 1983; Burton, 1982).

There have been, however, only a few studies actually investigating the use of predictable books. After a careful search of the literature for the past 2 decades, only two investigations were located examining the use of predictable books with average readers and in one of these, the purpose of the study was to teach reading in a language other than English, specifically, Chinese. Four studies were found addressing the issue of using predictable books to teach reading (i.e., word recognition, comprehension, or both) to poor readers. One study was located, involving both good and poor readers (see Table 1).

In addition, ten authority-opinion articles were discovered related to using predictable books with beginning and elementary school average readers, one that recommended the use of predictable books with learning disabled students, and one that recommended the use of predictable books with both average and poor
Table 1

Classification of Research Articles by Targeted Group of Readers

<table>
<thead>
<tr>
<th>Average Readers</th>
<th>Poor Readers</th>
<th>Both Average and Poor Readers</th>
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readers (see Table 2).

Finally, a number of college textbooks were found that contained chapters or sections discussing the use of predictable books and materials with both average readers (often beginning readers) and readers experiencing difficulty in learning to read (see Table 3).

*Research related to using predictable books with average readers.* The use of predictable books to facilitate prediction and, thereby, increase word knowledge and comprehension is an accepted practice with average beginning readers. Chang and Watson's (1988) study examined the effects of using a prediction strategy, along with predictable materials, on teaching ethnic Chinese children to read in Chinese. The children attended classes in a private Chinese language school in the United States. All were English speaking. The children also attended kindergarten in several public schools and were learning to read and write in English. The researchers were interested in determining if different writing systems call for different types of reading instruction. They hypothesized that because the representational nature of the Chinese ideographic writing system is different from that of the English alphabetic writing system,
Table 2
Classification of Discussion Articles by Targeted Group of Readers

<table>
<thead>
<tr>
<th>Average Readers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atwell, M. A. (1985)</td>
</tr>
<tr>
<td>Bridge, C. (1979)</td>
</tr>
<tr>
<td>Pickert, S. M. (1978)</td>
</tr>
<tr>
<td>Thornell, C. B. (1991)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poor Readers</th>
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<tbody>
<tr>
<td>McClure, A. A. (1985)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Both Average and Poor Readers</th>
</tr>
</thead>
</table>
Table 3

**Classification of Books by Targeted Group of Readers**

<table>
<thead>
<tr>
<th>Average Readers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cullinan, B. E. (1987)</td>
</tr>
<tr>
<td>Huck, C. S. (1992)</td>
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</table>

<table>
<thead>
<tr>
<th>Poor Readers</th>
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different types of reading instruction may be needed in
the two languages.

 Intervention first occurred during 15, 2-hour
sessions, once a week. The intervention was repeated
several months later using the same schedule. Six
teaching strategies were used to encourage the
children’s use of prediction while reading:
(a) initial language experience--the children were
encouraged to use their prior knowledge related to the
story, (b) questioning and semantic expectation--
questioning and dialogue were used to construct the
author’s message, (c) demonstration--the teacher read
aloud, (d) assisted reading--the teacher helped the
children read the story, (e) independent reading--the
children read aloud in small groups or individually,
and (f) extensive literature work-- stories were
related to other classroom topics. The strategies were
used in conjunction with predictable reading material,
in Chinese, dealing with instructional units relevant
to the children’s interests and prior knowledge (e.g.,
cars, seasons, elephants). The texts contained common
Chinese sentence structure, repetitive structures,
cumulative language patterns, rhymes, and/or
illustrations that matched the text.
Data analysis was qualitative using audio- and videotapes, anecdotal notes, interviews, and records of the children's reading miscues. Results supported the practice of using predictable books to facilitate predicting and foster interest and enjoyment in reading. Findings indicated: (a) a positive relationship between the children's enjoyment of the predictable texts and their patience in listening to longer and longer stories as the year progressed; (b) the children's interest and understanding in reading the Chinese text; (c) use of all the linguistic cuing systems (graphophonemic: symbol-sound; syntactic: structural; semantic: meaning) and their world knowledge in reading; and (d) the performance of the same cognitive tasks as children learning to read in English: predicting, confirming, and integrating information to construct meaning.

Downhower and Brown (1992) conducted a second investigation examining the benefits of using predictable books with average readers to facilitate prediction and improve reading comprehension. In this study they compared the use of predictable books and activities to the use of basal readers for increasing reading comprehension of first graders. There were significant differences in favor of the experimental
group (i.e., the group using predictable materials) in standard scores and grade equivalents on the California Achievement Test (CAT) (CTB McGraw-Hill, 1985). This result tends to support the use of predictable books over basals with average beginning readers to increase comprehension.

Results on the two studies examined here support the use of predictable books to facilitate prediction and increase achievement and enjoyment, as well as attention to task for average readers.

Research related to using predictable books with learners having literacy problems. A few studies have investigated the efficacy of using predictable books with poor readers. These researchers examined the effects on such variables as word recognition, fluency, word identification, comprehension, and attitude toward reading. The theoretical rationale for these studies was that predictable books—because of their repetitive language structures, natural language, familiar content reflecting the children's prior experience, and obvious story lines and text structure—aid readers in predicting the words and episodes in a story, promote comprehension, and increase enjoyment of the text.

Chandler and Baghban (1986) tested the assumption that comprehension of poor readers should be improved
by the use of texts with predictable structure (i.e.,
repetitive language patterns) and story lines. Forty-
eight first-, second-, and third-grade students who
had scored below the 39th percentile on the
Metropolitan Readiness Test (Nurss & McGauvran, 1976),
or below the 40th percentile on the Metropolitan
Achievement Test participated in the study.

From September through March the control groups
received (Ginn) basal reader instruction using ditto
masters and a skills approach for five 45-minute
periods each week. The experimental groups received
the same schedule of instruction, but with predictable
books (Bill Martin's Instant Readers) using a modified
version of Stauffer's DR-TA. Chandler and Baghban
(1986) report the following five steps with the
predictable books were used when students were read to
orally and when they read individually: (a) The title
was read and the picture on the cover shown. Children
used both word and picture cues to predict what the
story would be about. (b) Questions were asked to
encourage children to predict what would happen. (c)
Children explained why they made their predictions. (d)
After reading through the next set of repetitive
patterns children confirmed or rejected their
predictions. (e) The children repeated steps 2,3, and 4
throughout the book.

Results indicated that students in the experimental groups (i.e., students using predictable books) improved significantly more than students in the control groups (i.e., students using basal readers) from pre- to posttest—suggesting that the use of predictable books is a sound practice that will aid less able readers in the process of predicting.

Two additional studies using predictable books with below average readers to facilitate prediction and improve comprehension were conducted by Reutzel and Fawson (1989; 1991). The studies, a small-scale investigation involving children from one classroom in 1989 and then a follow-up study drawing subjects from several classrooms in 1991, compared the effectiveness of using a Literature Discussion Webbing Strategy Lesson (LDWSL) to using a Directed Listening/Reading Thinking Activity (DL/RTA). Both methods used predictable books.

The LDWSL group used a six-step process. The children: (a) sampled the book by looking at randomly ordered illustrations/text excerpts, (b) predicted the order of the book by placing these excerpts around a literature web, (c) read the predictable book, (d) confirmed and corrected their predictions,
(e) responded to three other items on the literature web (e.g., personal responses to the book) and (f) participated in independent or supported reading activities. (p. 209)

In the DL/RTA group the same book was read, however, a different instructional process was used. After looking at the cover, title page, and picture on the first page of a Big Book version of the story: (a) the children were asked what they thought the book was about and why they thought that, (b) the teacher listed several unfamiliar words on the board and discussed their meanings, (c) the children’s predictions were discussed, (d) the Big Book was read by the teacher and students read along, (e) the teacher asked if the children had read similar books and asked for personal responses about the present book, and (f) responses to the above questions were discussed and the children had the opportunity to choose from several independent extension activities. (p. 213)

The major difference between the two processes was that the LDWSL group, were required to think about the order and logic of their predictions, whereas the DL/RTA group were not. The authors hypothesize that this might alert them to patterns in the text. The results of both studies indicated that using the LDWSL
procedure, along with predictable books, resulted in significantly more improvement in comprehension than did use of the DL/RTA with predictable books. This may have been a result of the increased cognitive processing required in the LDWSL group.

Bridge, Winograd, and Haley (1983) investigated the use of predictable books with 16 "slow learners" (i.e., the children were chosen from the lowest reading groups in several first-grade classrooms and were selected based on their scores on the Metropolitan Readiness Test (Nurss & McGauvran, 1976) at the beginning of first grade). The objective in this investigation was to compare the effectiveness of using predictable books for sight word reading instruction with poor readers to that of using basal readers (i.e., a preprimer). The six predictable books contained most of the same 45 words found in the preprimer.

The children were pretested on the 45 target sight words found in the primer, plus 32 nontarget words to be introduced in the second preprimer. A posttest at the end of the study was also administered on these 77 words. A modified Burke's Reading Inventory (Burke, 1980) was given before and after the study to determine if use of the predictable books versus the less-predictable preprimer differently affected the
children's strategies for dealing with unfamiliar words. Heibert's (1982) Protocol for Interest in Reading was also given in both pre- and post-sessions.

The control group received instruction in the preprimer (using the teacher's manual) from their teachers. The experimental group was taught by one of the researchers. Bridge, Winograd, and Haley (1983) used the following procedures with the predictable books: (a) The teacher read the book aloud. She reread it and the students joined in. The children engaged in choral reading of the book. The text then was read from a chart without picture cues. (b) Teacher and students read the story from a chart. Students matched sentence strips and word cards to words on the chart. (c) Students read the story chorally from the chart. They matched randomly ordered word cards to words on the chart.

Results indicated that students using predictable materials learned significantly more target and nontarget words than students using the preprimer (p<.025). This suggests that using predictable books and the procedures associated with them is effective for the acquisition of sight vocabulary for beginning low-achieving readers.
In addition, results on *Burke's Reading Inventory* (1980) indicated that students using predictable books changed their strategies for dealing with unfamiliar words—relying more on context clues, rather than outside help or graphophonic information. Finally, results on Heibert's (1982) *Protocol for Interest in Reading* indicated that more positive attitudes toward oral reading were reported by the children using predictable books—whereas, the children using preprimers reported more negative attitudes. This result was explained by the researchers as due, perhaps, to the successful choral rereading experiences of those using predictable books.

The results of this study in conjunction with the findings by Chandler and Baghban (1986) suggest that using predictable books may be more effective than using basal readers for aiding less able readers in developing comprehension skills, as well as sight vocabulary.

Like Bridge, Winograd, and Haley (1983), Moore (1990) investigated the effects of using predictable books with poor readers retained in first grade. There were daily 40 minute sessions for a period of 10 weeks. Students were pre- and posttested on their oral reading and retelling of a story from the Reading Miscue
Inventory. Instruction included the use of big book enlargements of predictable books. The following procedures were used: (a) Each teacher discussed the book, illustrator, and author, as well as reading the book to the group. (b) Assisted reading was used during shared reading. (c) Repeated reading was sometimes used along with assisted reading. Students were asked to read the selection alone, as they reached a fluent assisted reading of the text.

The children were also placed in groups of two or three and one or more of the following procedures was used during a week's time: (a) reading the text in unison, (b) the teacher read and the children read the refrain, (c) the teacher read and the children repeated the story with and then without the teacher's help. (d) the teacher read most of each sentence and children filled in missing words, (e) the children read in unison, (f) the children read familiar selections of their own choice, independently, (g) the teacher and children discussed the story and the children retold the selection, (h) the children engaged in dramatization, puppetry, role playing, writing and problem solving, (i) parental involvement was invited, (j) the teacher documented the number of times a child voluntarily checked out books or chose to read.
Results of the study included a reduction of miscues from pre- to posttest and an increase in fluency. This effect may have been the result of the use of predictable text and strategies that provided students with the ability to sample, predict, and confirm using syntactic and semantic, as well as graphophonic information to process text.

Research related to using predictable books including both average readers and learners having literacy problems. Only one investigation was found related to the use of predictable books in which both average and poor readers were among the subjects included. In this study, Leu, De Groff, and Simons (1986) (a) evaluated the relation between context use during word recognition and higher-level comprehension, and (b) evaluated the appropriate instructional functions for predictable text. They were particularly interested in examining the relation between reading ability and context use during word recognition, as well as evaluating interactive-compensatory predictions related to comprehension.

According to Stanovich’s interactive-compensatory model predictable books might allow poor readers to become increasingly automatic at using context for word recognition, allowing them to attend to meaning and
comprehend at higher levels. Leu, De Groff, and Simons (1986) suggest that if this model is correct then three results should occur when poor readers read predictable text: (a) Poor readers should have used more contextual information during word recognition than did good readers, (b) as they develop automaticity with context use, the reading rates of poor readers should increase more than that of good readers, and (c) poor readers should comprehend text at the same level as good readers, despite having more contextual information.

The subjects of the study were 36 first-grade students. All subjects participated in both a reading and a listening task (used for selection purposes). In the reading task, students read a predictable story orally. This was followed by a free retelling and a probed recall. Oral reading rate was timed to observe changes in reading rates between the two halves of the story and to assess increases in reading rates within each half of the story. Text- and sentence-level aspects of comprehension were assessed by scoring the total number of propositions recalled, the total number of crucial-event-sets recalled, and by determining if students' retellings included the central causative inference in the story.
Students' use of repetitive sentence context during word recognition was determined by their first whole-word response at target word locations (Nine words from the original text had been replaced with words semantically and syntactically consistent with the sentence context, but inconsistent with the repetitive sentence context of the predictable text.). The students were to have responded with either the discourse-appropriate substitutions (i.e., the original target word) or the graphically expected responses (i.e., the altered target word).

Results of the study support the interactive-compensatory model and the use of predictable text to improve comprehension of poor readers, similar to Chandler and Baghban's findings. When reading predictable text, poor readers used more contextual information during word recognition than did good readers. Poor readers more frequently substituted the discourse-appropriate word for the original target word at target word locations, thus using contextual information at the expense of graphic information. Good readers, however, tended to read the target word as it appeared, using graphic information at the expense of contextual information. In addition, repetitive sentence context facilitated poor readers'
reading rates more than those of good readers. By the middle of the story, poor readers read as rapidly as good readers because of their automatic use of repetitive structures.

There were no significant associations found between context use during word recognition and higher-level comprehension processes. The authors suggest that this may be because poor readers were able to attend to the meaning of the story because of their use of repetitive sentence structure to facilitate word recognition.

Results of this investigation suggest, as have some other studies reviewed, that predictable books may be useful for developing both the fluency and the comprehension skills of poor readers.

Summary of research on use of predictable books in reading instruction. The results of the studies reviewed related to the use of predictable books suggest that they may be useful for improving reading instruction of beginning average readers both in English and in a language other than English (Chang & Watson, 1988; Downhower & Brown, 1992; Leu, De Groff, & Simons, 1986). There is also evidence that predictable books may be useful for improving reading skills of poor readers (Bridge, Winograd, & Haley, 1983; Chandler

Several investigations suggest the efficacy of using predictable books to increase word recognition skills of poor readers (Bridge, Winograd, & Haley, 1983; Leu, DeGroff, & Simons, 1986; Moore, 1990). Using predictable books may facilitate students' ability to sample, predict, and confirm using information from all three cueing systems. They may also impel students to change their strategies for reading unknown words—depending more on context and less on outside help or graphophonic information.


Finally, predictable books may be useful for increasing positive attitudes toward reading and attention-to-task. This was suggested by the results of the study by Chang and Watson (1988) where relative
enjoyment of predictable texts was observed to be related to patience in listening to longer stories. In addition, Bridge, Winograd, and Haley (1983) demonstrated more positive attitudes toward oral reading using predictable books as compared with using a basal preprimer. These results were hypothesized as being a result of successful experiences the children had during choral reading activities used in conjunction with predictable books.

The use of predictable books is an accepted practice with average beginning readers (Adams, 1990; Bridge, 1978; Cullinan, 1987; Heald-Taylor, 1987; Heilman, Blair, & Rupley, 1986; Huck, 1992; Huck, Hepler, & Hickman, 1993; Johnson & Louis, 1987; Leu & Kinzer, 1987; Lipson & Wixson, 1991; Martinez & Nash, 1991; McCoy & Hammett, 1992; Pickert, 1978; Reutzel & Cooter, 1992; Strickland & Morrow, 1989; Thornell, 1991). The investigations reviewed above suggest that predictable books may also be one way to increase reading comprehension skill, word recognition speed and accuracy, and positive attitudes toward reading of poor readers and, perhaps, bilingual students, as well. More research is needed to identify the populations that can most benefit from the use of predictable books and the most effective instructional methods to use.
with predictable books.

Chapter Summary

This chapter has addressed the need for research on reading instruction for nonreaders, whose problems are among the most serious of any group of individuals. Specifically, it explored the cognitive and affective effects of using predictable books on one nonreader.

The theoretical basis for this study was established through a discussion of: (a) Stanovich's (1981) interactive-compensatory reading theory which explains why good readers may use context less than poor readers for word recognition, (b) the Just and Carpenter Model which proposes that lexical access to word meaning is derived from print, and (c) research on encapsulation suggesting advantages for using no information beyond the graphic representation of the word for word recognition.

Theories and research related to word learning were presented suggesting that increases in word recognition ability produce similar increases in reading comprehension (e.g., Biemiller, 1970; Blanchard, 1980; Chall, 1989; Gough, 1984; Herman, 1985; Stanovich, 1991). In addition, the beginning phases of word learning (logographic and rudimentary-
alphabetic) were discussed, suggesting that instruction for children at these stages must capitalize and build on their current abilities while recognizing their present limitations regarding the use of letter-sound correspondences and decoding. The need of these readers for more practice than readers in later stages of development, (both in isolation and in context) to achieve word learning, was also discussed. Special attention was given to instruction for nonreaders, such as the subject of this study, suggesting that they can learn to read if appropriate instructional procedures are used (e.g., many exposures to words, both in isolation and in the context of meaningful text).

In addition, research suggesting the importance of the affective realm for reading achievement was cited (e.g., Alexander & Filler, 1975; Heathington, 1979; Heilman, 1972; Johnston & Winograd, 1985; Nielson, 1978; Pierson, 1984; Saracho, 1988; Wigfield & Asher, 1984). The subsequent need for developing positive attitudes toward reading (especially in poor readers), by providing children with opportunities for successful reading experiences as early as possible, was addressed.

The final section of this chapter reviewed research related to the use of predictable books (i.e.,
books with repetitive words and phrases) for reading instruction. These studies suggested that predictable books may facilitate word learning and comprehension, as well as increase enjoyment and attention to task for both beginning average readers (Chang & Watson, 1988; Downhower & Brown, 1992; Leu, DeGroff, & Simons, 1986) and, importantly for this study, for poor readers (Bridge & Winograd, & Haley, 1983; Chandler & Baghban, 1986; Leu De Groff, & Simons, 1986; Moore, 1990; Reutzel & Fawson, 1989; 1991), therefore, providing an instructional alternative for these children. The present investigation examined the use of predictable books with one nonreader to increase word learning. The study yielded both qualitative and quantitative data that may shed light on the value of this type of instruction for other nonreaders, as well as lead to new directions for future research.
CHAPTER II

METHOD

Subject

In planning the present study certain criteria were adopted for subject selection. These were: (a) the student will have had at least one year of reading instruction, but still recognize so few words that s/he cannot read meaningful text and (b) this delay will have occurred despite average or above intelligence, no serious sensory (vision or hearing) problems, and no obvious neurological abnormalities.

The specific participant who was selected met these criteria. The subject for this study was chosen from a university-based reading clinic. This student was a 7-year-old African-American female enrolled in a large metropolitan school district in the midwest. She attended second grade in an open classroom with first grade on one side of the room and second grade on the other side. The experimenter administered the Peabody Picture Vocabulary Test (PPVT) (Dunn & Dunn, 1981)
prior to the pretesting sessions. The student obtained a standard score equivalent (vocabulary IQ) of 100+/−7 on the PPVT.

The subject's mother and father were each interviewed and a medical history was obtained related to the child's pre- and postnatal health. The mother stated that the subject was a full-term baby. An incident occurred during delivery, however, in which the umbilical cord was wrapped around her neck, briefly cutting off oxygen to the child. No permanent effects resulted from this incident. Early development related to speech and language were described as normal, the father stating that the child tried to talk at about 7 months of age. Both the mother and the father also stated that the child developed asthma at around five years of age and misses about a week of school because of this each winter.

According to the interview with the subject's mother, she has experienced difficulty in reading in school and has been in a special pullout reading group. However, both parents stated that she enjoys books and being read to at home. Her father stated that she loves stories and being read to (e.g., Mother Goose and fairy tales) and also tries reading on her own when they are together. The parents also stated that
progress in school was satisfactory in all subjects other than reading and her social adjustment was good (i.e., there were no behavior problems or problems with peers). She is an obedient, quiet child in school, and loves teachers. She has lots of friends and is outgoing at home. According to the student's mother, she loves swimming and is a good swimmer with no fear of the water. She is a self-taught swimmer and learned at about age 3. She also goes to the library, and loves to draw, play video games, play with toy animals and action figures, and go fishing with her father.

The student lives with her mother and two older sisters. According to the child's father, the student's parents were divorced a few months before she was born. Though her father does not live with the family, she does have regular contact with him. The student has two older sisters, ages 8 and 10, neither of whom are having difficulty in reading. According to the student's father, she stands her ground with her older sisters and can do what they do. He also states that she has a good relationship with her sisters.

The child's mother recently graduated from a large midwestern university. She is very concerned about her children's progress in school and particularly in reading. She expressed concern that her own studies,
and being a single parent, however, have made it difficult for her to devote as much time as she would have liked to help the children with their school work. She was anxious to complete her own studies and has requested suggestions for working with the subject at that time. She is very supportive of her children and has a strong belief in their abilities to achieve in school. She has on one occasion intervened concerning the classroom placement of the subject in an effort to insure a supportive learning atmosphere for her child. She is very concerned about providing a safe, secure environment for her children and monitors all their activities to that end.

The child’s father is a high school graduate and is employed as a custodial supervisor at a major midwestern university. He has a number of interests including hunting, fishing, drawing, reading, and writing stories and poetry. He has a personal library and reads in his current interests—psychology, medicine, science-fiction, and fishing. His own writing includes science-fiction stories, children’s stories, and poetry. He believes that any difficulty the student has had in school and reading has been because of immaturity and an earlier lack of interest in school and reading. He feels that the most
important thing to the child is to have a feeling of being noticed and to be actively involved in whatever is going on around her. If she is not active or involved, she feels very insecure, according to her father.

In conversations with the subject, she has stated that she usually does not play with her sisters, who have their own friends. She has, however, a good friend who lives across the way from her. She also has stated that she does not belong to any clubs or groups, or take any special lessons. She does attend an after school program at the complex where she lives. She was especially proud of her swimming ability and said that she swims better than either of her sisters. She said that she taught herself to swim and that she swims underwater better than on top of the water. It was clear that her ability in this area was acknowledged by her mother and her sisters. The child also stated that her mother reads to her, "but not every day." She said that she does not have any books of her own except coloring books that she reads directions on and traces letters on. She remarked that when she goes to the library she is not always allowed to check books out because she might lose them. She says she has checked out some books, however, and was
able to name one. When asked about school she said that she likes school and her teacher. She also said that she likes reading stories in school and playing games.

Interviews with the student's teachers, examination of school records, and observation of the student at the public school she attended confirmed much of the information gained from the student's mother and father. The classroom teacher and the student's school records indicated that she entered kindergarten at the school she currently attends at five years of age. She participated in the Reading Recovery program during first-grade. She was in second-grade when this study began and has not been retained. Her current classroom is a 2 - 3 split in an alternative school with open classrooms and a holistic, whole language approach.

The classroom teacher stated that the student was a pleasant, even-tempered child. He described her as quiet, but said she had friends and got along well with the other children. He also said that she asked few questions and seldom would ask for a pencil or other supplies if needed. He also stated that the student had lost six days of school last quarter out of 46 days. Her teacher reported, however, that she was not
doing well except in math. He stated that she puts forth an average amount of effort in class, but works slowly. He also stated that she lacked organization and often was forgetful about turning in assignments. He was concerned about her work in the language arts, and particularly in the area of reading. The teacher stated that her reading is very low and that she is in the low reading group. He felt that she was intimidated by reading. She does not volunteer to read, but will read orally if called on. He said that she does not read during independent reading, but merely looks at pictures in the books. He also stated that she does not pick up books during spare time.

The student attended Competency Based Education Reading (CBE) for 40 minutes a day, in addition to her regular class reading. According to her CBE teacher, there were approximately six children in this group. The same vocabulary words were used as those employed in the regular classroom reading and spelling programs. This program was described as a whole language/literature based program using a Holt, Rinehart, Winston anthology of stories at about first-grade level and trade books at a higher level. Most reading was done orally after a brief introduction by the teacher. Primer level predictable books were sent
home because the teacher found these to be at a level with which the student was comfortable.

The student also leaves her classroom for 50 minutes, four days a week, to attend reading group. A literature-based whole language program is employed with this group. The student is in a group consisting of about 10 children, all of whom are reading below grade-level. The reading teacher reports that the student increasingly, since the beginning of the year, has tried hard and participated eagerly. She has had difficulty, however, building a sight vocabulary and with word attack. She also stated that she has not met with the student's parents though conference times have been scheduled where the parents were invited to attend.

In March of 1993, the student's reading instructional level was preprimer 2 according to the Metropolitan Achievement Test (Level-Primer, Form L). For vocabulary, word recognition, and comprehension she obtained the following percentile ranks and stanines 16-3, 12-3, and 4-2, respectively. She received a percentile rank of 6 and an equivalent stanine of 2 for total reading performance across all subtests.

The student attended a university reading clinic during the summer of 1993 for a period of 5 weeks. Her
tutor reported that she missed no days and was a cooperative and eager student. Her mother did state, however, that she was reluctant to come and did not understand why she had to attend, as her sisters did not. The tutor reported that the student was able to name most letters of the alphabet (i.e., all but the last five) and that she had a very limited sight word recognition vocabulary. At the beginning of the summer term, the student was, in fact, able to recognize only eight words on the Houghton-Mifflin Word Recognition Test (Hollander & Reisman, 1970) which presented the words in isolation, despite the fact that she had received a full year of first-grade reading instruction. Words recognized were a, the, go, I, and, see, is, and too. The Contextual Inventory of Basic Sight Words was also administered. This test was devised for the university reading clinic the student attended. It consists of five sections, each more difficult than the one before and measures recognition of high frequency words in context. The student was able to recognize only seven words on this test. These included six of the eight words recognized on the Houghton-Mifflin Word Recognition Test: a, the, go, I, and, and is, as well as one additional word, he. Her word identification strategy information was limited to
knowing about half of the consonant sounds. By the end of the summer session, the student had learned eight new sight words: she, they, there, just, kept, an, it, and too, bringing her total sight vocabulary up to 15 words. This is well within the limits of the number of words typically known by nonreaders, between 2 and 50, despite instruction and substantiates her status as a nonreader for purposes of this study. This student, like many nonreaders, has learned to recognize a few words. However, because the words are so few and are unrelated, she was unable to read meaningful text.

Experimenter

The experimenter is a doctoral student with 16 years experience as an elementary school teacher, five years experience as a learning disabilities tutor, and two years experience as supervisor in a reading clinic in a university setting. The present research was undertaken to meet requirements for the degree Doctor of Philosophy in the graduate school of a large midwestern university. The experimenter has completed graduate courses in the area of language, literature, and reading in the Department of Educational Theory and Practice, as well as courses in research design and
statistics, child development, reading and deafness, and the psychology of learning and memory.

**Setting**

All sessions were conducted in a 15 X 15 ft room in the recreation center of a housing complex set up under the auspices of a large university for graduate students with families. The room had 4 child-size rectangular tables, 12 chairs and 2 chalkboards and is similar to a kindergarten classroom. There were windows looking out on a grassy area on one side of the room and windows looking into another room on another side of the room. There were venetian blinds on the windows and florescent lighting overhead. There was also a storage area with children’s toys and a play kitchen in another corner of the room. The walls were painted a bright and cheerful yellow. Special arrangements were made so that no one other than the student and the experimenter was using the room during instructional sessions for this study.

**Materials**

**Student Materials**

Ten predictable books were chosen for this study. "Predictability" of books can occur in various ways
(see literature review). In the present study the predictability pattern chosen was the one in which each book contains a repetitive pattern, repeating certain phrases or sentences very frequently throughout the text, often on every page or two. Books chosen had short sentences, usually only one or two sentences per page, supportive illustrations, and contained concepts and topics familiar to most beginning readers. In addition, each book had a limited amount of text, ranging from 8 to 42 different words, though the number of running words was considerably more. Books with the fewest words were used first, progressing to those with the most words. Books selected were chosen from lists of predictable books commonly used with beginning readers. In the order of use, the following books were included. The numeral following each, specifies the number of different words in the book. For example, although the book Have You Seen My Cat? had 93 total running words, there were only 9 different words. Sources in which these books were recommended are also listed following the bracketed number of different words.

1. Have You Seen My Duckling? (Nancy Tafuri) [8]
   Recommended by: (a) Heald-Taylor, 1988;
   (b) Huck, Hepler, & Hickman, 1993
Sample pages:

1. Have you seen my duckling? (A picture of the mother duck asking a bird.)

2. Have you seen my duckling? (A picture of the mother duck asking a turtle.)

2. **Have You Seen My Cat?** (Eric Carle) [9]

   Recommended by: Huck, Hepler, & Hickman, 1993

   Sample pages:

   1. Have you seen my cat?

   2. This is not my cat. (There is a picture of a lion.)

   3. Have you seen my cat?

   4. This is not my cat. (There is a picture of a large wild cat.)

3. **I Went Walking** (Sue Williams) [28]

   Recommended by: Huck, Hepler, & Hickman, 1993

   Sample pages:

   1. I went walking.

   2. What did you see?

   3. I saw a black cat looking at me.

   4. I went walking.

   5. What did you see?

   6. I saw a brown horse looking at me.
4. **The Cake That Mack Ate** (Rose Robart) [30]

Recommended by: Huck, Hepler, & Hickman, 1993

Sample pages:

1. This is the cake that Mack ate.

2. This is the egg that went into the cake that Mack ate.

3. This is the hen
   That laid the egg,
   That went into the cake that Mack ate.

4. This is the corn
   That fed the hen
   That laid the egg,
   That went into the cake that Mack ate.

Sample pages:

1. Brown bear,
   Brown bear,
   What do you see?
2. I see a red bird
   looking at me.
3. Red Bird,
   Red Bird,
   What do you see?
4. I see a yellow duck
   looking at me.

6. The Chick and the Duckling (Mirra Ginsburg)
Sample pages:

1. A Duckling came out of his shell.
   "I am out!" he said.
2. "Me too," said the Chick.
3. "I am taking a walk,"
   said the Duckling.
4. "Me too,"
   said the Chick.
5. "I am digging a hole,"
   said the Duckling.

6. "Me too,"
   said the Chick.

7. Where's Spot?  (Eric Hill) [33] Recommended
   by: Heald-Taylor, 1987; Huck, Hepler, &
   Hickman, 1993
   Sample pages:
   1. That Spot!
      He hasn't eaten his supper. Where can he
      be?
   2. Is he behind the door? No. (Picture of a
      bear behind the door)
   3. Is he inside the clock? No. (Picture of a
      snake inside the clock)
   4. Is he in the piano. No. No. (Picture of
      a hippopotamus and a bird)

8. 10 Bears in My Bed  (Stan Mack) [34]
   Recommended by: Cullinan, 1987
   Sample pages:
   1. There were 10 in his bed
      and the little one said
      Roll over! Roll over!
2. So they all rolled over
   and one flew out.
3. There were 9 in his bed
   and the little one said
   Roll over! Roll over!
4. So they all rolled over
   and one galloped out.

9. Polar Bear, Polar Bear, What Do You See?
   (Bill Martin, Jr.) [36] This 1991 book was not
   specifically mentioned in the literature,
   probably because of its recent publication.
   However, other similar books by this
   author frequently were mentioned.
   Sample pages:
   1. Polar Bear, Polar Bear,
      what do you hear?
   2. I hear a lion
      roaring in my ear.
   3. Lion, Lion,
      what do you hear?
   4. I hear a hippopotamus
      snorting in my ear.
5. Hippopotamus, Hippopotamus,  
    what do you hear?  
6. I hear a flamingo  
    fluting in my ear.

10. **Dear Zoo** (Rod Campbell) [42] Recommended by:  
    Huck, Hepler, & Hickman, 1993  
    Sample pages:  
1. I wrote to the zoo  
    to send me a pet.  
    They sent me an ...  
2. (Picture of an elephant)  
    He was too Big!  
    I sent him back.  
3. So they sent me a...  
4. (Picture of a giraffe)  
    He was too tall!  
    I sent him back.  
5. So they sent me a...  
6. (Picture of a lion)  
7. He was too fierce!  
    I sent him back.

A number of predictable books that were recommended in the literature were not used for this study because of the large number of different words
included in each text (e.g., J. Bennett’s *Teeny Tiny*, P. Hutchin’s *Good-night Owl*, R. Kraus’s *Whose Mouse Are You?* and *Where Are You Going Little Mouse?*, D. Lillegrad’s *Sitting in My Box*, N. Shaw’s *Sheep in a Jeep*, C. Ward’s *Cookie’s Week*). The number of different words in these books ranged from 49-89, likely presenting too many unknown words for a nonreader to encounter in any one book with success.

Teacher-made activities, often in the form of games, were also used by the student. Those mentioned most often in the literature when describing follow-up practice after using predictable books include Keyword Bingo, Concentration, and Hangman. These games included a teacher-made gameboard and sets of small word cards for each of the 10 focus books. A magic slate and a small chalkboard also were used.

In addition, the following materials were used by the student:

1. Story charts for each of the 10 predictable books
2. Word cards for target words in each of the 10 predictable books
3. Cloze sentences on chart paper for each of the 10 predictable books
4. Sentence strips for each of the 10 predictable books
5. Story tapes for each of the 10 predictable books
6. Word cards for known words (words recognized on a word recognition test administered prior to this study). These were used in games during assessment. They also were used during instruction along with target words.

**Teacher Materials**

Teacher materials included the following items:

1. A form listing steps for instructional procedures (see "Procedures" section, below)
2. Tape recorder and blank tapes to record each session
3. Masks for words in each of the 10 predictable books
4. Marking pens and pencils
5. Blank charts for innovating on text of each of the 10 predictable books
6. Cumulative record form for each focus book to be used to record the results of the daily posttest and the total cumulative number of exposures to each target word in both the
focus books and in related activities and games. (See Appendix A.)

7. Reading attitudes observation checklist (See "Affective Assessment" section below)

8. Heathington Primary Scale (See "Affective Assessment" section below.)

9. Big books, pop-up books, and other books used by the teacher to read aloud to the student for pleasurable activities during assessment

**Procedures**

**Instructional Procedures**

The 10 predictable books mentioned above were used in the instructional phase of the study. Instruction related to each of these focus books occurred over a period of 3 days. On the fourth day, a new focus book was introduced. There were three instructional sessions of one hour each per week, for a period of 10 weeks (i.e., 30 hours of instruction). All instructional sessions were tape-recorded. During this 3-day cycle the focus book was read six times. This time frame was arrived at after reviewing the available research involving the use of predictable books for instruction both with average readers and with disabled readers, as well as based on the experimenter’s
experience working with reading disabled students. There was no clear pattern of instructional time from the studies reviewed. However, in the seven available studies, each focus book was read between two and six times (Bridge, Winograd, & Haley, 1983; Chandler & Baghban, 1986; Chang & Watson, 1988; Leu, DeGroff, & Simons, 1986; Moore, 1990; Reutzel & Fawson, 1989, 1991). Also, in two of the seven studies there were between 30 and 33 hours of instruction over a period of between 10 and 15 weeks (Chang & Watson, 1988; Moore, 1990).

Procedures for the present study included presenting words both in context and in isolation. Presenting words in context has often been suggested because this allows the reader to use syntactic and semantic cues to assist word recognition and may promote transfer to other authentic text reading (e.g., Goodman, 1967; Ceprano, 1981). More recent research has found that initial presentation in isolation may result in increased rates of word learning, though not in the number of words learned (Kibby, 1989). Further, research has shown that if assessment is to be in isolation, practice in isolation is superior. However, if assessment is to be in context, then practice is equally effective whether in context or in
isolation (Ceprano, 1981). In fact, according to Juel (1991) context is not as useful for word identification as was once believed. Numerous studies suggest that poor readers, rather than good readers, depend on context for word recognition (see Stanovich 1986). Stanovich (1980) contends that nonreaders, unlike other poor, but less disabled readers, are unable to use context because of their limited sight vocabulary.

Good readers have been shown to use graphic information to recognize words faster than they use contextual information (McConkie & Rayner, 1976; Rayner, 1975). According to Gough (1983), meaning-carrying content words can only be predicted about 10 percent of the time in contextual material. Further, Gough (1981) states that:

...Goodman is dead wrong about what separates the skilled adult from the beginning reader, and hence what must be accomplished in reading acquisition. The most conspicuous difference between good and poor readers is found in the swift and accurate recognition of individual words, in decoding and the mastery of the skill is at the heart of reading acquisition. (p. 92-95)

Finally, Juel (1991) contends that the evidence from research strongly suggests that graphic cues are
more important than context cues for word identification and that it is automatic word recognition that improves comprehension, not comprehension that improves word recognition.

All activities, both those using authentic text experiences and follow-up activities, were chosen because they were frequently mentioned in the literature reviewed.

The first procedure for Day 1, for example, combined talking about the important concepts in the book and calling attention to the title, author, and illustrator. Talking about the important concepts in the book was suggested in two sources (Reutzel & Cooter, 1989; Strickland & Morrow, 1989). Calling attention to the title, author, and illustrator was suggested in three sources (Moore, 1990; Reutzel & Cooter, 1989; Strickland & Morrow, 1989). The second procedure for Day 1, asking the child to predict what the story is about using the illustrations, was also suggested by two sources (Reutzel & Cooter, 1989; Strickland & Morrow, 1989). The third procedure for Day 1, combined having the teacher read the focus book aloud as the child observes the text and having the teacher point to the words. Having the teacher read the focus book aloud was mentioned by 11 sources
(Adams, 1990; Bridge Winograd, & Haley, 1983; Cullinan, 1987; Heald-Taylor, 1987; Johnson & Louis, 1987; Lipson & Wixson, 1991; McClure, 1985; Moore, 1990; Reutzel & Cooter, 1989; Slaughter, 1993; Vacca, Vacca, & Gove, 1991). Whereas, having the teacher point to the words was suggested by six sources (Adams, 1990; Cullinan, 1987; Heald-Taylor, 1987; Johnson & Louis, 1987; McClure, 1985; Slaughter, 1993). Procedures and definitions of predictability that appear in the literature are presented in the following tables: Table 4 presents definitions of predictability appearing in the literature, Tables 5 and 6 report procedures used with predictable books, and Table 7 lists references for procedures and definitions found in the tables.

One or more items each day was a game activity using the target words in isolation. This was done to increase motivation, and attention, as well as to reduce stress. Adelman and Taylor (1977) state that a student's performance may depend on their desire to perform in a particular situation. A number of researchers have suggested the use of game-like activities (Chance, 1913; Chomsky, 1978; Ochoa, 1969). Slaughter (1993) suggests a number of games that have been successful for teaching word recognition. Several
Table 4

Frequency of Four Types of Definitions of Predictability

Appearing in the Literature

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<td>14</td>
<td>15</td>
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<td>(a) use repetition of sentences, phrases, or episodes.</td>
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<td>(b) employ rhyming patterns.</td>
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<td>(c) contain cumulative patterns.</td>
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<td>(d) use sequential episodes and repetitive, predictable plots.</td>
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Articles focusing on:

A = average readers
P = poor readers
* = both average and poor readers
Table 5

Procedures Used During the Introduction and Reading of
Predictable Books

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<tr>
<td>* asking children to predict what the story is about</td>
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<tr>
<td>* talking about the concepts in the book</td>
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<td>* calling attention to the title, author, and illustrator</td>
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<td>* teacher reads aloud</td>
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<td>* teacher points to words</td>
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<td>* teacher rereads story and children join in when able with words or phrases or interpretive gestures or sounds</td>
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<td>* teacher and children read refrain</td>
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<td>* teachers use close procedures: oral visual</td>
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Table 5 (continued)

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<td>* children use repeating procedures: one line whole story</td>
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<td>* teacher guides a discussion</td>
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<td>* children read the whole story in unison with and then without the teacher</td>
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<td>* children point to words as they read the story</td>
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<td>* teacher uses questioning and dialogue to construct the author's message</td>
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<td>* assisted reading</td>
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<tr>
<td>* children read part or all of the story independently to a partner or to the teacher</td>
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Table 5 (continued)

| References                                                                 | A  | P  | A  | A  | A  | A  | *  | A  | A  | *  | A  | A  | *  | A  | *  | Total |
|----------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|
| * children do a retelling                                                |    |    |    |    |    |    | X  |    |    |    |    |    |    |    | 1    |
| * children reread, silently, copies of the focus book during free time or individualized reading time |    |    |    |    |    |    | X  |    |    |    | X  |    |    |    | 2    |
| * focus books read individually and silently with tape at listening stations |    |    |    |    |    |    | X  |    |    |    |    | X  |    |    | 2    |
| * children read focus book aloud in unison using a tape recording         |    |    |    |    |    |    |    |    |    |    |    |    | X  |    | 1    |

Articles focusing on:

A = average readers
P = poor readers
* = both average and poor readers
<table>
<thead>
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<th>Whole group:</th>
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<tbody>
<tr>
<td>* children do choral reading from a chart</td>
<td>X</td>
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<tr>
<td>* children look for words that are repeated, begin alike, or have similar parts</td>
<td>X</td>
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<tr>
<td>* teacher uses masks or framing to focus on letters or words</td>
<td>X</td>
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<td>* teacher and children read text from chart without pictures</td>
<td>X</td>
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<tr>
<td>* children place ordered word cards under matching words on chart</td>
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<tr>
<td>* children match randomly ordered word cards to words on chart</td>
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<td>* children match sentence strips to sentences on chart</td>
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<td>* children point out words that begin like their name</td>
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<td>* illustrations are matched with text</td>
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<td>* innovating on text</td>
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<td>* the teacher reads a new story and allows children to predict and chime in</td>
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<td>* word cards used to locate words from one story in another story</td>
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<td>* word cards used to re-create sentences in story</td>
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Table 6 (continued)

| References | A | P | A | A | A | A | A | A | P | P | A | A | A | A | A | A | A | A | A | A | Total |
|            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10| 11| 12| 13| 14| 15| 16| 17| 18|    |
| * word cards used to create new sentences |   |   |   |   |   |   |   |   |   | X |   |   |   |   |   |   |   |   |   | 1 |
| * children independently read self-selected previously introduced focus books |   |   | X |   |   |   | X |   |   |   |   |   |   |   |   |   |   |   | 2 |
| * game activities |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X |   | 1 |

Articles focusing on:

A = average readers
P = poor readers
* = both average and poor readers
Table 7

References for Tables 1-5


[A] = Average readers

[P] = Poor readers

[*] = Both average and poor readers
of these, including "Keyword Bingo" and "Concentration" were included in the procedures for the present study.

The last item each day was a daily assessment procedure and is described in a later section. Instructional procedures were presented in the following steps for each day. Times listed are approximate and varied slightly depending on interactions each day and teacher judgment as each lesson progressed.

All activities each day, including the daily assessment, focused on no more than 10 preselected target words for each book. The subject of this study had average intelligence and was between the first and second stages of word learning development. In the first stage, the logographic or selective cue stage, the child uses contextual information more than graphic information (e.g., location on the page, shape of letters) (Ehri, 1991; Juel, 1991). In the second stage, the rudimentary alphabetic stage, the child attends to spelling-sound relationships (Ehri, 1991). At this child's present stage of reading development many exposures to a word are needed for automatic word recognition (Chomsky, 1978; Ehri, 1991; Gates, 1931, Gough, 1984). The number of words presented, therefore, needed to be limited. Working with more than 10 words would likely have produced failure.
The target words for each focus book included a mixture of meaning-carrying words (i.e., two nouns, two verbs for which images can be constructed, and one adjective or adverb wherever possible) and function words (e.g., prepositions, conjunctions, articles) appearing on high frequency lists. The intent was to have an equal number of each. Some meaning-carrying words were not chosen because they occur with significantly less frequency in texts and, therefore, are less useful. Approximately five high-frequency function words were chosen for each book. The rationale for selection was that high frequency words make up a large proportion of the words in most reading materials, regardless of level and meaning-carrying words are necessary to enable the student to read meaningful text (McCormick, 1987).

The procedures for each day were as follows:

**Day 1:**

1. The teacher will talk about the important concepts in the book and call attention to the title, author, and illustrator. (2 minutes)

2. The teacher will ask the child to predict what the story is about using the illustrations. (1 minute)
3. The teacher will read focus book #1 aloud, pointing to the words as the child observes the text. (5 minutes)

4. The teacher will guide a discussion, checking predictions and asking questions to help the child construct the author's message. (2 minutes)

5. The child will locate target words from previous focus books, also found in the new focus book. To do so (a) target words from previous focus books will be presented on cards and read by the child. The child will be asked to find and point to these words if they occur in the new focus book and (b) the child will say each word and read the sentence in which it appears in the new focus book. (This step occurs from Book 2, on.) (5 minutes)

6. The child will engage in a game activity using words in isolation (e.g., Keyword Bingo). A mixture of known and unknown words will be included. (10 minutes)

7. The teacher will engage the child in a shared reading activity (that is, the teacher will read focus book #1 aloud,
pausing for the child to supply predictable words and phrases). The teacher will point as she reads. (5 minutes)

8. The child will engage in a game activity (e.g., Concentration) different from the one used above, presenting words in isolation. A mixture of known and unknown words will be included. (10 minutes)

9. The teacher will engage the child in a visual cloze activity which will provide practice on the target words in sentence context (see Appendix A). (10 minutes)

10. For daily assessment the teacher will engage the child in a boardgame using the words in isolation. Boardgames used for assessment will vary from day to day in terms of pictorial content and arrangement, but response procedures and opportunities will be the same each day. The game will require the child to look at, recognize, and pronounce the word. (10 minutes)
Note that items three, five, seven, and nine provide contextual exposure to the target words, while items five, six, and eight, provide exposure to the words in isolation. Comprehension is attended to in items one, two, and four.

Day 2:

1. The teacher and child will read the text of focus book #1 aloud chorally from a chart without pictures where appropriate. For some texts it will be necessary to provide pictures for the chart or to use the book instead of a chart in order for the text to remain meaningful. The teacher will point as they read. (5 minutes)

2. The child will engage in a game activity (e.g., Chutes and Ladders) using words in isolation, a mixture of known and unknown words will be included. (Each game used during the 3-day cycle for any focus book will be different.) (10 minutes)

3. The teacher will engage the child in assisted reading (i.e., the teacher
helps a child read a story by briefly reading along if the child has difficulty at any point) from a teacher-made chart of the text of the focus book (without pictures). The child will point to the words as she reads.
(5 minutes)

4. The child will place ordered word cards under matching words on the chart used in item #3 above. (5 minutes)

5. The child will place randomly-ordered word cards under matching words on the same chart. (5 minutes)

6. The child will look for words that are repeated, begin alike, or have similar parts in the text on the chart. (5 minutes)

7. The teacher will use masks or frames to focus on letters (to show orthographic sequence by unmasking one letter at a time) or to focus on words or phrases (giving the child an opportunity to give more detailed study to the elements of the word or to recognize the word in
isolation). The mask can be removed to allow the child to use surrounding context to aid in word identification if needed. (10 minutes)

8. The child will match sentence strips to sentences on the chart. (5 minutes)

9. For daily assessment, the teacher will engage the child in a boardgame using the words in isolation. The game will require the child to look at, recognize, and pronounce the word. (10 minutes)

Note that items one, three, and eight provide contextual exposure to the target words, while items two, seven, and nine provide exposure to the words in isolation. Items four, five, and six provide exposure to words both in isolation and in context.

Day 3:

1. The child will read focus book #1 silently following the story on a tape. The child will point as s/he reads. (10 minutes)

2. The teacher will engage the child in a game activity that involves attending to
the internal features of the words, using the words in isolation (e.g. Hangman). (15 minutes)

3. The child will attempt to read the focus book orally and independently. If the child is unable to read independently, the teacher will engage the child in assisted reading. (10 minutes)

4. The child will be aided in innovating on the text of the focus book by substituting, adding, or deleting words or phrases to produce a new sentence or story on a chart. The child will supply the “innovations” which will be written on a chart next to the chart of the original story as presented on the previous day. The child will then read the new story. (See Appendix B) (15 minutes)

5. For daily assessment, the teacher will engage the child in a boardgame activity using the target words in isolation. The game will require the child to look at, recognize, and pronounce each word. (10 minutes)
Note that items one, three, and four provide contextual exposure to the target words, while item two provides exposure to the words in isolation.

On the fourth day of instruction for Book 1, a new focus book will be introduced and the steps for Days 1, 2, and 3 will be repeated on that day and on the two subsequent days. This 3-day cycle of steps will continue for all 10 focus books introduced.

Cognitive Assessments

Preassessment

A preassessment was administered prior to initiating instruction (see Appendix C). To do so, a list of words for all 10 predictable books that would be used for instruction was prepared. Ten words thought to be previously unknown by the student were selected from this list for each of the books, with the exception of the first two (these first two books have only 8 and 9 different words, respectively). Words were printed on cards and presented in isolation in sets of 10 unknown words each. Because the student had only 15 words in her sight vocabulary at this time (i.e., a, an, and, go, he, I, is, it, kept, she, just, the, there, they, and too), it was not possible to
assess her word recognition in meaningful context on this preassessment.

Each word occurred an equal number of times to the occurrences on an assessment in context given later as a postassessment and as a maintenance assessment (e.g., if the target word *to* appeared five times in context, *to* occurred five times in isolation on word cards for this preassessment). This matching of occurrences between presentation in context and in isolation facilitated later comparisons to be made.

A few of the 15 words found to be known by the student during assessment to determine if she met selection criteria for the study were interspersed with each set of unknown words to provide opportunities for success. Each word (known or unknown) was presented in isolation and the student was assessed on word recognition for the unknown words.

During this preassessment period, after all words for a set were presented, a pleasurable activity followed (e.g., experimenter reading to the child; game activities other than those used in intervention using known words; listening to a story on tape). Usually 10 different words that were unknown previously to this study, plus necessary repetitions of these words--see
above, were presented. However, the first two sets had 8 and 9 words to conform to the first two books used. These activities were intended to provide a period of relaxation for the child, giving her a break from any possible stress in the testing situation and provide a success experience.

Following the pleasurable activity a new set of 10 previously unknown words was presented. This alternation of word presentation and pleasurable activities continued over a 3-day period until all words were presented. The length of each testing session was approximately one hour.

An overall word recognition score was obtained from the number of previously unknown words correctly recognized by the child from the complete set of words (i.e., when the separate sets for all 3 days are combined). Lists of known and unknown (or target) words were generated based on her performance on this test. Performance for each word was obtained in the following way. Words were scored as 1 = known (accurate), if recognized within 5 seconds. Words were scored as .5 = identified, if accurately identified only after using word identification strategies such as sounding out. Words were scored as .5 = self-
corrected, if accurately recognized after self-correction. Words were scored as 0 = unknown if they were not accurately recognized under any circumstances within a period of 30 seconds. The examiner said unknown words for the child and offered encouragement (e.g., "That was a good try!" Let's try a different word, now.") before going on to the next word. To obtain a score for each target word presented in isolation the experimenter:

1. Counted the total number of times each target word occurred. This became the denominator.

2. Added performance scores for each occurrence of the word. This became the numerator.

The word recognition score for this item was equal to the numerator/denominator.

To obtain a total score for all target words presented in isolation the experimenter summed the value for each target word. The value for each target word was derived by averaging the weighted performance scores.

All words that were scored as known were eliminated from the list of target words to be focused on in daily procedures for each focus book.
Daily Assessment

There was daily assessment on the target words for each focus book. Assessment was administered using a boardgame and target words presented in isolation on word cards. Games have been recommended for use in both regular classroom and remedial reading programs because they appeal to children and hold their attention, as well as motivate them to do their best (Chance, 1913; Chomsky, 1978; Ochoa, 1969; Slaughter, 1993). This may have resulted in a truer measure of word recognition. Also, the main intent was to reduce any feelings of stress that might occur from being tested on a daily basis. It was hoped that as far as the subject was concerned, this was not perceived as a test, but merely as an extension of the lesson—and a fun one at that for ending the long session.

The daily assessment evaluated word recognition in isolation, only, for several reasons: (a) initially, assessment in context was not possible because of the child’s limited sight vocabulary; (b) testing in isolation, only, lessened the amount of testing the child needed to endure on a daily basis; and (c) testing in isolation is more stringent than testing in context (Goodman, 1965).
The daily assessment game required the child to look at, recognize, and pronounce each word. A mixture of known words and target words was used in order to insure success for the child, that is this gave her an opportunity to make correct responses during a specific daily assessment where she might otherwise be unable to do so. In addition, Neef, Iwata, and Page (1977) have demonstrated that word learning increases when known words are included with unknown words.

Following this assessment, each day the experimenter maintained a record of three kinds of information: (a) she recorded the words known that were not previously known, (b) the cumulative total number of exposures to each word were recorded to evaluate the effects of practice on the word learning of this nonreader (i.e., exposures to the words in the focus book, activities, and games, including all previous exposures for instruction with the current focus book and any previous focus books), and (c) the words previously known, but unknown on the daily assessment. Appendices D, E, and F present examples of forms used to record this information.

Postassessment

A postassessment was administered following the completion of instruction on all 10 focus books. This
included an isolated measure and a contextual measure of word recognition (see Appendix G). At this point it was hoped that the student had internalized recognition for a sufficient number of words from the intervention that was applied that a contextual assessment was feasible. This not only provided a measure of word recognition in context, but as well a measure of generalization or transfer (i.e., the student's ability to recognize the word in different situations from the original context in which it was learned).

The isolated measure replicated the procedures used for preassessment of the target words in isolation, except that the words were presented in random order, using a table of random numbers. The procedure used to accomplish randomization included the following steps:

1. The 72 different previously unknown words selected from the 10 focus books for the preassessment were numbered in sequence, starting with 01.

2. With eyes closed, the experimenter placed the index finger on a page from a table of random numbers. This determined the entry point to be used in selecting the order of numbers
(i.e., words).

3. Starting at this entry point, the experimenter selected any numbers 72 or below, by going down the column until all words were accounted for by random numbers.

The assessment procedure presented the 72 different words according to their assigned random numbers. Additional occurrences of the 72 different words (based on the contextual measure) were interspersed in the lists presented in such a way as to avoid repetition of any given word within a particular list used during testing, wherever possible.

Randomization was employed to prevent selection bias. That is, every word had an equal chance of appearing in any given position in the order of presentation and the selections were independent of one another ( Guilford & Fruchter, 1973).

For the contextual measure all target words were included in a series of stories specially devised for this purpose by the experimenter (see Appendix B). In writing natural language stories it was not always possible to control the number of times a target word might appear. Therefore, target words were scored by
assigning a score of 1 = accurate, .5 = identified, .5 = self-corrected, and 0 = unknown for each occurrence.

To obtain a composite score for each target word presented in context the experimenter: (a) counted the times each target word appeared across stories (This became the denominator for the target word.) and (b) added performance scores for each occurrence for the target word. (This becomes the numerator.) The word recognition score for this target word is equal to the numerator/denominator.

To obtain a total score for all target words presented in context the experimenter will sum the value for each target word. The value for each target word is derived by averaging the weighted performance scores.

**Maintenance Assessment**

One month after the postassessment following completion of all 10 focus books and with no interventions by the experimenter intervening, a maintenance assessment was administered. This maintenance assessment replicated the procedures used for postassessment (see Appendix H). The maintenance assessment was administered in the same room where the previous assessments and instruction took place. Two
weeks after the Maintenance assessment was completed, a second maintenance assessment was administered in isolation only. This second maintenance assessment replicated procedures used for maintenance assessment of words in isolation (see Appendix I). It was administered in the same room where the previous assessments and instruction took place.

Affective Assessment

Attitude Scales

The importance of positive attitudes toward reading for establishing lifelong habits of using reading has been substantiated by (Estes, 1971, Heathington & Alexander, 1978; Huck, 1973). To obtain a reliable picture of the reading attitudes of this student, two reading attitude scales were used in this study--one based on self-report and one based on teacher observation.

A self-report attitude scale, the Heathington Primary Scale (Heathington, 1975) was administered. Alexander and Filler (1976) report that content validity of this scale was obtained by interviewing 60 students in grades one through six. During these interviews, the reading attitudes of the children were explored and statements were recorded for use on the
scales. The children were asked to describe the comments and actions of someone their age who likes to read and also those of someone who dislikes reading. The interviews showed that reading activities and behaviors in the primary grades differed from those in the intermediate grades. Therefore, two separate scales were developed.

In addition, to further check item validity, the items obtained from the statements made by the children in the interviews were subjected to an item-analysis. The item-analysis resulted in selecting those items that discriminated between children with positive and negative attitudes. Correlations were computed between each item and the total score. Only those items which showed high item-total score correlations were retained in the final scale (Alexander & Filler, 1976).

Test-retest reliability was obtained by administering the scale to 124 students in grades one through three. The scale was readministered two weeks later. The test-retest scores showed a correlation of .73.

The scale consists of 20 questions which were read to the child. The directions read to the child and the scale follow. (Alexander & Filler, 1976) (The
instrument is reprinted here with permission of the International Reading Association.) The letter granting permission to reprint this instrument is presented in Appendix J.

Directions read to the child:

Your answer booklet is made up of two pages. Page one goes from number 1 to number 10, and page two goes from number 11 to number 20. Beside each number are five faces: a very unhappy face, an unhappy face, a face that's neither happy nor unhappy, a happy face, and a very happy face. I will ask you how you feel about certain things and you will put an X on the face that shows how you feel. Suppose I said, "How do you feel when you eat chocolate candy? Which face shows how you feel?" You might choose an unhappy face if you don't like chocolate candy; or, you might choose a happy face if you do like chocolate candy. Now I'll read some questions to you and you mark the face that shows how you feel about what I read. Remember to mark how you feel because everyone does not feel the same about certain things. I'll read each question two times. Mark only one face for each number. Do you have any questions? Now listen carefully, "Number 1...."  (p. 29)

Primary Scale

How do you feel ...

1. when you go to the library?
2. when you read instead of playing outside?
3. when you read a book in free time?
4. when you are in reading group?
5. when you read instead of watching TV?
6. when you read to someone at home?
7. about the stories in your reading book?
8. when you read out loud in class?
9. when you read with a friend after school?
10. when you read stories in books?
11. when you read in a quiet place?
12. when you read a story at bedtime?
13. when it's time for reading circle (group)?
14. when you read on a trip?
15. when you have lots of books at home?
16. when you read outside when it's warm?
17. when you read at your desk at school?
18. when you find a book at the library?
19. when you read in your room at home?
20. when you read instead of coloring? (pp. 29-30)

The answer sheet consisted of a row of five faces (i.e., very unhappy, unhappy, neutral, happy, very happy) which the child was asked to mark to show how she felt about each question. The student received a score of 1 for a very unhappy face, 2 for an unhappy face, 3 for a neutral face, 4 for a happy face, and 5 for a very happy face.

For diagnostic purposes, items may be grouped to indicate specific areas of reading about which a child may have negative or positive feelings. The groups suggested by Heathington are:

1. Free reading in the classroom
   (items 3, 17)
2. Organized reading in the classroom
   (items 4, 7, 8, 13)
3. Reading at the library
   (items 1, 18)
4. Reading at home
   (items 6, 12, 15, 19)
5. Other recreational reading
   (items 2, 5, 9, 16) (p. 29)

6. General reading
   (items 10, 11, 14, 20).

This scale was administered in a 20 minute session prior to the first preassessment session. Following the tenth week of instruction, a similar session was held where the scale was again administered. There was a final administration of the scale one month after the end of all instruction for the 10 focus books. The questions were the same, however, the order was changed (see Appendices K, L, and M), as well as the color and design of the answer sheet (see Appendices N, O, and P) to make the assessment less familiar to the student and, therefore, lessen the chance that previous answers were remembered and used.

In addition to self-reports, Heathington and Alexander (1978) suggest the efficacy of observation for affective assessment, and especially for examining children's attitudes toward reading. Observation allows comprehensive assessment of children's behaviors and feelings in a variety of reading situations. Heathington and Alexander (1978) suggest a 10-item checklist to assess children's reading attitudes in classroom situations. The checklist was adapted, by
this researcher, for use with a single child in a one-
to-one teaching situation. Items that referred to
classroom activities and situations not found in the
one-to-one teaching situation were either eliminated or
rewritten to fit the present situation. In addition,
the modified checklist asked for comments by the
experimenter to further explain each of the responses
on the checklist. The checklist was completed by the
researcher at the conclusion of the 10-week period.
The modified checklist follows:

   Over a period of 10 weeks, has the child:

   1. Seemed to enjoy reading activities?
      Yes ____ NO ____
      Comments--------------------------------------
      ---------------------------------------------
      ---------------------------------------------

   2. Talked about a book she is reading at home?
      YES____ NO____
      ---------------------------------------------
      ---------------------------------------------
      ---------------------------------------------
3. Mentioned going to the library?
   YES____  NO____

4. Talked about books she has read or that have been read to her?
   YES____  NO____

5. Expressed any negative feelings about reading?
   YES____  NO____

6. Seemed hesitant to read orally
   YES____  NO____
7. Appeared to stay on task when reading silently with a taped version of a story?
   YES_____ NO_____
   -------------------------------
   -------------------------------
   -------------------------------

8. Joined in enthusiastically when doing assisted reading or shared reading with the experimenter?
   YES_____ NO_____
   -------------------------------
   -------------------------------
   -------------------------------

9. Made comments about and shown interest in text or illustrations that accompany it?
   YES_____ NO_____
   -------------------------------
   -------------------------------
   -------------------------------

Checks in the "NO" column for positive items or in the "YES" column for negative items alerted the experimenter to negative attitudes toward certain areas of reading that need to be addressed.

Content validity of the original checklist was established through 60 student interviews. During the
interviews, students responded to two questions: (a) What do children your age say and do when they dislike reading? and (b) What do they say and do when they like reading? The children's comments were used to develop the assessment checklist to be used by teachers in observing children's attitudes toward reading. No reliability was reported for the checklist (Heathington & Alexander, 1978).

Cognitive and Affective Assessment

Teacher Observations of Cognitive and Affective Behaviors

The value of teacher observation as a diagnostic tool for teachers has long been recognized. As stated earlier, observation can shed light on children's affective, as well as cognitive behaviors by allowing us to view behavior over time in a variety of situations (Heathington & Alexander, 1978). For this reason, in addition to the checklist recording teacher observations related to the student reading attitudes, teacher observations also were recorded related to both cognitive behaviors (i.e., evidence of word learning or other literary knowledge) and affective behaviors of the child (i.e., any emotional responses/behaviors such as enjoyment of, dislike of, interest in, or enthusiasm
for particular reading activities as expressed by volunteering, verbal expression, facial expression or other nonverbal responses) for each of the procedural activities. A daily log was kept of these recorded observations as an anecdotal record of reading-related behaviors. Notations were made immediately after each session on a form developed for this purpose by the researcher. If more than one page was needed to record the day's observations, this was done. Samples of the observation record sheets for the three instructional days are presented in Appendices Q, R, and S.

Dependent Variables

There were three major dependent variables in the present study. For cognitive assessment these included: (a) word recognition scores (isolation: pre-, post-, maintenance A, and maintenance B tests; and context: post- and maintenance A tests). For affective assessment the variables were: (a) a self-report attitude scale (with pre-, post-, and maintenance scores); and (b) a reading attitude observation checklist.
Method of Analysis

Cognitive Assessment

Data were analyzed for differences in performance on pre-, post-, and maintenance assessments for: (a) different target words and (b) target word occurrences. "Different" words was defined as each of the 72 distinct target words that appeared on any single assessment. Different words are similar to "types" in the "type-token" terminology of linguistics (see the Definition of Terms section for a more detailed explanation). "Occurrences" was defined as each of the times that a distinct target word appeared on any single assessment. For example, the word at appeared three times on the posttest, therefore, there were three occurrences of the word at on that assessment. This word might be known on two occurrences on the posttest and unknown on a third occurrence. The word ate, however, appeared only once on the posttest, therefore, there was only one occurrence of the word ate. The number of occurrences for these two words on the posttest is four (three known occurrences and one unknown occurrence) while the number of different words they represent is two (ate and at). The term "occurrences," then, is similar to the term "running words" which is pervasive in reading literature. The
term "running words," however, usually refers to words in context—therefore, the term "occurrences" was used here, referring to both words in isolation and words in context. Occurrences are also similar to "tokens" in "type-token" terminology. (See the Definition of Terms section for further explanation.)

For the preassessment, different words and occurrences were presented and analyzed in isolation only. For the post- and maintenance A assessments, different words and occurrences were presented and analyzed in context, as well as in isolation. The maintenance B assessment presented and analyzed different words and occurrences in isolation, only. All assessment sessions were audiotaped for analysis after each session. Data were analyzed descriptively. Proportions and percentages of different words and occurrences correctly recognized on pre-, post-, and maintenance tests were obtained. These percentages and proportions were presented using a trend analysis in graphic format.

Unbiased mean percentages of correct responses (based on immediate recognition) were obtained for both different words and occurrences. In these analyses, to correct for differential censoring of pretest words, the same proportion of different words/occurrences were
set aside from the incorrect responses on the pretest as were set aside from the correct pretest responses.

A logit analysis was performed for different words to assess if there were significant differences in the proportion of words recognized during pre-, post-, and maintenance tests. In this analysis the responses were looked at in terms of being known versus unknown. Only different words for which all responses on a given test indicated immediate recognition were classified as known. Words for which there were mediated or incorrect responses were classified as unknown. The logit analysis compares the proportion of different words identified as correct on each of two testing periods by comparing the odds of knowing a randomly selected word at two different times of testing. Differences in paired observations are examined to determine if there is an increase in the odds of recognizing a randomly selected word. If there is an increase, the odds ratio will be larger than 1. These odds ratios are directly interpretable for significant differences between times of testing. This nonparametric test is an extension of McNemar’s test (R. Leighty, personal communication, June 21, 1994). A specific variation of the logit analysis was developed for these data with the assistance of a member of the
Statistics Department at The Ohio State University.
The choice of the logit analysis in analyzing data for
this study was based on the model's ability to adjust
for possible serial correlation (i.e., lack of
independence of test responses). Serial correlation
(possible clusters of correct or incorrect answers)
would result in inflation of the standard error of the
estimate, causing a Type I error to occur—the
possibility of accepting results as significant when,
in fact, they are not.

A logit analysis was also performed to assess if
there was a significant difference in the proportion of
occurrences recognized during pre-, post-, and
maintenance tests. In this analysis each occurrence
was looked at in terms of being known versus unknown.
Only occurrences eliciting immediate recognition were
classified as known. Mediated and incorrect responses
were combined and classified as unknown.

Unbiased mean percentages of correct responses
were also obtained, over 100 samples, for both the 72
different words and the 111 occurrences of the target
words.

In addition to the above analysis that
concentrates on the change in the proportion of
different words/occurrences correct during the testing
periods, unbiased mean level of word knowledge scores ranging from 1 = unknown, to 2 = mediated recognition, to 3 = immediate recognition were obtained for both different words and for occurrences over 100 randomly selected samples. In these analyses, an adjustment for differential censoring was employed as discussed above. These unbiased mean level of word knowledge scores include partial knowledge (mediated responses such as self-corrections and words sounded out or identified) rather than just correct responses indicating immediate recognition. One hundred samples were selected at random from the original sample. Each of these samples, through the adjustment for censoring, produced an unbiased estimate of the true difference in mean recognition scores. Fixed-effect meta-analyses were used to combine the information in the 100 samples to determine which mean recognition difference scores differed significantly from 0. A summary test to determine whether the true mean difference is larger than 0, was obtained by forming a weighted average of the 100 differences, with weights inversely proportional to the variances, standardizing the weighted mean and comparing the resulting statistic with a percentile of a standard normal distribution. The fixed-effect model was used because the 100 samples were deemed homogenous since they were all randomly
drawn from the same pool of words and would, therefore, have the same underlying true mean difference—a fixed value (Combining Information, 1992).

Finally, t-tests were employed to analyze changes in the mean difference score on each of the testing periods for different words. In analyzing mean difference scores two kinds of t-tests were used (words were divided into blocks within each test). Paired t-tests were employed for those comparisons which did not include the pretest—in these comparisons differences in errors between blocks were assumed to be independent and errors within a block were also independent. For those comparisons which did include the pretest, t-tests based on a mixed effects Anova were employed. Paired t-tests which assume there is no correlation would have understated the standard error of the difference and would not have accounted for block to block variability. Therefore, it was necessary to employ t-tests based on the mixed effects Anova to arrive at a valid t-value. For the comparisons in which t-tests based on the mixed effects Anova were employed differences in errors in different blocks were independent. Measurements within the same block were correlated where blocks were assumed to be random factors. The t-test based on the mixed effects Anova
provides a larger estimate of the standard error of difference for use in computing the t-statistic. The larger estimate of the standard error of difference is necessary to avoid the Type I error of finding significance where none exists because of the correlated data within the blocks. For each of the testing periods a level of recognition score (an ordered value) was assigned to each response ranging from 3 = known, 2 = mediated, and 1 = unknown. For each test period a total score was obtained by summing the assigned recognition values. The t-test compares the average change in the ordered mean score for two testing conditions, that is, it tests to determine if the mean of the difference score (for instance, posttest minus pretest) is significant, suggesting an average gain from one testing condition to another. Here, unlike in the logit analysis, the mediated responses enter into the analysis. The logit analysis and the t-tests were both included in the study in order to determine if results would differ when mediated scores (those reflecting self-corrections or the use of word identification strategies) were included in the analysis.

For occurrences, a multiple logit analysis was employed to analyze changes in the mean score on each
of the testing periods. This nonparametric test is an extension of McNemar’s test and a variation specifically developed for these data was used. For different words, where change scores could assume as many as 29 levels \((22 + 7)\) because 22 of the words had multiple occurrences it was not feasible to use the multiple logit analysis, and \(t\)-tests, therefore, were employed. The data for occurrences, however, fits the model for the multiple logit analysis because the change scores could assume no more than 7 levels \((-3, -2, -1, 0, 1, 2, 3)\). Because of this, the assumption of a multinomial distribution of counts falling into these 7 levels in each of approximately 6 sessions or blocks within a given test is reasonable. (The tests were divided into approximately 6 sessions or blocks and the student was given a break between each session; in this way serial correlation is accounted for.) For each testing period (pre-, post-, maintenance) a level of recognition score (an ordered value) was assigned to each response ranging from \(3 = \text{known}, 2 = \text{mediated}, \text{and} 1 = \text{unknown}\). For each test period a total score was obtained by summing the assigned recognition values. The multiple logit analysis compares the average change in the ordered mean score going from pre-, to post-, to maintenance tests. That is, it tests to determine if
the mean of the difference scores is positive, suggesting an average gain from one testing condition to another. To test for any significant differences, a $Z$ statistic is applied to the data that yields a level of significance. Here, unlike in the logit analysis, the mediated responses enter into the analysis. Both the logit analysis and the multiple logit analysis were included in the study to determine if including mediated scores in the analysis would cause results to differ. In the multiple logit analysis, like the logit analysis, the serial correlation of responses that might cause a larger variance than expected, is accounted for.

In addition, two other analyses were performed related to different words in respect to Question One. These analyses dealt with learning of words in relation to: (a) their level of imageability and (b) their grammatical function. These analyses were included in the study to provide more information on the kind of words that might be learned more easily for a severely delayed reader. With students in general, the literature suggests that imageable (concrete) words such as nouns may be more easily learned than are less imageable (abstract) words. To conduct these analyses, data presented in Appendix I were used. Data are
reported presenting the level of word recognition (known, mediated, or unknown) for each of the 111 occurrences of the 72 different target words on four tests in isolation. Using this data the 72 different words were classified: (a) as known or unknown, (b) by level of imageability, and (c) by grammatical function. To be counted as known in any test condition, all responses to a unique word had to be recognized in that condition. In this study, words with high imageability were defined as those words that were directly and specifically visually imageable; they were concrete rather than abstract. They were words that had direct sensory referents and easily accessible images (Schwanenflugel & Aiken, 1994). For the word list used in the present research these high imageability words included mostly nouns and a few adjectives with specific visual imageability (e.g., butterfly, door, black). Words with medium imageability (less concrete words) were defined as those words which were less specifically visually imageable or had sensory referents other than visual. They had less direct sensory referents and less accessible images (e.g., big, pet, roaring). In some cases criteria for determining degree of imageability also took into account the age and background experiences of the
subject in this investigation. Words with low
imageability (abstract words) were defined as those
words for which there were no sensory referents (e.g.,
be, can, with).

Appendix U presents the target words classified by
levels of imageability. A reliability check was
performed after the level of imageability
classifications were determined by the experimenter.
A male psychologist with a doctoral degree in education
was the reliability scorer for the levels of
imageability of the target words. The scorer received
training from the experimenter before independently
scoring each target word for level of imageability.
During the training session definitions of each level
of imageability were presented to the scorer. Sample
words not included in the target word list were then
classified by the scorer using these definitions.
When the reliability scorer completed classifying the
target words, his classifications were compared with
those of the experimenter to determine reliability or
percent of agreement. The following formula was used

\[
\text{number of agreements} \div \text{number of agreements + number of disagreements} \times 100
\]
The interrater reliability or percentage of agreement was calculated and determined to be \((n=72)\), 95.8\%. There was disagreement between the researcher and the reliability scorer on the level of imageability for three words (Mack, polar, and Spot). An independent judge was employed to determine the classification of these words. The independent judge agreed with the researcher on the level of imageability of two of the three words (Mack and Spot), but disagreed with the researcher on the level of imageability for the third word (polar). For polar, the independent judge agreed with the reliability scorer's decision that the word had low imageability when met in isolation and apart from the word bear.

To assess the predictive contribution of three independent variables (maximum number of responses needed for initial learning, total number of exposures with directed instruction, total number of exposures during the study) on the dependent variable Maintenance B scores, a Stepwise multiple regression analysis was performed.

For each of the 10 focus books, a record was kept of results on the daily assessment of target words in isolation. (See earlier section in this chapter titled "Daily Assessment".) Data were presented in tabular
form and discussed and interpreted in the Results section of this report. In addition, for known words not previously known, a cumulative graph was presented showing any patterns for increases in the number of words learned or the rate of word learning.

Affective Assessment

The data were analyzed from a student self-report 20-item Likert-type reading attitude scale. The data were examined for positive and negative attitudes toward specific reading activities, as well as toward different areas of reading. For each of the three administration periods (pre-, post-, and maintenance), a total score for the 20-item test was obtained. Total score comparisons were made for the three test periods. Higher total score indicated a more positive attitude toward reading.

The Heathington research, in her unpublished doctoral dissertation, yields information on the mean and standard deviation for the primary sample. This information was used to obtain standard scores (i.e., linear T-scores) for the three testing periods on the self-report scale. To convert the student's raw score to a linear T-score the following formulae were used:

\[ X - \bar{M} / S.D. = z \]  and  \[ T = 10z + 50, \]

where \( X \) = student raw score; \( \bar{M} \) = sample group mean; and \( S.D. \) = sample
group standard deviation. These linear T-scores were interpreted to indicate practical significance for the differences that exist among the three testing periods. A difference of 10 points, or one standard deviation, between any pair of T-scores may be considered to have practical significance (J. Pultz, personal communication, August 10, 1993). T-scores also indicated the student’s standing as above or below average [50] for attitude toward reading.) In addition, performance on each of the three tests was examined for amount and direction of change.

The data were analyzed from an observer checklist using a nine-item dichotomous (yes/no) scale. The checklist was completed by the experimenter at the end of the 10-week period based on observations occurring throughout the intervention. Analysis of the checklist consisted of inspection of individual items to alert the experimenter to both positive and negative attitudes toward certain areas of reading that need to be addressed. Recommendations to the parent and the school were developed based on inspection of these results. All data, both observer and self-report, for assessing affective behavior, were presented descriptively.
Affective/Cognitive Assessment

The data were analyzed for the daily observations recorded by the experimenter at the end of each session for affective and cognitive behaviors. This was done in relation to each of the instructional procedures conducted within the 3-day cycles. A form was used to record these anecdotal observations. (see Appendices Q, R, and S). These data were examined for positive and negative behaviors that might have impacted on reading performance.

Chapter Summary

The present study involved one severely reading disabled second-grade student from a large metropolitan school district in the midwest. All treatment and assessment was carried out by the investigator in the recreation center of the university housing complex in which the student and her family resided. The following dependent variables were assessed in the study: (a) a word recognition test (words presented in isolation; (b) a word recognition test (words presented in context); (c) a self-report attitude scale; and (d) a reading attitude observation checklist.

All cognitive assessments were constructed by the investigator using random assignment of items within
each test. Affective assessments (The Heathington Primary Scale and The Heathington and Alexander Observation Checklist) were modified by the investigator.

A pretest-posttest design was used to examine relationships between: (a) knowledge of words presented in isolation (b) knowledge of words presented in context, and (c) differences in attitude. In addition, differences in knowledge were examined for words presented in isolation versus words presented in context for two testing conditions.
CHAPTER III

RESULTS

This single-subject descriptive study examined the cognitive and affective effects of using predictable books, and procedures typically recommended for use with these books, on a nonreader. In this chapter data are presented and analyzed for five research questions. The first section addresses the interrater reliability of both dependent and independent variables. Next, there is a discussion of the adjustment for differential censoring of data in order to remove bias in the analysis. Finally, there is a presentation and discussion of the descriptive and inferential findings for each of the research questions.

Reliability of the Dependent Variables

Cognitive Variables

A male psychologist was the reliability scorer for the dependent variables. The scorer conducted a reliability check of all pre-, post-, and maintenance assessments. In addition, the scorer randomly selected
one daily end-of-session assessment for each day in the 3-day cycle for a reliability check. He was given the test items (i.e., ordered word cards, series of stories) for each of the assessments and the audiotape of the session.

The scorer received training from the experimenter before scoring each new type of assessment. For each type of assessment (i.e., pre-, post-, maintenance in isolation, as well as post- and maintenance in context) a sample test was used for training. During the training session, the directions were reviewed, the scorer graded the sample test, and the experimenter answered any questions related to scoring procedures. The scorer obtained the student's assessments from the experimenter and all ordered word cards, or stories, as well as the audiotapes for the session following administration of each test.

When each assessment was completed, the experimenter compared her test results with those of the scorer to determine reliability of the dependent variables. The following formula was used:

\[
\frac{\text{number of agreements}}{\text{number of agreements + number of disagreements}} \times 100
\]
Interrater reliability or percentage of agreement was computed for six assessments: (a) pretest in isolation (n=157), 96.82%; (b) posttest in isolation (n=111), 98.20%; (c) posttest in context (n=111), 98.20%; (d) maintenance test A in isolation (n=111), 98.20%; (e) maintenance test A in context (n=111), 94.60%; (f) maintenance test B in isolation (n=111), 97.30%.

In addition, interrater reliability was computed for each of the three daily end of session assessments: Day 1 (n=36), 97.20%; Day 2 (n=24), 100%; Day 3 (n=18), 100%.

Affective Variables

It was only possible to check the tallying of scores for the two affective dependent variables. All ratings of attitude on the Heatherton Primary Scale were self-reported and did not entail scoring judgments by the experimenter. For the pre-, post-, and maintenance tests there was 100% agreement on the scoring. Each item on the observation checklist required judgments that only the experimenter had the opportunity to make. The findings on the observation checklist, therefore, may possibly have been affected by observer bias.
Reliability of the Independent Variable

An independent observer checked the correctness of all procedures for each day of the 3-day cycle for the 10 focus books. The observer was a sophomore in pre-social work at a major university, as well as a teacher in an after school program for children at the university housing complex in which the subject resided. The observer was given a schedule for all sessions and randomly selected one session to observe for each of the days in the 3-day cycle. The experimenter had no knowledge of which sessions had been selected.

Before the study was initiated, a checklist was prepared by the experimenter of all procedures to be used on each of the days of the 3-day cycle. See Appendices V, W, and X for samples of the procedural checklists. The observer was trained on how to score the observations using these checklists. The observer was instructed to indicate with a check mark all procedures that were correctly administered.

These checklists were used by the observer during the study to check procedures used by the experimenter in instructional sessions for each of the days of the 3-day cycle. Subsequent to each observation, the experimenter and the observer reviewed results of the
observation for discrepancies. A percentage of consistency of implementation by the experimenter was obtained by dividing the number of procedures correctly performed by the total number of procedures. The following agreement scores were obtained; n's indicate the number of procedures on that day: Day 1 (n= 10), 100%; Day 2 (n=9), 100%; Day 3 (n=5), 100%.

Adjustment for Differential Censoring of Data

In the pretest condition a number of words were correctly identified. A proportion of these words were removed from the study, or "censored", because they did not require teaching. Without adjustment, this censoring would have decreased the estimate of words correctly recognized in the pretest condition and, therefore, biased the estimate of correctly recognized words in the post- or maintenance conditions. The censoring of the pretest would have made differences between the pretest and posttest or pretest and maintenance tests appear to be greater than they really are. Therefore, differences between testing conditions could be attributed to two causes: (a) real learning resulting from teaching intervention and (b) fallacious differences resulting from the
differential censoring that causes the pretest score to appear smaller than it really is (R. Leighty, personal communication, June 21, 1994). An adjustment for censoring was made by censoring the incorrect words by the same amount the correct words were censored on the pretest. That is, the same proportion of incorrect words were randomly selected to remain in all tests. In doing so a proportion of incorrect words were removed that was equal to the proportion eliminated from the correct words on the pretest. In this way, scores on the pretest are unbiased, unaffected by censoring, and unbiased comparisons of the posttest and maintenance tests can be made with the pretest. Also, any differences between scores can be attributed to real learning resulting from the teaching intervention and not from differential censoring. This adjustment was made in the logit analysis, the multiple logit analysis, and in the t-tests.

Results for the Five Major Research Questions

Research Question One

Research Question One asked: "What effect does the use of predictable books, and associated instructional procedures, have on word learning (i.e., word recognition) for a second-grade nonreader, as assessed
by words taken from these predictable books?" This research question examined the effect of using predictable books on word recognition in isolation from pretest to posttest.

Table 8 presents the number and percentage of the 72 different words recognized at three levels of knowledge (known, partially known, unknown) for each of six testing conditions. "Different" words was defined as each of the 72 distinct target words that appeared on any single assessment (see Chapter 2, "Method of Analysis"). Words were categorized in one of three levels of knowledge based on performance ratings: (a) known = 1, (b) partially known = .5, and (c) unknown = 0. Words were categorized as partially known when the average performance over occurrences (i.e., the number of times that word appeared) was less than 1. Words with an average rating of 1 were categorized as known and words with an average rating of 0 were categorized as unknown.

As seen in Table 8, there were no known words in this descriptive analysis of the pretest condition. This is because any known words on the pretest were eliminated from the instructional intervention for the study and, therefore not counted in this analysis. These known words were eliminated because they did not
Table 8

Number and Percentage of Different Words Recognized at Three Levels of Knowledge for Six Testing Conditions

<table>
<thead>
<tr>
<th>Testing Conditions</th>
<th>Known</th>
<th>Partially Known</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Pretest</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Posttest (isolation)</td>
<td>41</td>
<td>57</td>
<td>17</td>
</tr>
<tr>
<td>Posttest (context)</td>
<td>41</td>
<td>57</td>
<td>22</td>
</tr>
<tr>
<td>Maintenance A Test (isolation)</td>
<td>43</td>
<td>60</td>
<td>19</td>
</tr>
<tr>
<td>Maintenance A Test (context)</td>
<td>51</td>
<td>71</td>
<td>10</td>
</tr>
<tr>
<td>Maintenance B Test (isolation)</td>
<td>38</td>
<td>53</td>
<td>23</td>
</tr>
</tbody>
</table>

Note. The same 72 different words were presented in each testing condition.

a Represents words for which the average word recognition score over occurrences is <1.
require instruction and, therefore, would not have been appropriate target words for the study.

The first analysis considered known words only (i.e., the subject recognized the word each time it was encountered on the test, within the 3-second time limit). Of the 72 words on the pretest that were included in the study, none (0%) were known. Results of the posttest show that 41 (57%) of the words were known. The data show a considerable increase in the number/percentage of different words recognized in this posttest condition after instruction. Figure 1 graphically illustrates the percentage of the 72 different words known on the pretest in isolation and in the posttest in isolation. In addition, as shown in Table 9, unbiased mean percentages of correct responses (in which analysis an adjustment for differential censoring was made) were obtained over 100 randomly selected samples drawn from the 72 different target words (pretest in isolation 31%, posttest in isolation 71%). Results of a logit analysis presented in Table 10 show the pairwise comparison for time of testing, the odds ratio value, and level of significance for the posttest versus the pretest for words in isolation. Inspection of this table shows that the increase in the number and percentage of different words recognized in
Figure 1. Percentage of different words recognized for the 72 target words for six testing conditions.
Table 9
Unbiased Mean Percentages of Correct Responses Over 100 Randomly-
Selected Samples of the 72 Different Target Words

<table>
<thead>
<tr>
<th>Test Conditions</th>
<th>Isolation</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>Maintenance A Test</td>
<td>Maintenance B Test</td>
</tr>
<tr>
<td>31%</td>
<td>71%</td>
<td>71%</td>
</tr>
</tbody>
</table>

Percentage of Words Correct
<table>
<thead>
<tr>
<th>Test Conditions</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest in isolation versus pretest in isolation</td>
<td>4.76*</td>
</tr>
<tr>
<td>Maintenance A test in isolation versus pretest in isolation</td>
<td>4.18*</td>
</tr>
<tr>
<td>Posttest in isolation versus Maintenance A test in isolation</td>
<td>1.01</td>
</tr>
<tr>
<td>Maintenance A test in isolation versus maintenance B test in isolation</td>
<td>0.9</td>
</tr>
<tr>
<td>Maintenance A test in context versus posttest in context</td>
<td>0.54</td>
</tr>
<tr>
<td>Maintenance A test in context versus maintenance A test in isolation</td>
<td>1.44</td>
</tr>
</tbody>
</table>

*p<.05.*
isolation from pretest to posttest was statistically significant ($p < .05$).

A second analysis was conducted to take into account partial or mediated word knowledge. As described in Chapter 2, credit for partial word knowledge was given when the student was able to identify the word by sounding it out, or when the student self-corrected to identify a word. Here, unlike in the logit analysis which only included known responses, mediated responses were included in the calculations, making it possible to determine if results would differ when mediated scores were considered. Table 11 illustrates the unbiased mean level of word knowledge (when both known words and partially known words were included in the analysis) obtained over 100 randomly selected samples of the 72 target words presented in isolation for pre- and posttests in isolation. Table 12 shows the results of a fixed-effect meta-analysis used to combine the information in 100 randomly selected samples and determine which mean level of word knowledge difference scores differed significantly from 0. The table shows the mean change in score, Z-statistic, and level of significance for the posttest versus the pretest. The mean change in score (0.877) for the post-versus the
Table 11

Unbiased Mean Level of Word Knowledge Over 100 Randomly-Selected Samples of the 72 Different Target Words

<table>
<thead>
<tr>
<th>Test Conditions</th>
<th>Isolation</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
</tbody>
</table>

Mean Recognition

| Score | 1.71 | 2.6  | 2.62 | 2.63 | 2.62 | 2.71 |

Note: Based on a maximum score of 3.
Table 12

Meta-Analysis of Seven Pairwise Comparisons Using the Mean of the Difference in Level of Word Knowledge for the 72 Different Words Over 100 Randomly-Selected Samples

<table>
<thead>
<tr>
<th>Test Conditions</th>
<th>Mean Change in Score</th>
<th>Z-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest in Isolation versus Pretest in Isolation</td>
<td>0.877</td>
<td>2.322**</td>
</tr>
<tr>
<td>Maintenance A Test in Isolation versus Pretest in Isolation</td>
<td>0.899</td>
<td>2.472*</td>
</tr>
<tr>
<td>Maintenance A Test in Isolation versus Posttest in Isolation</td>
<td>0.014</td>
<td>0.109</td>
</tr>
<tr>
<td>Maintenance B Test in Isolation versus Maintenance A Test in Isolation</td>
<td>-0.027</td>
<td>-0.114</td>
</tr>
<tr>
<td>Maintenance A Test in Context versus Posttest in Context</td>
<td>0.081</td>
<td>0.283</td>
</tr>
<tr>
<td>Posttest in Context versus Posttest in Isolation</td>
<td>0.072</td>
<td>0.239</td>
</tr>
<tr>
<td>Maintenance A Test in Context versus Maintenance A Test in Isolation</td>
<td>0.118</td>
<td>0.433</td>
</tr>
</tbody>
</table>

*p<.01.  **p<.0005.
pretest was significant \( (p < .0005) \) indicating substantial learning from pretest to posttest for words in isolation.

A third analysis was undertaken to confirm the mean level of word knowledge. In this analysis correlation between the differences in the recognition change scores were modeled to determine if serial correlation existed. No correlation was found except for differences that involved the pretest, where correlation occurred within blocks. This was adjusted for by including a random effect for blocks before performing the t-tests. For each testing period (pre- and posttest) a level of recognition score (an ordered value) was assigned to each response ranging from 3 = known, 2 = mediated, and 1 = unknown. A t-test based on a mixed effects Anova was used to determine if the change in score was significant from pretest to posttest. (See Chapter 2 for a detailed description of this analysis.) Results of a t-test are presented in Table 13 showing the change in score, t-statistic, and level of significance for the posttest versus pretest. The change in score \((1.231)\) for the post- versus pretest comparison was significant \( (p < .0001) \). These results indicating the change from pretest to posttest for the mean level of word knowledge clearly illustrate
Table 13

Analysis of Five Pairwise Comparisons Using Mean Difference

Scores of Ordered Responses on the 72 Different Words

<table>
<thead>
<tr>
<th>Test Conditions</th>
<th>Change in Score</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest in Isolation versus Pretest in Isolation</td>
<td>1.231</td>
<td>4.10**</td>
</tr>
<tr>
<td>Maintenance A Test in Isolation versus Pretest in Isolation</td>
<td>1.119</td>
<td>4.18**</td>
</tr>
<tr>
<td>Maintenance A Test in Isolation versus Posttest in Isolation</td>
<td>0.0032</td>
<td>0.04</td>
</tr>
<tr>
<td>Posttest in Context versus Posttest in Isolation</td>
<td>0.064</td>
<td>0.72</td>
</tr>
<tr>
<td>Maintenance A Test in Context versus Maintenance A Test in Isolation</td>
<td>0.159</td>
<td>1.80*</td>
</tr>
</tbody>
</table>

*p<.05. **p<.0001.
the increase in word learning over the 10-week instructional period and confirm results on the meta-analysis discussed above.

Two final analyses related to different words, in respect to Question One, dealt with word learning in relation to: (a) their level of imageability and (b) their grammatical function. Table 14 presents the number and percentage of different words that were known (for the three tests of words in isolation) for three levels of imageability in each of three testing conditions. These results show that there was a modest advantage for recognition of high-imageability words at the end of instruction for this student. However, this student recognized more low-imageability words included in this study than medium-imageability words.

Because decisions regarding the degree of imageability of words are somewhat subjective, words were also evaluated with regard to grammatical function. See Appendix Y for classifications of words by grammatical function. Table 15 presents the number and percentage of different words that were known for the three tests of words in isolation by grammatical function for each of three testing conditions. The context in which the word occurred in the material read by the subject was considered in this analysis (see
Table 14

**Number and Percentage of Known Different Words by Level of Imageability for Three Tests in Isolation**

<table>
<thead>
<tr>
<th>Test Conditions</th>
<th>High Imageability</th>
<th>Medium Imageability</th>
<th>Low Imageability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest</td>
<td>n</td>
<td>(21)</td>
<td>(28)</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>67%</td>
<td>50%</td>
</tr>
<tr>
<td>Maintenance A Test</td>
<td>n</td>
<td>(21)</td>
<td>(28)</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>52%</td>
<td>50%</td>
</tr>
<tr>
<td>Maintenance B Test</td>
<td>n</td>
<td>(21)</td>
<td>(28)</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>62%</td>
<td>46%</td>
</tr>
</tbody>
</table>

*Note:* Pretest data were not included because words known on the pretest were not included in the study.

*a* Values in parentheses represent total number of words.
Table 15

Number and Percentage of Known Different Words by Grammatical Function for Three Tests in Isolation

<table>
<thead>
<tr>
<th>Testing Conditions</th>
<th>Pronouns</th>
<th>Nouns</th>
<th>Verbs &amp; Verbal Nouns</th>
<th>Adjectives</th>
<th>Adverbs</th>
<th>Prepositions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest</td>
<td>n (7) 5</td>
<td>(22) 15</td>
<td>(25) 9</td>
<td>(7) 5</td>
<td>(5) 4</td>
<td>(6) 3</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>% 71%</td>
<td>68%</td>
<td>36%</td>
<td>71%</td>
<td>80%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Maintenance A Test</td>
<td>n (7) 6</td>
<td>(22) 13</td>
<td>(25) 10</td>
<td>(7) 5</td>
<td>(5) 3</td>
<td>(6) 3</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>% 86%</td>
<td>59%</td>
<td>40%</td>
<td>71%</td>
<td>60%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Maintenance B Test</td>
<td>n (7) 4</td>
<td>(22) 16</td>
<td>(25) 8</td>
<td>(7) 3</td>
<td>(5) 3</td>
<td>(6) 4</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>% 57%</td>
<td>73%</td>
<td>32%</td>
<td>43%</td>
<td>60%</td>
<td>67%</td>
<td></td>
</tr>
</tbody>
</table>

Note: Values in parentheses represent the total number of available words.
Appendix Y). The findings suggest some evidence that pronouns, nouns, adjectives, and adverbs may have been more readily recognized at the end of instruction than were verbs or prepositions. (However, note the maintenance data reported later in this chapter.)

Table 16, rather than presenting different words (as in Table 8), presents the number and percentage of the 111 individual occurrences (of the 72 distinct target words) recognized at three levels of knowledge (known, partially known, unknown) in each of six testing conditions. "Occurrences" was defined as each of the times that a distinct target word appeared on any single assessment. For example, the word at appeared three times on the posttest, therefore, there were three occurrences of the word at on that assessment. The word ate appeared once on the posttest, therefore, there was one occurrence of the word ate on that assessment. In all, there were four occurrences on these two different words on the posttest (see Chapter 2, "Method of Analysis").

Examination of all occurrences of a word first considered known words only. As seen in Table 16 in the pretest condition there were no known words. Results of the posttest show that 74 (68%) of the occurrences were known. This represents a substantial
Table 16

Number and Percentage of Occurrences of Words Recognized at Three Levels of Knowledge by Six Testing Conditions

<table>
<thead>
<tr>
<th>Testing Conditions</th>
<th>Levels of Knowledge</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Known n  %</td>
<td>Partially Known a n  %</td>
<td>Unknown n  %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>0 0</td>
<td>12 11</td>
<td>99 89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest (isolation)</td>
<td>74 68</td>
<td>15 13</td>
<td>21 19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest (context)</td>
<td>78 70</td>
<td>23 21</td>
<td>10 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance A Test</td>
<td>72 65</td>
<td>25 23</td>
<td>14 13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(isolation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance A Test</td>
<td>89 80</td>
<td>9 8</td>
<td>13 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(context)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance B Test</td>
<td>72 65</td>
<td>25 22</td>
<td>14 13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(isolation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. The same 111 occurrences of the 72 target words were presented in each testing condition.

aPartially known represents occurrences for which the word recognition score was .5.
increase in the number/percent of *occurrences* recognized over the pretest condition. Figure 2 graphically illustrates the percentage of the 111 *occurrences* known in each of the four testing conditions in which words were assessed in isolation. In addition, as seen in Table 17, unbiased mean percentages of correct responses (in which an adjustment for censoring was made) were obtained over 100 random samples taken from the 111 occurrences of the target words (pretest in isolation 18%, posttest in isolation 74%). Results of a logit analysis are presented in Table 18 for the pretest versus the posttest for *occurrences*. Inspection of this table shows that the increase in the number of *occurrences* recognized in isolation from pretest to posttest was statistically significant (*p* < .05).

To account for partial or mediated word knowledge, an additional analysis was performed. Table 19 shows the unbiased mean level of word knowledge (1 = unknown, 2 = partially known, 3 = immediate recognition) obtained over 100 randomly selected samples of the 111 *occurrences* of the target words presented in isolation for pre- and posttests. Table 20 displays the results of a fixed-effect meta-analysis used to combine information in 100 randomly selected samples and
Figure 2. Percentage of occurrences recognized for 111 occurrences of the 72 different target words for six testing conditions.
Table 17

Unbiased Mean Percentages of Correct Responses Over 100 Randomly-Selected Samples of the 111 Occurrences of the 72 Target Words

<table>
<thead>
<tr>
<th></th>
<th>Isolation</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maintenance</td>
<td>Maintenance</td>
</tr>
<tr>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td>Percentage of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Words Correct</td>
<td>18%</td>
<td>74%</td>
</tr>
</tbody>
</table>

*Note: Correct equals correct on all occurrences and, therefore, partial knowledge not included.*
<table>
<thead>
<tr>
<th>Test Conditions</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest in isolation versus pretest in isolation</td>
<td>12.78*</td>
</tr>
<tr>
<td>Maintenance A test in isolation versus pretest in isolation</td>
<td>6.73*</td>
</tr>
<tr>
<td>Maintenance A test in isolation versus posttest in isolation</td>
<td>1.12</td>
</tr>
<tr>
<td>Maintenance A test in isolation versus maintenance B test in isolation</td>
<td>1.04</td>
</tr>
<tr>
<td>Maintenance A test in context versus posttest in context</td>
<td>0.58</td>
</tr>
<tr>
<td>Maintenance A test in context versus maintenance A test in isolation</td>
<td>2.11*</td>
</tr>
</tbody>
</table>

*p<.05.
Table 19

Unbiased Mean Level of Word Knowledge Over 100 Randomly-Selected
Samples of the 111 Occurrences of the 72 Target Words

<table>
<thead>
<tr>
<th>Test Conditions</th>
<th>Isolation</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td>Score</td>
<td>1.46</td>
<td>2.59</td>
</tr>
</tbody>
</table>

Note: Maximum possible score = 3.
Table 20

Meta-Analysis of Seven Pairwise Comparisons Using the Mean of the Difference in Level of Word Knowledge for Occurrences Over 100 Randomly-Selected Samples

<table>
<thead>
<tr>
<th>Testing Conditions</th>
<th>Mean Change in Score</th>
<th>Z-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest in Isolation versus Pretest in Isolation</td>
<td>1.148</td>
<td>3.464**</td>
</tr>
<tr>
<td>Maintenance A Test in Isolation versus Pretest in Isolation</td>
<td>1.164</td>
<td>3.620**</td>
</tr>
<tr>
<td>Maintenance A Test in Isolation versus Posttest in Isolation</td>
<td>0.016</td>
<td>0.038</td>
</tr>
<tr>
<td>Maintenance B Test in Isolation versus Maintenance A Test in Isolation</td>
<td>-0.016</td>
<td>-0.033</td>
</tr>
<tr>
<td>Maintenance A Test in Context versus Posttest in Context</td>
<td>0.07</td>
<td>0.257</td>
</tr>
<tr>
<td>Posttest in Context versus Posttest in Isolation</td>
<td>0.089</td>
<td>0.372</td>
</tr>
<tr>
<td>Maintenance A Test in Context versus Maintenance A Test in Isolation</td>
<td>0.155</td>
<td>0.627</td>
</tr>
</tbody>
</table>

**p<0.0005.
determine significant differences between mean levels of word knowledge. The mean change in score, Z-statistic, and level of significance for the posttest versus the pretest is shown in the table. The mean change in score (1.148) from posttest to pretest was significant (.0005) showing considerable learning from pretest to posttest for occurrences presented in isolation.

In addition, a mean level of knowledge for occurrences was confirmed through a multiple logit analysis based on one sample. Figure 3 graphically illustrates the mean scores for the five tests included in the multiple logit analysis, using ordered values from 1 through 3 for unknown, partially known, and known words. Inspection of this figure shows the mean value obtained for the pretest (words in isolation) was 1.29, while the posttest (words in isolation) obtained a mean value of 2.54. Table 21 presents the mean difference score for the pretest and posttest (words in isolation). Inspection of this table shows that the change in score (.917) was significantly different (p<.001). That is, the mean level of knowledge for occurrences on the posttest was significantly greater than on the pretest.
Figure 3. Mean scores for five tests using ordered values from 1 through 3 for 111 occurrences.
Table 21

Analysis of Five Pairwise Comparisons Using Mean Difference

Scores of Ordered Responses on Occurrences

<table>
<thead>
<tr>
<th>Test Conditions</th>
<th>Change in Score</th>
<th>Z Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest in isolation versus pretest in isolation</td>
<td>0.917</td>
<td>2.987***</td>
</tr>
<tr>
<td>Maintenance A test in isolation versus pretest in isolation</td>
<td>1.729</td>
<td>2.81**</td>
</tr>
<tr>
<td>Maintenance A test in isolation versus posttest in isolation</td>
<td>-0.024</td>
<td>-0.284</td>
</tr>
<tr>
<td>Posttest in context versus posttest in isolation</td>
<td>0.117</td>
<td>1.505</td>
</tr>
<tr>
<td>Maintenance A test in context versus maintenance A test in isolation</td>
<td>0.164</td>
<td>2.326*</td>
</tr>
</tbody>
</table>

*p<.01. **p<.005. ***p<.001.
In summary, results for both different words and for occurrences suggest significant increases in words recognized from pretest to posttest for words presented in isolation. There was a modest advantage for learning highly imageable words over medium and low imageability words in the posttest condition. Also, nouns, pronouns, adjectives, and adverbs were easier to learn than verbs or prepositions.

Research Question Two

Research Question Two stated: "If positive effects are observed for the use of predictable books, and associated instructional procedures, on the word learning of a severely disabled reader, are there differential effects for recognition of words in isolation versus context?" This research question assessed the effect of using predictable books on word recognition, comparing posttest results in isolation to posttest results in context and maintenance A test results in isolation to maintenance A test results in context. No comparisons were made, related to this question, for the pretest or the maintenance B test because while there were both portions in which words were presented in isolation and in context on the posttest and the maintenance A test, there were only portions containing isolated words on the pretest and
the maintenance B test.

Inspection of Table 8 shows there was no difference in the number and percentage of different words recognized for the posttests in isolation and in context ($n = 41$, 57%), where $n =$ the total number of words known and 57% = the percentage of words known. However, differences did exist in the number/percentage of words partially known and unknown. Further review of Table 8 shows that for the maintenance A tests there were more words recognized (known) in context ($n=51$, 71%), than in isolation ($n=43$, 60%). Figure 1 demonstrated the slightly superior results for context over isolation in the maintenance A test. However, as seen in Table 9, unbiased mean percentages of correct responses were obtained over 100 randomly selected samples drawn from the 72 different words with a slightly different result (posttest in isolation 71%, posttest in context 60%; maintenance A test in isolation 71%, maintenance A test in context 73%). Table 10, presenting results of the logit analysis, shows that the increase in the number of different words recognized in the maintenance A test (words in context) as compared with the maintenance A test (words in isolation) was not significant.
In addition, a second analysis was implemented to account for partial or mediated word knowledge. Table 11 shows the unbiased mean level of word knowledge (when both known and partially known words were included in the analysis) obtained over 100 randomly selected samples of the 72 different target words. Table 12 illustrates the results of a fixed-effect meta-analysis used to combine the information for the 100 samples and determine which mean levels of word knowledge differed significantly from 0. There were no significant differences for context versus isolation in the either the posttest or the maintenance A test conditions for different words.

Paired t-tests based on a mixed-effects Anova were also performed for different words. As shown in Table 13, no significant differences were found for context over isolation in the posttest condition. However, a significant difference was found for context over isolation in the maintenance A test condition \( (p < .05) \).

Data was also analyzed for occurrences related to this research question. Examination of Table 16 shows that for the posttest, occurrences that were known in context \( (n = 78, 70\%) \), where \( n \) = the number of occurrences known in context and 70% = the percentage of occurrences known in context, slightly exceeded
occurrences that were known in isolation (n = 74, 68%). Also, for the maintenance A test, occurrences that were known in context (n=89, 80%) exceeded those for occurrences known in isolation (n=72, 65%). Figure 2 illustrated the superior results for context over isolation in these two testing conditions. Table 17 presents the unbiased mean percentages of correct responses obtained over 100 randomly selected samples drawn from the 111 occurrences of the target words (posttest in context 70% versus posttest in isolation 74%; maintenance A test in context 80% versus maintenance A test in isolation 72%). Results of a logit analysis presented in Table 18 show that only the number of occurrences recognized in the maintenance A test (words in context) as compared with the maintenance A test (words in isolation) was significant (p < .05).

To take into account the effects of partial knowledge, an unbiased mean level of word knowledge was obtained for occurrences in both posttest and maintenance A test conditions, based on 100 randomly selected samples. Table 19 illustrates these results showing slightly superior results for context over isolation in both conditions. Table 20 presents results of a fixed-effect meta-analysis employed to
combine results of the 100 randomly selected samples of occurrences and indicate which mean levels of word knowledge differed significantly from 0. The mean change in scores for context versus isolation were not significant for either condition (posttest or maintenance A test).

Table 21 presents results of the multiple logit analysis, which also takes partial knowledge into account. This analysis, unlike the meta-analysis, showed there was a significant difference (p<.01) in the change-in-score (.164) for the maintenance A test in context (mean = 2.71) versus the maintenance A test in isolation (mean = 2.53), only, for occurrences. Figure 3 illustrates the mean scores for these two maintenance A tests with the contextual having the greater mean value. Results for Tables 18 and 21 using odds ratio and change-in-score methods of analysis, respectively, are in agreement. The increases shown may be a result of support available in the test passages which may assist in word recognition. Results of the logit analysis seen in Table 18 show the increase in the proportion of occurrences recognized for maintenance A test (words in isolation) versus maintenance A test (words in context) was significant (p<.05). Similarly, results of the multiple logit
analysis presented in Table 21 reveal that the change-in-score (.164) for maintenance A test (words in isolation) versus maintenance A test (words in context) was significantly different ($p<.01$), in favor of the contextual presentation of words.

The level of word recognition in the posttest condition, in isolation and in context is reported in Appendix T, for each of the 111 occurrences of the 72 different target words. Examination of this data shows that 59 occurrences (i.e., responses to words regardless of whether they occurred a single time or multiple times on the test) were known in both the posttest (words in isolation) and the posttest (words in context). Five occurrences were unknown in both posttest conditions (bellowing, chick, children, dear, lion). There were 27 occurrences in the posttest for which word recognition scores were higher in context than in isolation. For 14 occurrences, however, word recognition scores were lower in context than in isolation.

Appendix T reports the level of word recognition in maintenance test A in isolation and in context for each of the 111 occurrences of the 72 different target words. Inspection of this data shows that 66 occurrences were known in both the maintenance
A test (words in isolation) and the maintenance A test (words in context). Seven occurrences were unknown in both maintenance A tests (at, basket, bellowing, did, galloped, have, with). There were 25 occurrences for which word recognition scores in context were higher than scores in isolation. For nine occurrences, however, scores were lower in context than in isolation.

In summary, while there were no differences in word recognition at the end of instruction for different words (isolation versus context), word recognition in context was superior to that in isolation, 4 weeks after the end of instruction. In addition, word recognition was significantly increased for occurrences presented in context over those in isolation, 4 weeks after the end of instruction.

Research Question Three

Research Question Three asked: "If positive effects are observed for the use of predictable books on word learning, are these effects maintained after a 4-week period following termination of the study? Are these effects maintained after a 6-week period following termination of the study?" This research question assessed the effect of using predictable books on word recognition in isolation and in context from
posttests to maintenance tests.

Inspection of Table 8 shows the following for two tests in isolation: (a) posttest (words in isolation, n=41, 57%), (where n = the number of different words known and % = the percentage of different words known) and (b) maintenance A test (words in isolation, n=43, 60%), there was an increase in the number/percentage of different words known from posttest to maintenance. A modest decline occurred from maintenance A test (words in isolation, n=43, 60%) to maintenance B test (words in isolation, n=38, 53%). Further review of this table reveals an increase in the number/percentage of different words recognized from the posttest (words in context, n=41, 57%) to the maintenance A test (words in context, n=51, 71%). Figure 1 illustrates the increases in the number/percentage of different words recognized 4 weeks after instruction for tests in isolation and in context, and the modest decline 6 weeks after instruction for the test in isolation. Table 9 presents the unbiased mean percentages of correct responses over 100 randomly selected samples drawn from the 72 different words; no loss of learning is shown from posttest in isolation to maintenance A test in isolation (posttest in isolation 71%, maintenance A
test in isolation 71%) or from maintenance A test in isolation to maintenance B test in isolation (maintenance A test in isolation 71%, maintenance B test in isolation 70%). For words in presented in context, there was an increase in recognition from posttest to maintenance A test (posttest in context 60%, maintenance A test in context 73%) perhaps reflecting a consolidation of learning due to exposure to some words in the regular school setting or perhaps due to differences in the stories in which the words were presented. Table 10 shows the results of a logit analysis revealing that, while in fact there was a slight increase in the number and percentage of different words recognized on the maintenance A test over the posttest, there were no significant differences between the these tests (words presented in isolation). In addition, no significant differences were found between the maintenance A and the maintenance B test (words in isolation), or between the posttest and the maintenance A test (words in context) for different words. The data suggest stability of performance up to 6 weeks after instruction.

As seen in Table 11, unbiased mean levels of word knowledge were also obtained for these testing conditions for different words. A fixed-effect meta-
analysis was performed to determine if there were significant differences between the mean difference scores for the posttest in isolation versus the maintenance A test in isolation, the maintenance A test in isolation versus the maintenance B test in isolation, or the posttest in context versus the maintenance A test in context. As shown in Table 12, no significant differences were found for any of these comparisons, showing that there was no deterioration in learning 6 weeks after the end of instruction for different words presented in isolation and four weeks after the end of instruction for different words presented in context. Results of a paired t-test presented in Table 13 confirm there was no significant decline in word learning for different words in isolation 4 weeks after instruction. No test was performed for words presented in context at this testing period as the knowledge of words presented in isolation was considered to be the more stringent test.

While Table 8 examined the number and percentage of different words recognized from posttest to maintenance A test, Table 16 shows a modest decrease in the number and percentage of occurrences recognized from the posttest (words in isolation, \( n = 74, 68\% \)), where \( n \) = the number of occurrences of words known and
68% = the percentage of occurrences known, to
maintenance A test (words in isolation, n = 72, 65%).
Maintenance A test (words in isolation) was
administered 4 weeks after the end of instruction and
administration of the posttest. Six weeks following
termination of the study, maintenance B test (words in
isolation) was administered. This test revealed no
further deterioration for word recognition (in
isolation, n = 72, 65%), where 72 = the number of
occurrences known in isolation and 65% = the percentage
of occurrences known. Further examination of this
table shows an increase in the number and percent of
recognized occurrences from posttest (words in context,
n=78, 70%) to maintenance A test (words in context,
n=89, 80%). Figure 2 illustrates the percentage of the
111 occurrences known in each of the six test
conditions. Inspection of this figure indicates that
performances on maintenance tests A and B in isolation
tend to show retention of learning over time (4-6
weeks). Moreover, performance on maintenance A test
(words in context) exceeded performance on the posttest
(words in context). The data suggest, then, stability
of performance up to 6 weeks after the end of
instruction. Unbiased mean percentages of correct
responses were obtained for the 111 occurrences and
reported in Table 17 (posttest in isolation 74%, maintenance A test in isolation 72%, maintenance B test in isolation 72% and posttest in context 70%, maintenance A test in context 80%). These percentages indicate that there was little or no deterioration of learning 4 to 6 weeks after the end of instruction for occurrences presented in isolation or 4 weeks after the end of instruction for occurrences presented in context. Table 18 presents results of a logit analysis showing there were no significant declines in the number of occurrences recognized in isolation 4 to 6 weeks after the end of instruction and no significant declines in the number of occurrences presented in context recognized 4 weeks after the end of instruction. Table 19 displays unbiased mean levels of word knowledge, reflecting partial knowledge, obtained 4 and 6 weeks after the end of instruction for occurrences in isolation and 4 weeks after the end of instruction for occurrences in context. These mean levels of word knowledge were compared using a fixed-effect meta-analysis. As shown in Table 20, no significant differences (deterioration in learning) were found over 100 randomly selected samples.

In addition, results of the multiple logit analysis seen in Table 21 confirm there was no
significant deterioration in mean level of word knowledge from posttest to maintenance A test for occurrences presented in isolation. Results of these analyses tend to confirm the stability of learning over time for words in isolation.

Data reported in Appendix T illustrates the level of word recognition for each of the 111 occurrences on four tests in isolation. Inspection of this data shows that for both maintenance tests in isolation (A and B) 72 occurrences were known, 25 were mediated, and 14 were unknown. Although the figures are identical for both maintenance tests, the individual occurrences differ within each category. These results show a substantial amount of learning was retained up to 6 weeks after instruction for words in isolation.

Appendix T presents data illustrating the level of recognition for words in isolation for the posttest and maintenance test A for each of 111 occurrences. Examination of this data shows that 60 occurrences were known in both the posttest (words in isolation) and maintenance A test (words in isolation). Eight occurrences were unknown on both tests (basked, bellowing, chick, children, did, galloped, have, walk). There were 17 occurrences for which scores on the posttest (words in isolation) were higher than scores
on the maintenance A test (words in isolation). For 19 occurrences, however, scores on the posttest (words in isolation) were lower than scores on the maintenance A test (words in isolation). Review of the data show that a substantial number of words were learned during the 10 weeks of instruction. Maintenance of this learning is also demonstrated 4 weeks after the end of instruction, when words were presented in isolation.

The level of word recognition for 111 occurrences of words presented in context for two testing conditions, posttest (words in context) and maintenance A test (words in context) are reported and compared in Appendix T. Inspection of this data shows that 69 occurrences were known on both tests. Three occurrences were unknown on both tests (bellowing, dear, early). There were 15 occurrences for which scores on the posttest (context) were higher than those on the maintenance A test (words in context). However, for 23 occurrences scores on the posttest were lower than scores on the maintenance A test. Posttest (words in context) results revealed substantial learning. Moreover, results on the maintenance A test (words in context) indicated that learning was sustained 4 weeks after the end of instruction. In addition, it is noteworthy that only three words were unknown on both
tests (posttest and maintenance A test) when words were presented in context. This suggests that context may have facilitated word recognition for this student.

Data reported in Appendix T compares the level of word recognition for words in isolation for the maintenance A and B tests for each of 111 occurrences. Examination of this data shows that 58 occurrences of the words were known on both tests. Eight occurrences were unknown on both tests (basket, chick, children, growling, roaring, send, walk, with). There were 15 occurrences for which scores on the maintenance A test (words in isolation) exceeded scores on the maintenance B test (words in isolation). Whereas, for 18 occurrences, scores on the maintenance A test were lower than scores on the maintenance B test. These results suggest that for words in isolation learning was maintained for a substantial number of words 4 to 6 weeks after the end of instruction.

In summary, examination of these results show that for both different words and for occurrences, learning was maintained at least 6 weeks after instruction for words presented in isolation, and at least 4 weeks after instruction for words presented in context.
Research Question Four

Research Question Four stated: "How many exposures to words are required by a nonreader for word learning, as assessed by cumulative recording?" This research question assessed the number of exposures needed for initial learning to take place and for maintenance of learning 6 weeks after the end of instruction.

Figure 4 illustrates the percentage of target words known for 10 books at the end of each of 3 days. For example, data points displayed for Day 1 on each graph indicate the percentage of words from a given book known at the end of the first day of instruction which had been unknown on the pretest. Data points for Day 2 on each graph indicate the percentage of words known after the second day of instruction that had been unknown on the pretest, and so on. Of the 10 books used in this study, for three (Books 1, 8, and 9) the data show that all words were learned by the end of the 3-day period. The least number of words learned after 3 days of instruction was recorded for Book 2 (one word out of three). The average number of words recognized after 3 days of instruction was 81% (four out of five words) for the 10 books. Inspection of the figure also reveals that for two books (Books 4 and 7) the number
Figure 4. Percent of target words recognized after instruction, on each of three days for ten books. Total number of target words: Book 1 = 5, Book 2 = 3, Book 3 = 9, Book 4 = 7, Book 5 = 5, Book 6 = 8, Book 7 = 8, Book 8 = 9, Book 9 = 10, Book 10 = 8.
Figure 4 (continued)

Days

Days

Days
Figure 4 (continued)
Figure 4 (continued)

**Book 9**

- Percent of Target Words Recognized After Instruction
- Days

**Book 10**

- Percent of Target Words Recognized After Instruction
- Days
of known words dropped from Day 2 to Day 3. Of the remaining eight books there was either a gain from Day 1 to Day 3 or learning remained unchanged. Visual inspection of these polygon graphs clearly shows that by the end of Day 3 most words were recognized.

Tables 22 through 31 present the cumulative number of exposures to each of the 72 target words over the 3-day instructional period for each of the 10 books. These exposures include each time the word appeared over the 3-day instructional period for the book for which it was a target word. Exposures during reading and rereading the book, during games, while reading charts and sentence strips, and during other instructional activities were all included. The first day each word was recognized also is recorded. Of the 72 target words, 66 words (91.7%) were recognized on at least one of the 3 days. Of the 66 learned words, 65% (n=43) were first recognized on Day 1; 20% (n=13) were first recognized on Day 2; and 16% (n=10) were first recognized on Day 3. Six words were not recognized on any day (this, at, that, duck, with, send). Also, computations of the data show that on the average, 33 exposures were required for word recognition (range = 6 to 194). Review of the data
Table 22

Cumulative Exposures to Target Words and Day

Learned for Book One

<table>
<thead>
<tr>
<th>Word</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>seen</td>
<td>$25^a$</td>
<td>48</td>
<td>84</td>
</tr>
<tr>
<td>morning</td>
<td>6$^a$</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>duckling</td>
<td>$25^a$</td>
<td>47</td>
<td>66</td>
</tr>
<tr>
<td>early</td>
<td>6</td>
<td>15$^a$</td>
<td>19</td>
</tr>
<tr>
<td>have</td>
<td>$25^a$</td>
<td>48</td>
<td>84</td>
</tr>
</tbody>
</table>

$^a$ Indicates the day on which a word was learned.

Table 23

Cumulative Exposures to Target Words and Day

Learned for Book Two

<table>
<thead>
<tr>
<th>Word</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>not</td>
<td>$26^a$</td>
<td>52</td>
<td>78</td>
</tr>
<tr>
<td>this</td>
<td>28</td>
<td>56</td>
<td>85</td>
</tr>
<tr>
<td>where</td>
<td>7</td>
<td>19$^a$</td>
<td>28</td>
</tr>
</tbody>
</table>

$^a$ Indicates day on which a word was learned.
Table 24

*Cumulative Exposures to Target Words and Day Learned for Book Three*

<table>
<thead>
<tr>
<th>Word</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>at</td>
<td>24</td>
<td>62</td>
<td>87</td>
</tr>
<tr>
<td>black</td>
<td>10(^a)</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>did</td>
<td>27</td>
<td>51</td>
<td>85(^a)</td>
</tr>
<tr>
<td>horse</td>
<td>14</td>
<td>24(^a)</td>
<td>32</td>
</tr>
<tr>
<td>looking</td>
<td>25(^a)</td>
<td>66</td>
<td>89</td>
</tr>
<tr>
<td>of</td>
<td>13</td>
<td>23</td>
<td>31(^a)</td>
</tr>
<tr>
<td>saw</td>
<td>31(^a)</td>
<td>76</td>
<td>110</td>
</tr>
<tr>
<td>walking</td>
<td>34(^a)</td>
<td>.72</td>
<td>104</td>
</tr>
<tr>
<td>what</td>
<td>30</td>
<td>62(^a)</td>
<td>96</td>
</tr>
</tbody>
</table>

\(^a\) Indicates day on which word was learned.
Table 25

Cumulative Exposures to Target Words and Day
Learned for Book Four

<table>
<thead>
<tr>
<th>Word</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ate</td>
<td>39 $^a$</td>
<td>83</td>
<td>124</td>
</tr>
<tr>
<td>cake</td>
<td>39 $^a$</td>
<td>86</td>
<td>132</td>
</tr>
<tr>
<td>hen</td>
<td>22 $^a$</td>
<td>51</td>
<td>65</td>
</tr>
<tr>
<td>into</td>
<td>34 $^a$</td>
<td>79</td>
<td>103</td>
</tr>
<tr>
<td>Mack</td>
<td>38 $^a$</td>
<td>82</td>
<td>108</td>
</tr>
<tr>
<td>that</td>
<td>95</td>
<td>217</td>
<td>327</td>
</tr>
<tr>
<td>went</td>
<td>24</td>
<td>57 $^a$</td>
<td>83</td>
</tr>
</tbody>
</table>

$^a$ Indicates day on which a word was learned.

Table 26

Cumulative Exposures to Target Words and Day
Learned for Book Five

<table>
<thead>
<tr>
<th>Word</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>bear</td>
<td>26</td>
<td>48</td>
<td>69 $^a$</td>
</tr>
<tr>
<td>brown</td>
<td>27</td>
<td>54 $^a$</td>
<td>75</td>
</tr>
<tr>
<td>do</td>
<td>38 $^a$</td>
<td>58</td>
<td>115</td>
</tr>
<tr>
<td>duck</td>
<td>16</td>
<td>39</td>
<td>57</td>
</tr>
<tr>
<td>sheep</td>
<td>17 $^a$</td>
<td>38</td>
<td>51</td>
</tr>
</tbody>
</table>

$^a$ Indicates day on which a word was learned.
Table 27

**Cumulative Exposures to Target Words and Day Learned for Book Six**

<table>
<thead>
<tr>
<th>Word</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>chick</td>
<td>37</td>
<td>70</td>
<td>104&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>bumerly</td>
<td>10&lt;sup&gt;a&lt;/sup&gt;</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>taking</td>
<td>11&lt;sup&gt;a&lt;/sup&gt;</td>
<td>24</td>
<td>31</td>
</tr>
<tr>
<td>said</td>
<td>53</td>
<td>117&lt;sup&gt;a&lt;/sup&gt;</td>
<td>182</td>
</tr>
<tr>
<td>out</td>
<td>22&lt;sup&gt;a&lt;/sup&gt;</td>
<td>41</td>
<td>56</td>
</tr>
<tr>
<td>came</td>
<td>15</td>
<td>26</td>
<td>32&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>walk</td>
<td>13</td>
<td>25&lt;sup&gt;a&lt;/sup&gt;</td>
<td>32</td>
</tr>
<tr>
<td>swim</td>
<td>14</td>
<td>32</td>
<td>40&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup>Indicates day on which word was learned.

Table 28

**Cumulative Exposures to Target Words and Day Learned for Book Seven**

<table>
<thead>
<tr>
<th>Word</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>boy</td>
<td>14&lt;sup&gt;a&lt;/sup&gt;</td>
<td>26</td>
<td>31</td>
</tr>
<tr>
<td>can</td>
<td>15&lt;sup&gt;a&lt;/sup&gt;</td>
<td>29</td>
<td>35</td>
</tr>
<tr>
<td>good</td>
<td>13&lt;sup&gt;a&lt;/sup&gt;</td>
<td>25</td>
<td>31</td>
</tr>
<tr>
<td>no</td>
<td>30&lt;sup&gt;a&lt;/sup&gt;</td>
<td>59</td>
<td>88</td>
</tr>
<tr>
<td>Spot</td>
<td>26&lt;sup&gt;a&lt;/sup&gt;</td>
<td>54</td>
<td>71</td>
</tr>
<tr>
<td>basket</td>
<td>10&lt;sup&gt;a&lt;/sup&gt;</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>door</td>
<td>9&lt;sup&gt;a&lt;/sup&gt;</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>be</td>
<td>14</td>
<td>27</td>
<td>33</td>
</tr>
</tbody>
</table>

<sup>a</sup>Indicates the day on which a word was learned.
Table 29

Cumulative Exposures to Target Words and Day Learned for Book Eight

<table>
<thead>
<tr>
<th>Word</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>night</td>
<td>11(^a)</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>bed</td>
<td>46(^a)</td>
<td>88</td>
<td>130</td>
</tr>
<tr>
<td>were</td>
<td>39(^a)</td>
<td>72</td>
<td>103</td>
</tr>
<tr>
<td>jumped</td>
<td>12(^a)</td>
<td>24</td>
<td>28</td>
</tr>
<tr>
<td>flew</td>
<td>10</td>
<td>24(^a)</td>
<td>28</td>
</tr>
<tr>
<td>his</td>
<td>39(^a)</td>
<td>79</td>
<td>114</td>
</tr>
<tr>
<td>all</td>
<td>34(^a)</td>
<td>71</td>
<td>103</td>
</tr>
<tr>
<td>little</td>
<td>37(^a)</td>
<td>77</td>
<td>112</td>
</tr>
<tr>
<td>galloped</td>
<td>11</td>
<td>24(^a)</td>
<td>29</td>
</tr>
</tbody>
</table>

\(^a\) Indicates the day on which a word was learned.
Table 30

Cumulative Exposures to Target Words and Day Learned for Book Nine

<table>
<thead>
<tr>
<th>Word</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>growling</td>
<td>11\textsuperscript{a}</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>hear</td>
<td>66</td>
<td>119</td>
<td>194\textsuperscript{a}</td>
</tr>
<tr>
<td>children</td>
<td>13\textsuperscript{a}</td>
<td>22</td>
<td>27</td>
</tr>
<tr>
<td>like</td>
<td>29\textsuperscript{a}</td>
<td>60</td>
<td>92</td>
</tr>
<tr>
<td>lion</td>
<td>19\textsuperscript{a}</td>
<td>40</td>
<td>54</td>
</tr>
<tr>
<td>roaring</td>
<td>15\textsuperscript{a}</td>
<td>31</td>
<td>39</td>
</tr>
<tr>
<td>polar</td>
<td>32\textsuperscript{a}</td>
<td>49</td>
<td>69</td>
</tr>
<tr>
<td>elephant</td>
<td>20\textsuperscript{a}</td>
<td>35</td>
<td>49</td>
</tr>
<tr>
<td>bellowing</td>
<td>12\textsuperscript{a}</td>
<td>24</td>
<td>31</td>
</tr>
<tr>
<td>peacock</td>
<td>21\textsuperscript{a}</td>
<td>36</td>
<td>49</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Indicates the day on which a word was learned.
Table 31

Cumulative Exposures to Target Words and Day Learned for Book Ten

<table>
<thead>
<tr>
<th>Word</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>dear</td>
<td>11&lt;sup&gt;a&lt;/sup&gt;</td>
<td>20</td>
<td>29</td>
</tr>
<tr>
<td>from</td>
<td>24&lt;sup&gt;a&lt;/sup&gt;</td>
<td>34</td>
<td>54</td>
</tr>
<tr>
<td>with</td>
<td>7</td>
<td>17</td>
<td>23</td>
</tr>
<tr>
<td>your</td>
<td>10&lt;sup&gt;a&lt;/sup&gt;</td>
<td>19</td>
<td>23</td>
</tr>
<tr>
<td>big</td>
<td>10</td>
<td>21&lt;sup&gt;a&lt;/sup&gt;</td>
<td>27</td>
</tr>
<tr>
<td>pet</td>
<td>11&lt;sup&gt;a&lt;/sup&gt;</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>him</td>
<td>25</td>
<td>43&lt;sup&gt;a&lt;/sup&gt;</td>
<td>69</td>
</tr>
<tr>
<td>send</td>
<td>12</td>
<td>27</td>
<td>34</td>
</tr>
</tbody>
</table>

<sup>a</sup> Indicates the day on which a word was learned.
shows that the majority of words learned were recognized on Day 1 and the number of words learned on Days 2 and 3 were similar.

Tables 32 through 41 present the total number of exposures to each word throughout the study and the subject's average word recognition scores (0=unknown, .5=mediated, 1=known) for each of these target words. The average number of exposures to individual words by the end of the study was 87. However, the smallest number of exposures was 23 and the largest was 340. These exposures include each time the student saw a given word over the entire course of the study. The following types of exposures were included: (a) exposures while reading and rereading the book for which it was a target word, (b) exposures in charts, games, and sentence strips used in conjunction with any of the 10 books read, and (c) exposures to the words in other books read. Inspection of these tables also show that 15 words were known (i.e., all word recognition scores = 1) in all tests after the pretest. No words were unknown (i.e., all word recognition scores = 0) in every test after the pretest.

Table 42 presents the list of 72 target words used in the study. Each of the 72 words was assigned values for four different categories: (a) number of exposures
Table 32
Total Number of Exposures and Average Word Recognition Scores for Target Words in Book One

<table>
<thead>
<tr>
<th>Words</th>
<th>Exposures at End of Study</th>
<th>Tests in Isolation</th>
<th>Tests in Context</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pretest</td>
<td>Postest</td>
</tr>
<tr>
<td>seen</td>
<td>178</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>morning</td>
<td>27</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>duckling</td>
<td>183</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>early</td>
<td>28</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>have</td>
<td>179</td>
<td>0.5</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: 0 = unknown on all occurrences; .10 to .90 = unknown, identified or self-corrected on one or more occurrences; 1 = known on all occurrences.
Table 33

Total Number of Exposures and Average Word Recognition Scores for Target Words in Book Two

<table>
<thead>
<tr>
<th>Words</th>
<th>Exposures at End of Study</th>
<th>Tests in Isolation</th>
<th>Tests in Context</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td>not</td>
<td>93</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>this</td>
<td>157</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>which</td>
<td>46</td>
<td>0</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Note: 0 = unknown on all occurrences; .10 to .90 = unknown, identified, or self-corrected on one or more occurrences; 1 = known on all occurrences.
Table 34

Total Number of Exposures and Average Word Recognition Scores for Target Words in Book Three

<table>
<thead>
<tr>
<th>Words</th>
<th>Exposures at End of Study</th>
<th>Tests in Isolation</th>
<th>Tests in Context</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td>at</td>
<td>187</td>
<td>0.17</td>
<td>0.5</td>
</tr>
<tr>
<td>black</td>
<td>74</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>did</td>
<td>92</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>horse</td>
<td>71</td>
<td>0</td>
<td>0.67</td>
</tr>
<tr>
<td>looking .</td>
<td>183</td>
<td>0</td>
<td>0.75</td>
</tr>
<tr>
<td>of</td>
<td>52</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>saw</td>
<td>117</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>walking</td>
<td>111</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>what</td>
<td>340</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: 0 = unknown on all occurrences; .10 to .90 = unknown, identified, or self-corrected on one or more occurrences; 1 = known on all occurrences.
**Table 35**

**Total Number of Exposures and Average Word Recognition Scores for Target Words in Book Four**

<table>
<thead>
<tr>
<th>Words</th>
<th>Exposures at End of Study</th>
<th>Tests in Isolation</th>
<th>Tests in Context</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
<td>Maintenance A</td>
</tr>
<tr>
<td>ate</td>
<td>130</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>cake</td>
<td>140</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>then</td>
<td>71</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>into</td>
<td>109</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Mack</td>
<td>114</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>that</td>
<td>333</td>
<td>0</td>
<td>0.75</td>
</tr>
<tr>
<td>went</td>
<td>88</td>
<td>0</td>
<td>0.5</td>
</tr>
</tbody>
</table>

*Note:* 0 = unknown on all occurrences; .10 to .90 = unknown, identified, or self-corrected on one or more occurrences; 1 = known on all occurrences.
Table 36

**Total Number of Exposures and Average Word Recognition Scores for**

**Target Words in Book Five**

<table>
<thead>
<tr>
<th>Words</th>
<th>Exposures at End of Study</th>
<th>Prettest</th>
<th>Posttest</th>
<th>Maintenance A</th>
<th>Maintenance B</th>
<th>Posttest</th>
<th>Maintenance A</th>
</tr>
</thead>
<tbody>
<tr>
<td>bear</td>
<td>132</td>
<td>0</td>
<td>0</td>
<td>0.5</td>
<td>0.75</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>brown</td>
<td>80</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>do</td>
<td>222</td>
<td>0.25</td>
<td>1</td>
<td>1</td>
<td>0.75</td>
<td>1</td>
<td>0.75</td>
</tr>
<tr>
<td>duck</td>
<td>62</td>
<td>0</td>
<td>0.5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>sheep</td>
<td>56</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note:* 0 = unknown on all occurrences; .10 to .90 = unknown, identified, or self-corrected on one or more occurrences; 1 = known on all occurrences.
Table 37

Total Number of Exposures and Average Word Recognition Scores for Target Words in Book Six

<table>
<thead>
<tr>
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<th>Tests in Isolation</th>
<th>Tests in Context</th>
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Note: 0 = unknown on all occurrences; .10 to .90 = unknown, identified, or self-corrected on one or more occurrences; 1 = known on all occurrences.
### Table 38

**Total Number of Exposures and Average Word Recognition Scores for Target Words in Book Seven**

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*Note:* 0 = unknown on all occurrences; .10 to .90 = unknown, identified, or self-corrected on one or more occurrences; 1 = known on all occurrences.
Table 39

Total Number of Exposures and Average Word Recognition Scores for Target Words in Book Eight

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<td>Posttest</td>
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<td>1</td>
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Note: 0 = unknown on all occurrences; .10 to .90 = unknown, identified, or self-corrected on one or more occurrences; 1 = known on all occurrences.
Table 40

Total Number of Exposures and Average Word Recognition Scores for Target Words in Book Nine

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<td>0.5</td>
<td>0.5</td>
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<td>0.5</td>
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<td>0.5</td>
<td>0.75</td>
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<td>like</td>
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Note: 0 = unknown on all occurrences; .10 to .90 = unknown, identified, or self-corrected on one or more occurrences; 1 = known on all occurrences.
### Table 41

**Total Number of Exposures and Average Word Recognition Scores for Target Words in Book Ten**

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<td>Posttest</td>
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</tr>
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<td>send</td>
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<td>0.5</td>
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</table>

*Note:* 0 = unknown on all occurrences; .10 to .90 = unknown, identified, or self-corrected on one or more occurrences; 1 = known on all occurrences.
<table>
<thead>
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<th>Words</th>
<th>Maximum Number of Exposures for Initial Learning</th>
<th>Total Number of Exposures with Directed Instruction</th>
<th>Total Number of Exposures During Study</th>
<th>Average Word Recognition Score on Maintenance B Test</th>
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Table 42 (continued)

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Table 42 (continued)

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<th>Words</th>
<th>Maximum Number of Exposures for Initial Learning</th>
<th>Total Number of Exposures with Directed Instruction</th>
<th>Total Number of Exposures During Study</th>
<th>Average Word Recognition Score on Maintenance B Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>went</td>
<td>57</td>
<td>83</td>
<td>88</td>
<td>0.63</td>
</tr>
<tr>
<td>were</td>
<td>39</td>
<td>103</td>
<td>105</td>
<td>1</td>
</tr>
<tr>
<td>what</td>
<td>62</td>
<td>96</td>
<td>340</td>
<td>1</td>
</tr>
<tr>
<td>where</td>
<td>19</td>
<td>28</td>
<td>46</td>
<td>0.5</td>
</tr>
<tr>
<td>with</td>
<td>x&lt;sup&gt;a&lt;/sup&gt;</td>
<td>23</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>your</td>
<td>10</td>
<td>23</td>
<td>23</td>
<td>1</td>
</tr>
</tbody>
</table>

<sup>a</sup> Represents words which were not learned during directed instruction.

<sup>b</sup> Was self-corrected on Day 3.

<sup>c</sup> Was self-corrected on Day 2, but known on Day 1 and Day 3.

<sup>d</sup> Was not known on Day 2, but was known on Day 1 and Day 3.

<sup>e</sup> Was identified on Day 2, but recognized on Day 1 and Day 3.

<sup>f</sup> Was not known on Day 2 and Day 3.

<sup>g</sup> Was known on Day 1, but unknown on Day 2 and Day 3.
necessary for initial learning (when learning was assessed at the end of a 1-hour instructional session that had focused on these words), (b) total number of exposures with directed instruction (the number of exposures during the three instructional sessions for the book in which the target words were introduced), (c) total number of exposures during the study (every exposure to the words from the time they were first introduced until the end of the study, including both direct instruction and incidental exposure in other books or materials), and (d) average word recognition score on the maintenance B test (the test of words in isolation administered 6 weeks after the end of instruction).

To assess the predictive contribution of the three independent variables (maximum number of exposures for initial learning, total number of exposures with directed instruction, and total number of exposures during the study) on maintenance B scores, a Stepwise Forward multiple regression analysis was performed. The Stepwise Forward selection procedure compares the $F$ statistic for each independent variable to a criterion value (i.e., the significance level of entry into the model that is generally set at 0.50). Each $F$ value that is larger than the specified level of entry is
entered step by step, from large to small, in the model. The maintenance B test was chosen as the criterion variable since this was the most stringent test of word learning administered in the present study (i.e., there was a longer delay after instruction was terminated before administration of this test--6 weeks--than for any other test; and, furthermore, the words were tested in isolation, rather than in context--also a more conservative test of word knowledge [Stanovich, 1981; Stanovich & West, 1981; Stanovich & West, 1983]). Table 43 reports the results of this analysis.

Inspection of this table shows that the variable designated as total number of exposures during the study is a significant predictor, $F(1, 70) = 6.47$, $p < .05$, of maintenance B test scores. That is, those words for which there were greater total numbers of exposures during the study were more likely to show higher scores on measures of retention on the maintenance B test. The best predictor variable was, however, number of exposures necessary for initial learning. The addition of this variable in the regression equation produced a significant increase in the percentage of variance accounted for (.061) over that explained by total number of exposures during the study (.030), alone, $F(1, 69) = 4.60$, $p < .05$. However,
Table 43

Multiple Regression on Maintenance B Scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple R</th>
<th>R Square Change</th>
<th>Simple r</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of exposures during the study</td>
<td>.174</td>
<td>.03</td>
<td>.03</td>
<td>.17</td>
</tr>
<tr>
<td>Number of exposures necessary for initial learning</td>
<td>.302</td>
<td>.091</td>
<td>.061</td>
<td>-.08</td>
</tr>
<tr>
<td>Total number of exposures with directed instruction</td>
<td>.316</td>
<td>.1</td>
<td>.009</td>
<td>.11</td>
</tr>
</tbody>
</table>

*p<.05.
number of exposures for initial learning produced a negative beta value (-.409) indicating that the fewer the number of exposures for initial learning, the higher the score in maintenance B test. The addition of the variable designated a total number of exposures with directed instruction in the regression equation produced no significant increase in the percentage of variance accounted for over that explained by the variables previously entered into the regression equation.

The regression of the criterion variable on the three predictor variables accounted for 10% of the total variance—that is the maximum portion of the variance in the dependent variable being explained by the three predictor variables. While the data suggest that number of exposures necessary for initial learning is the best predictor of retention of word recognition, it should be noted however, that the amount of variance accounted for by the three predictor variables is small. In addition, the correlation of the three predictor variables (in concert) with the criterion variable was .32, only a modest relationship. Thus, other factors not accounted for in the data may be influencing word retention. Also, it should be noted that this analysis is correlational and, therefore, no
causal relationship can necessarily be assumed among the variables.

Finally, careful examination of the maintenance B test scores indicated that the data were not normally distributed—likely because the analysis was applied to a single subject—and hence do not meet all assumptions for a multiple regression model. Thus, these results should be viewed with caution.

Table 44 shows the cognitive behaviors performed over the 10-week instructional period for each of the 10 books included in the study. (See Appendices Q, R, and S, for examples of observation notes.) Examination of this table shows that of the 11 behaviors for which opportunities to perform existed primarily on Day 1, all were satisfactorily exhibited by the student on Day 1 for most of the 10 books. Six behaviors for which opportunities to perform existed primarily on Day 2 were satisfactorily performed on Day 2 for most books. Five behaviors for which opportunities to perform existed primarily on Day 3 were satisfactorily exhibited on Day 3 for most of the books. Two behaviors were generally exhibited for all three days for most books. One behavior was performed on Days 2 and 3 for most books. Finally, two behaviors related to using sound-symbol correspondences were not
Table 44

Cognitive Behaviors Exhibited During the 10-Week Instructional Period by Book

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Day Behavior Occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Book Number</td>
</tr>
<tr>
<td></td>
<td>1  2  3  4  5  6  7  8  9  10</td>
</tr>
<tr>
<td>The student</td>
<td></td>
</tr>
<tr>
<td>identified the title of the book by pointing.</td>
<td>1  1  1  1  1  1  1  1  1  1</td>
</tr>
<tr>
<td>understood the term author.</td>
<td>X  1  1  1  1  1  1  X  1  1</td>
</tr>
<tr>
<td>understood the term illustrator.</td>
<td>X  1  1  1  1  1  1  X  1  1</td>
</tr>
<tr>
<td>identified by name many of the concepts shown in the illustrations.</td>
<td>1  1  1  1  1  1  1  1  1  1</td>
</tr>
<tr>
<td>was able to predict what the story is about using the illustrations.</td>
<td>1  1  1  1  1  1  1  1  1  1</td>
</tr>
</tbody>
</table>
Table 44 (continued)

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Book Number</th>
<th>Day Behavior Occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>demonstrated prior knowledge related to concepts in the book.</td>
<td>1 1 1 1 1 1</td>
<td>1 1 1 1 1 1</td>
</tr>
<tr>
<td>recognized most target words from the previous books when presented in isolation on cards.</td>
<td>X 1 1 1 X 1</td>
<td>X 1 1 1 1</td>
</tr>
<tr>
<td>was able to locate most previous target words also found in the new focus book.</td>
<td>X 1 X X 1 1</td>
<td>X 1 1 1 1</td>
</tr>
<tr>
<td>recognized most target words for the current book in isolation during a game-like activity at the end of each day.</td>
<td>1.2.3 2 3 1.2.3 3</td>
<td>3 1.2.3 1.2.3 1.2.3 2.3</td>
</tr>
</tbody>
</table>
Table 44 (continued)

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Book Number</th>
<th>Day Behavior Occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student</td>
<td>1 2 3 4 5</td>
<td>6 7 8 9 10</td>
</tr>
<tr>
<td>was able to supply most predictable words and phrases during shared reading.</td>
<td>1 1 1 1 1</td>
<td>1 1 1 1 1</td>
</tr>
<tr>
<td>was able to supply most missing words in a cloze activity.</td>
<td>1 1 1 1 1</td>
<td>1 1 1 1 1</td>
</tr>
<tr>
<td>was able to keep pace during choral reading.</td>
<td>× 2 2 × 2</td>
<td>2 2 2 2 2</td>
</tr>
<tr>
<td>remembered important elements of the story from a previous reading.</td>
<td>2.3. 2 2 2 1</td>
<td>2 2 2 2 2</td>
</tr>
<tr>
<td>read the story from a chart with minimal assistance.</td>
<td>× 2 2 × 2</td>
<td>1 2 2 2 2</td>
</tr>
</tbody>
</table>

253
Table 44 (continued)

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Book Number</th>
<th>Day Behavior Occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>was able to match words on cards to words on a chart.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>was able to identify words on a chart that are repeated or have</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>structural similarities.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>was able to match sentence strips to sentences on a chart.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>generally used sound-symbol correspondences to figure out unknown words</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>in text.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>used initial consonant sounds to aid in figuring out unknown words.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1.2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
Table 44 (continued)

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Day Behavior Occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student</td>
<td></td>
</tr>
<tr>
<td>used sound-symbol correspondences to aid in spelling words.</td>
<td>3 3 3 × × 3 3 × × 3</td>
</tr>
<tr>
<td>was able to read the book orally with no errors, pointing as she read.</td>
<td>3 3 3 3 3 3 3 3 3 3</td>
</tr>
<tr>
<td>was able to innovate to produce a new story with the same language patterns as the current book with minimal assistance.</td>
<td>3 3 3 × 3 3 3 3 3 3</td>
</tr>
<tr>
<td>was able to read the innovated story with few or no errors.</td>
<td>3 3 × 3 3 3 3 3 3 3</td>
</tr>
</tbody>
</table>
Table 44 (continued)

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Book Number</th>
<th>Day Behavior Occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>read focus book or story charts fluently with appropriate expression.</td>
<td>3</td>
<td>1.3 2.3</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>1.3 2.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.3 2.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 2.3</td>
</tr>
<tr>
<td>used self-correction when identifying words in context or in isolation.</td>
<td>X</td>
<td>2.3 2.3</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>2.3 1.2.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2.3 1.2.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 1.2 1.2</td>
</tr>
<tr>
<td>was able to sequence events in the story.</td>
<td>1</td>
<td>X X 1 X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X X 1 1 1 X</td>
</tr>
</tbody>
</table>

Note: Opportunities for each behavior were not available on each day, for every book. Only the day(s) that a behavior was exhibited is indicated for each book. Behaviors for which no opportunities were available on any of the 3 days or for which there were opportunities, but the student did not exhibit the behavior are marked X.
exhibited on any day for five or more of the books
though opportunities to perform these behaviors did
exist.

Research Question Five

Research Question Five asked: "What effect does
the use of predictable books for instruction have on
affective responses of a second-grade nonreader, as
assessed by a self-report reading-attitude scale, an
observation checklist, and experimenter anecdotal
notes?" This research question examined the effect of
using predictable books on the affective responses of a
nonreader using three methods of assessment.

Table 45 presents raw scores, T-scores, and
percentile ranks for the Heathington Primary Scale
(Heathington, 1975). Inspection of this table shows a
gradual increase in positive attitude toward reading
over the three test periods. For the pretest,
posttest, and maintenance test, percentile ranks of 21,
38, and 50, respectively, show performance to be below
average for the first two tests and average for the
last. The equivalent linear T-scores (computed from
the mean and standard deviation of Heathington's sample
population) yielded values of 42, 47, and 50,
respectively, for the three testing periods. Although
these results show there was a modest increase in
Table 45

Raw Scores, T-scores, and Percentile Ranks on the Heathington Primary Scale

<table>
<thead>
<tr>
<th>Testing Conditions</th>
<th>Raw Score</th>
<th>T-score</th>
<th>%ile Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>67</td>
<td>42</td>
<td>21</td>
</tr>
<tr>
<td>Posttest</td>
<td>74</td>
<td>47</td>
<td>38</td>
</tr>
<tr>
<td>Maintenance Test</td>
<td>77</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

*Note.* Possible total raw score is 100.
positive attitude toward reading over the course of instruction and that this increase was maintained and enhanced 4 weeks after the end of instruction, inspection of the T-scores showed there was no significant increase in positive attitude toward reading between testing periods.

Table 46 presents the likert-type ratings on each of the 20 items of the Heathington Primary Scale for the three testing conditions (pre-, post-, and maintenance tests). Inspection of this table shows that for the pretest there were 5 items (25%) rated as very unhappy/unhappy and 10 items (50%) rated as happy/very happy. For the posttest there were 2 items (10%) rated as very unhappy/unhappy and 11 items (55%) rated as happy/very happy. The maintenance test recorded no items (0%) as very unhappy/unhappy and 12 items (60%) rated as happy/very happy.

Table 47 presents clusters of items suggested by Heathyngton that indicate specific areas of a child’s reading environment for which he/she may have positive or negative feelings. Inspection of this table shows that at pretest, two areas had mean ratings below neutral (3.0), these were Reading at Home (2.75) and Other Recreational Reading (2.75). However, at post- and maintenance tests, no areas had mean ratings below
### Ratings on Items of the Heathington Primary Scale

<table>
<thead>
<tr>
<th>Questions</th>
<th>Tests</th>
<th>Pre</th>
<th>Post</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do you feel...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. when you go to the library?</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>2. when you read instead of playing outside?</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>3. when you read a book in free time?</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4. when you are in reading group?</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>5. when you read instead of watching TV?</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>6. when you read to someone at home?</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>7. about the stories in your reading book?</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>8. when you read out loud in class?</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9. when you read with a friend (Mom) after school?</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>10. when you read stories in books?</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>11. when you read in a quiet place?</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>12. when you read a story at bedtime?</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>13. when it's time for reading circle (group)?</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>14. when you read on a trip?</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>15. when you have lots of books at home?</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>16. when you read outside when it's warm?</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>17. when you read at your desk at school?</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>18. when you find a book at the library?</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>19. when you read in your room at home?</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>20. when you read instead of coloring?</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

*Note: 1 = very unhappy, 2 = unhappy, 3 = neutral, 4 = happy, and 5 = very happy.*
### Table 47

**Item and Mean Scores for Six Reading Environments on the Heathington Primary Scale for Three Testing Conditions**

<table>
<thead>
<tr>
<th>Reading Environments</th>
<th>Testing Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
</tr>
<tr>
<td><strong>Free Reading in the Classroom</strong></td>
<td></td>
</tr>
<tr>
<td>when you read a book in free time?</td>
<td>4</td>
</tr>
<tr>
<td>when you read at your desk at school?</td>
<td>4</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Organized Reading in the Classroom</strong></td>
<td></td>
</tr>
<tr>
<td>when you are in reading group?</td>
<td>2</td>
</tr>
<tr>
<td>about the stories in your reading book?</td>
<td>4</td>
</tr>
<tr>
<td>when you read out loud in class?</td>
<td>5</td>
</tr>
<tr>
<td>when it's time for reading circle (group)?</td>
<td>5</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Reading at the Library</strong></td>
<td></td>
</tr>
<tr>
<td>when you go to the library?</td>
<td>5</td>
</tr>
<tr>
<td>when you find a book at the library?</td>
<td>4</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Reading at Home</strong></td>
<td></td>
</tr>
<tr>
<td>when you read to someone at home?</td>
<td>5</td>
</tr>
<tr>
<td>when you read a story at bedtime?</td>
<td>2</td>
</tr>
<tr>
<td>when you have lots of books at home?</td>
<td>1</td>
</tr>
<tr>
<td>when you read in your room at home?</td>
<td>3</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>2.75</td>
</tr>
</tbody>
</table>
Table 47 (continued)

<table>
<thead>
<tr>
<th>Reading Environments</th>
<th>Testing Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
</tr>
<tr>
<td><strong>Other Recreational Reading</strong></td>
<td></td>
</tr>
<tr>
<td>when you read instead of playing outside?</td>
<td>3</td>
</tr>
<tr>
<td>when you read instead of watching TV?</td>
<td>1</td>
</tr>
<tr>
<td>when you read with a friend (Mom) after school?</td>
<td>4</td>
</tr>
<tr>
<td>when you read outside when it's warm?</td>
<td>3</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>2.75</td>
</tr>
<tr>
<td><strong>General Reading</strong></td>
<td></td>
</tr>
<tr>
<td>when you read stories in books?</td>
<td>3</td>
</tr>
<tr>
<td>when you read in a quiet place?</td>
<td>5</td>
</tr>
<tr>
<td>when you read on a trip?</td>
<td>3</td>
</tr>
<tr>
<td>when you read instead of coloring?</td>
<td>1</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

*Note.* Each item begins with the phrase, "How do you feel..."
neutral.

Figure 5 presents the Heathington and Alexander Reading Attitude Observation Checklist (Heathington & Alexander, 1978). While the attitude data discussed in the preceding paragraphs were based on student self-report, this checklist was completed by the researcher at the end of the 10-week period of instruction. The checklist was adapted by the present researcher (see Chapter 2) for use with a single subject in a one-to-one teaching situation. The modified 9-item checklist asked for comments by the experimenter to further explain each of the responses on the checklist. Results on this checklist suggest that when in a supported reading environment, the student is an enthusiastic and involved reader—both in oral and in silent reading situations. However, results also suggested that reading experiences outside of the tutoring or school environment have not been plentiful and that she tends to choose other activities over reading outside of the tutoring setting.

Table 48 presents the affective behaviors exhibited during the 10-week instructional period for each of the 10 books. Inspection of this table shows that the student exhibited six affective behaviors, which may positively affect reading, on one or more
Over a period of 10 weeks, has the child:

1. Seemed to enjoy reading activities?
   Yes [ ] No [ ]
   The subject always enthusiastically joined in reading activities.
   She often volunteered to read familiar parts as I read to her and showed by
   comments and facial expressions her enthusiasm for game-like and
   other activities.

2. Talked about a book she is reading at home?
   Yes [ ] No [ ]
   The subject did not mention any book being read at home
during this 10-week period.

3. Mentioned going to the library?
   Yes [ ] No [ ]
   The subject did not mention going to the library; however, when
   asked, said she had only been to the library in her apartment complex
   and that it only had some magazines to look at.

4. Talked about books she has read or that have been read to her?
   Yes [ ] No [ ]
   The subject did not mention any books she had read or that had
   been read to her, except occasionally when I presented a book to
   read to her or with her she commented that she had "read" it or
   seen it at school.

Figure 5. A reading attitude observation checklist
with comments by the observer.
5. Expressed any negative feelings about reading?
   Yes  No  
   The subject did not express any negative feelings about reading or her ability to read.
6. Seemed hesitant to read orally?
   Yes  No  
   The subject was always willing and eager to read orally during sessions, often volunteering to continue reading or joining in voluntarily.
7. Appeared to stay on task when reading silently with a taped version of a story?
   Yes  No  
   The subject always stayed on task when reading following a tape and voice-pointed as she read.
8. Joined in enthusiastically when doing assisted reading or shared reading with the experimenter?
   Yes  No  
   The subject was very enthusiastic and often needed little assistance when reading or read more than expected of her during shared reading.
9. Made comments about and shown interest in text or illustrations that accompany it?
   Yes  No  
   The subject keenly examined details of illustrations, noticing and commenting on aspects and relating them to the story at hand. She also made comments relating her own experiences and beliefs to the story—often quite philosophically.
Table 48

Affective Behaviors Exhibited During the 10-Week Instructional Period by book

<table>
<thead>
<tr>
<th>Book Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The student</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>excitedly mentioned having seen the book before at school or the library.</td>
<td>1</td>
<td>X</td>
<td>1</td>
<td>X</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>1</td>
</tr>
<tr>
<td>looked carefully at the pictures or text, showing interest and enjoyment by giggling or commenting on what she saw.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>volunteered to read a book or chart.</td>
<td>2</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>showed enjoyment as she participated in a game-like activity by humming, giggling, helping the experimenter, or by her comments.</td>
<td>2.3</td>
<td>1.2.3</td>
<td>1.2.3</td>
<td>1.2.3</td>
<td>1.2.3</td>
<td>1.2.3</td>
<td>1.2.3</td>
<td>1.2.3</td>
<td>1.2.3</td>
<td>1.2.3</td>
</tr>
</tbody>
</table>
Table 48 (continued)

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Book Number</th>
<th>Day Behavior Occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>showed persistence during an activity that was difficult for her.</td>
<td>3 3 2,3 1,2,3 1,2,3 1,2,3 1,2,3 1,2,3 1,2,3 1,2,3</td>
<td></td>
</tr>
<tr>
<td>volunteered information related to a book.</td>
<td>× × × 1,3 1 1,2 3 1 1 1,2</td>
<td></td>
</tr>
<tr>
<td>enthusiastically and carefully wrote a story by innovating on text and carefully illustrated the story.</td>
<td>3 3 3 3 3 3 3 3 3 3</td>
<td></td>
</tr>
<tr>
<td>volunteered information about herself or her family.</td>
<td>3 × × × × × × 3 × 1 3</td>
<td></td>
</tr>
<tr>
<td>related story to her own experiences.</td>
<td>× 1,2 1 × × × × 3 × 1 1,3</td>
<td></td>
</tr>
<tr>
<td>joined in confidently and enthusiastically while reading.</td>
<td>2 2 3 2 1 2,3 3 1,2,3 2 3</td>
<td></td>
</tr>
</tbody>
</table>
Table 48 (continued)

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Book Number</th>
<th>Day Behavior Occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>verbally expressed pride or excitement about what she had accomplished during a session.</td>
<td>X</td>
<td>3</td>
</tr>
<tr>
<td>seemed fidgety during part of the session.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>seemed tired during part of the session.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>showed resistance to, or difficulty with, an activity by coughing, yawning, shifting in her seat, dropping things, or making extraneous comments.</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Table 48 (continued)

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Book Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student</td>
<td></td>
</tr>
<tr>
<td>did not consistently center her attention on the text, keeping her eyes focused on the print.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day Behavior Occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
</tr>
<tr>
<td>X</td>
</tr>
<tr>
<td>X</td>
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<tr>
<td>1</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>X</td>
</tr>
<tr>
<td>X</td>
</tr>
<tr>
<td>X</td>
</tr>
<tr>
<td>X</td>
</tr>
</tbody>
</table>

*Note:* Opportunities for each behavior were not available on each of the 3 days, for every book. Only the day(s) that a behavior was exhibited is indicated for each book. Behaviors for which no opportunities were available on any of the 3 days or for which there were opportunities, but the student did not exhibit the behavior are marked X.
days for most of the 10 books. Two of these behaviors related to her enthusiastic participation in game-like activities and her persistence when performing difficult tasks. Another related to her interest in and careful examination of illustrations and text. The student also consistently volunteered information related to the books, confidently joined in the reading of text, and enjoyed writing and illustrating innovated stories. There were also three behaviors which may negatively affect reading that were seldom exhibited. These included being tired or fidgety during a few sessions and demonstrating resistance to certain activities.

Chapter Summary

Cognitive Variables

In summary, there was evidence that substantial learning was achieved from pretest to posttest seen both on the measurements used to assess knowledge of different words and for occurrences in isolation. Also, there was a modest advantage for recognition of high-imageability words at the end of instruction and there was some evidence that pronouns, nouns, adjectives, and adverbs were more easily recognized at
the end of instruction than were verbs or prepositions. Retention of learning, as measured by the maintenance tests, was also demonstrated for different words, as well as occurrences in isolation and in context. That is, there was no significant drop in word recognition from posttests to maintenance tests for either different words or occurrences in isolation or in context. There was also evidence that recognition for occurrences presented in context was superior to that of occurrences presented in isolation, 4 weeks after the end of instruction.

In addition, results showed that for most words (65%) initial learning was achieved by the end of the first day of instruction, or after an average of 33 exposures to the words. There was also evidence that the fewer the number of exposures that were needed for initial learning, the higher was the likelihood of a word being recognized 6 weeks after instruction.

Furthermore, though the total number of exposures during the study and the number of exposures needed for initial learning were significant predictors of maintenance 6 weeks after instruction, the amount of variance accounted for by these variables was small, suggesting that other factors may influence word retention.
Finally, while there were a number of strengths demonstrated related to the student's cognitive behaviors, a weakness may exist in the area of using sound-symbol correspondences.

Affective Variables

To summarize, results on the affective measures suggest that there was a modest increase in positive attitude toward reading from pretest to posttest, which was maintained at least 4 weeks after the end of instruction. While this increase was not statistically significant, it did show an increase from below average performance on the pretest to average performance on the maintenance test. Also, while there were 5 items (20%) on the pretest which indicated a negative attitude toward reading, there were no items on the maintenance test which indicated a negative attitude toward reading. In addition, at pretest two of Heathington’s six areas of a child’s reading environment received mean ratings below neutral, indicating negative attitudes in relation to that area of literacy experiences. However, at the post- and maintenance tests, there were no areas with mean ratings below neutral. Results on the Heathington and Alexander Reading Observation Checklist completed by the researcher tend to support some of the findings on
the Heathington Primary Scale. Specifically, results show the child's relatively positive attitude toward reading in supported, classroom or tutoring situations and her less positive attitude toward reading outside the school setting where less support is available. Finally, a number of strengths were noted related to the student's affective behaviors. Most importantly, these included her consistent enjoyment of and active participation in most reading activities and her persistence when engaged in reading tasks that were difficult for her.
CHAPTER IV

DISCUSSION

The present study investigated the cognitive and affective effects of using predictable books. It provided descriptive and inferential data on the word learning and affective responses of one nonreader when employing instructional procedures typically used with predictable books to facilitate early word learning. This was a descriptive study involving a single subject, and thus had characteristics of a case study. There was also at least one element found in a quasi-experimental study, that is pretest-posttest data collection and analysis. The investigation was both developmental and longitudinal in that it examined changes in behavior over the 20-week period of the research.

This chapter includes: (a) a discussion of the findings for each of the five research questions, (b) the limitations of the study, (c) the contributions of the study to research on literacy, and (d) suggestions for future research.
Research Questions

Five research questions were investigated. Both descriptive and inferential data were presented in the previous chapter.

Research Question One

Research Question One asked: "What effect does the use of predictable books, and associated instructional procedures, have on word learning (i.e., word recognition) for a second-grade nonreader, as assessed by words taken from these predictable books?" This research question examined the effect of using predictable books on word recognition in isolation from pretest to posttest.

Summary of findings. A full report of findings related to Question One is found in Chapter 3. In summary, results obtained for Question One first addressed different words, for which data were obtained by considering responses to the 72 distinct target words in the study. (As indicated in Chapter 1, "different words" were defined as each of the unique target words that appeared on an assessment or in a text. For example, although the word his appears five times in one of the posttests, when counting different words, his was counted only as one word.) A logit analysis showed that gains by this second-grade
nonreader in the number and percentage of different words recognized from pretest to posttest were statistically significant.

In addition, comparisons from pretest to posttest were undertaken to account for partial knowledge of the words (indicated by self-corrections after initial miscues or identification of a word after strategy use). Unbiased mean levels of word knowledge were obtained and a fixed-effect meta-analysis employed to compare them indicated significant increases in word learning from pre- to posttest ($p < .0005$) for different words. Also, to confirm results of the meta-analysis, a t-test based on a mixed-effect Anova was employed to compare the mean level of word knowledge from pretest to posttest for different words. Results indicated substantial learning from pretest to posttest ($p < .0001$) for different words.

Finally, word learning was examined in terms of level of imageability and grammatical function. Overall, results were erratic, but there was a very slight advantage in learning high imageability words and nouns, pronouns, adjectives and adverbs.

Findings obtained for Question One also addressed occurrences for which data were obtained by considering all responses to each word. (As noted in Chapters 1 and
2, the term "occurrences" is defined in this report as each of the times a distinct target word appeared in any single assessment or text. For example, the word his appears five times on one of the posttests. In this case, since occurrences were being considered, his would be counted five times or, in other words, there are five "occurrences" of the word his on that assessment.) Results of a logit analysis showed that gains made by this second-grade nonreader in the number and percentage of occurrences recognized from pretest to posttest also were statistically significant.

In addition, unbiased mean levels of word knowledge were obtained and compared using a fixed-effect meta-analysis based on 100 samples. These mean levels of word knowledge included partial knowledge, from pre- to posttest for occurrences. Results showed significant increases in learning from pre- to posttest (p < .0005). Furthermore, a mean level of knowledge for occurrences was obtained using ordered values (i.e., for unknown, partially known, and known words) for the 111 occurrences. Substantial increases were shown from pretest to posttest, which a multiple logit analysis indicated were statistically significant (p<.001).
Discussion of findings. The findings of the present study for both different words and occurrences demonstrated that use of predictable books, and procedures associated with them, were effective in increasing the reading vocabulary of this nonreader. Although similar findings have been obtained for other beginning low-achieving readers (Bridge, Winograd, & Haley, 1983; Moore, 1990), no previously published research is available addressing the use of predictable books with severely disabled readers, such as the subject of this study. Since it cannot necessarily be assumed that instructional routes that are facilitative with others will be helpful for students who have the most serious delays (see e.g., research by Lovett, Warren-Chaplin, Ransby, & Borden, 1990; McCormick, 1994), this result is a hopeful one, suggesting that a favored method of early instruction can be helpful even in these severe cases.

The success of the subject in the present investigation as a result of using predictable books may be attributed to a number of factors. Predictable books provide meaningful text with repetitive, natural language patterns and familiar predictable plots. These text features aid in prediction of both the story line and the words (Bridge, Winograd, & Haley, 1983;
Burton, 1982; Chandler & Baghban, 1986; Downhower & Brown, 1992; Reutzel & Fawson, 1989; 1991). The repetition of words and phrases in predictable patterns throughout the books and the chart stories used as part of the procedures enabled the student to use her knowledge of a particular story, and especially the story patterns, to aid in recognizing words when they appeared in the text. For example, when the student followed the text of a story while it was read to her with the teacher pointing to each word, she was able to associate specific words with their printed forms. Authorities have suggested that with each reading striking visual features of words are noticed and remembered, aiding in recognition of the word at a later reading (Ehri, 1991; Ehri & Wilce, 1979; Ehri & Wilce 1987; Spring, Gilbert, & Sassenrath, 1979).

Furthermore there were a variety of different opportunities to "read" the story and encounter these words in supported situations. For each story all of the following were included, as defined in Chapter 1: (a) following the text as the experimenter read, (b) choral reading, (c) assisted reading, (d) engaging in shared reading, (e) reading independently from a chart, and (f) reading independently from the book. Because of this, and the many exposures to the words
that the repeated patterns in the story provided, the student was afforded numerous opportunities to successfully practice the words. The positive effects of varied and substantial amounts of practice have been confirmed (Anderson, Evertson, & Brophy, 1979; Barr, 1984; Ehri, 1991; Gough, 1984; Juel, 1991; Spring, Gilbert, & Sassenrath, 1979; Stanovich, 1986). Moreover, research with students having the most severe difficulties in reading acquisition indicates that more than the usual repetitions or exposures to text, to words, and to strategies for learning may be a necessary part of their instruction (Gates, 1931; McCormick, 1994).

Other opportunities to practice words successfully, also involving many exposures, were provided during the game-like activities which were typical of those recommended for use with predictable books (e.g., Slaughter, 1993). Furthermore, some of these game-like activities (e.g., masking activities and game-like activities such as "Hangman") gave the student needed opportunities to concentrate on the orthographic features of the words. The need of some students for explicit practice highlighting these features has been established (e.g., see Mason, 1984; Montgomery, 1977).
In summary, in regard to cognitive factors, while previous reading instruction had proved decidedly unsuccessful in fostering word learning—and, therefore, literacy—for this severely disabled reader, in contrast, she did increase her word knowledge through the present program. This likely resulted, in part, from the use of predictable patterns which allowed repeated opportunities for developing the awareness of distinguishing features of words. In addition, the many exposures to words and the opportunities to examine their orthography permitted her to remember these features. One other instructional factor should be noted. While there was evidence from the Heathington Scale (see Chapter 3) and notes of communications between the researcher and the classroom teacher (see Chapter 2) that this disabled reader was reluctant to read on her own, she was willing to make the effort required for learning to read when in a highly supported situation such as the one-to-one tutoring provided in this study. Anania (1982) and Wasik and Slavin (1993) found substantial differences in learning in favor of students who received one-to-one tutoring as compared with those who received conventional group instruction, especially for those with learning delays. According to Johnston and
Allington (1991) one-to-one tutoring provides a number of elements that aid learning for reading disabled students. It allows: (a) instruction to match exactly the needs of the student, (b) immediate feedback, and (c) instruction to be designed around the strengths, weakness, and interests of the student. In addition, one-to-one tutoring has been shown to allow more opportunities for response (Greenwood, Delquadri, & Hall, 1984) and easier monitoring of time on task (Rosenshine, 1980). In Table 36 and in the researcher's observation notes (see Appendices N, O, and P for samples) there are numerous references to the student's willingness in such situations to persevere with difficult reading tasks and her attention to and active participation in the reading tasks.

Important, too, in accounting for the student's successes are certain affective elements. The use of a variety of enjoyable predictable books and game-like activities seemed to provide motivation for reading. Their effectiveness for this purpose has often been suggested in the literature (Chang & Watson, 1988; Downhower & Brown, 1992; Leu, DeGroff, & Simons, 1986; Ryan, Short, & Weed, 1986) --and, specifically, Table 48 discussed in Chapter 3, and the experimenter's observation notes (found in Appendices Q, R, & S)
attest to their effectiveness in this way with this student.

Certain attitudes and responses of the student and the support and cooperation of the child's parents, also seemed to contribute to her progress. The perfect attendance of the student over the course of the study, even meeting with the researcher when she had a cold and did not attend school, was evidence of the student's eagerness to participate and her parent's level of commitment to the project. In addition, the audiotapes of each session reflect the pleasant attitude and easy manner of the subject during sessions, including her willingness to participate in the planned reading activities.

In regard to the question of imageability and grammatical function as factors in the nonreader's word learning, in general it appeared that other factors were implicated more strongly. Examination of Tables 14 and 15 in Chapter 3, indicate a lack of consistency in degree of imageability as a factor related to word learning. Results on the posttest suggested a modest advantage for learning the high imageability words over the medium and low imageability words. It is notable, however, that there was an advantage for recognizing low-imageability words over medium imageability words,
in the post- and maintenance test conditions. This may be explained by the fact that many of the low-imageability words were function words that the child may have met frequently before the study, and although unknown to her on the pretest, still found to be easier to learn than the less frequently encountered medium imageability words. Also, in contrast to results on the post- and maintenance B tests, the maintenance A test did not show superior recognition for high-imageability words, but instead the more frequently encountered low-imageability words showed superior recognition in this test condition. A factor that appears from this analysis to have affected word learning more strongly than did level of imageability seems to be word frequency. This subject was a beginning reader with a very limited word recognition vocabulary. Research has shown that such individuals require many exposures to words for word learning to occur. The procedures used in this study provided the numerous exposures needed for word learning by affording many opportunities for practice in a variety of contexts.

Grammatical function also appeared to be less important than some other factors in this subject's word learning. Most importantly, the numerous
exposures to the words provided by the procedures used in this study probably contributed more to word learning than the grammatical function of the words. Gough (1984) and Stanovich (1984) cite a number of studies that have shown the importance of frequency to word learning. In addition, research by Gates (1931) and McCormick (1994) indicates that students having reading difficulties require more than the usual number of exposures for word learning.

In order of difficulty, the pronouns, nouns, adverbs, and adjectives in this study were found to be moderately easier to learn than the prepositions and verbs (including verbal nouns) for this student. However, these findings may be partly explained by the relatively high level of imageability of many of the nouns (e.g., butterfly, boy, bed, cake) and adjectives (e.g., black, brown,) included in the target words and the frequency of appearance of many of the pronouns (e.g., his, him, this, your) and adverbs (no, not, out) in written materials the subject was exposed to in this study. A number of the verbs, however, were either similar in orthography and, therefore somewhat confusable (e.g., said, seen, saw, send) or relatively unfamiliar (e.g., bellowing, galloped, growling). Half of the six prepositions were recognized. Those that
were not recognized included such function words as of, at, and like. There is evidence in the literature that low imageability/abstract words such as these, are more difficult to learn. Again, however, as in the case of imageability, word frequency (the numerous exposures through varied practice) seemed to be a more important factor than grammatical function in determining word learning for this beginning reader. In addition, one other factor that appears to have affected word learning results for the analysis based on grammatical function was the small number of words in the sample (7 pronouns, 22 nouns, 25 verbs, 7 adjectives, 5 adverbs, and 6 prepositions).

**Research Question Two**

Research Question Two stated: "If positive effects are observed for the use of predictable books, and associated instructional procedures, on the word learning of a severely disabled reader, are there differential effects for recognition of words in isolation versus context?" This research question compared posttest results in isolation to posttest results in context. It also compared maintenance A test results in isolation to maintenance A test results in context.
Summary of findings. Chapter 3 reported the results related to Question Two, which also are briefly summarized here. Findings showed that for this second-grade nonreader there were no differences in the number and percentage of different words recognized on the posttests for words in isolation versus words in context. In addition, to account for partial knowledge of different words, comparisons for isolation and context in the posttest condition were undertaken; there were no significant differences for this comparison.

Results for Question 2 show that the differences in favor of the number and percentage of occurrences recognized for the posttest in context over the posttest in isolation were not statistically significant. In addition, a mean level of knowledge for occurrences was obtained for the posttest in context and the posttest in isolation. A fixed-effect meta-analysis showed no significant differences for these conditions. A multiple logit analysis also showed that differences between these two tests were not statistically significant for occurrences.

For the maintenance A tests (context versus isolation) a logit analysis found no significant differences for the number/percentage of different
words correct (known/unknown). When partial knowledge was taken into account, results were conflicting—although the t-test based on one sample indicated an advantage for contextual recognition of different words, the fixed-effect meta-analysis based on 100 samples showed no statistically significant differences between recognition in context versus isolation.

When occurrences were examined, a logit analysis did show statistically significant differences in favor of the number and percentage of occurrences recognized on the maintenance A test for words in context versus those in isolation. Also, for the maintenance A tests (context versus isolation), there were conflicting results for occurrences when partial knowledge was included in the analysis. Although the multiple logit analysis based on one sample showed a statistically significant increase in the mean level of knowledge of occurrences in favor of the test in context as compared to the test in isolation, the meta-analysis based on 100 samples showed no statistically significant difference for this comparison.

Discussion of findings. Taken together, the majority of these analyses indicated no statistical differences between recognition of the target words at the end of the study, whether they were presented in
isolation or in context--this was the case in 9 out of 12 analyses.

In regard to the analyses where there was an exception to this finding, several explanations may be plausible. In relation to the conflicting findings for different words recognized versus occurrences recognized in the maintenance A test, the advantage found for context over isolation for occurrences, but not for different words may be a result of: (a) the larger sample of occurrences than different words, (b) whether the particular words that were repeated (those with multiple occurrences) were known or unknown, and (c) the increased number of opportunities to retrieve a word because of repetitions.

Furthermore, the superiority of words in context for occurrences, but not for different words on the maintenance A Test may also be partly a function of the method of counting known versus unknown words in these two types of analyses. That is, in the analysis for different words, for a word to count as known all responses to the word required recognition. However, in the analysis for occurrences, any single response to the word that showed recognition was counted. For example, in the analysis for different words on a given test the word his appeared 5 times. The student was
required to recognize the word every time for the word to be scored as one known word. If the student did not recognize the word on any one of the five responses she received a zero for the word his, regardless of any correct responses to that word. However, in the analysis for occurrences each of the five responses to the word counted separately, so that if the student recognized his three of the five times it occurred she received a score of three.

In relation to the conflicting findings for different words when partial knowledge was included in the analysis (i.e., the t-test versus the fixed-effect meta-analysis) although the t-test based on one sample indicated an advantage for contextual recognition of different words in the maintenance A test, the fixed-effect meta-analysis based on 100 samples showed no statistical differences between recognition in context versus isolation for this time of testing. Differences in results for the t-test and the fixed-effect meta-analyses, may be a function of the particular samples selected in performing these analyses--since only one sample was analyzed for the t-tests.

Similarly, when occurrences were examined, there were also conflicting results when partial knowledge was accounted for in the analyses. Although the
multiple logit analysis based on one sample showed an advantage for context over isolation in the maintenance A test, the fixed-effect meta-analysis based on 100 samples did not. Again, the particular single sample selected in performing the multiple logit analysis may have been skewed.

One possible explanation for the statistically significant advantage found for context over isolation for the t-test, but not for the logit analysis for different words in the maintenance A test condition, is that when a student has only partial knowledge of a word, use of context may come into play in more powerful ways than when the word is known (i.e., instantly recognized). For example, context cues may be used in self-correction.

Finally, the differential results for context over isolation for occurrences in the maintenance A test versus those results for the posttest may be a function of the particular stories used in the contextual measures. It was not possible to make the stories precisely equivalent in terms of syntactic structure, length, and supportiveness of other words surrounding the target words and still maintain "natural" sounding text. For example, the posttest stories, over all, were slightly longer than the maintenance A test stories.
It is always possible that these variables may have contributed to the conflicting findings in these three outlier cases.

The advantage for recognition of occurrences presented in context over those presented in isolation for the maintenance A test, is similar to earlier findings in the literature (Stanovich, 1981; Stanovich & West, 1981; Stanovich & West, 1983). These researchers found that words in context were more easily recognized than were words in isolation because of cues provided in the text.

However, the evidence in the literature concerning the effects of context versus isolation for word recognition is mixed. Most research shows a tendency for younger and poorer readers, like the subject of this study, to rely more on context than orthographic cues for word recognition (Alington & Strange, 1977; Ehrlich, 1981; Nicholson, 1991; Rayner & Kaiser, 1975; Schwartz & Stanovich, 1981; Strange, 1979). This would suggest that context facilitates word recognition for these readers. In a study using predictable text Leu, DeGroff, and Simons (1986) showed greater context use for word recognition as reading ability decreased. In a study by Kim and Goetz (1994) orthographic cues took precedence for both good and poor readers, although,
contextual and orthographic cues were used in the word recognition process. There was, however, evidence that good readers rely more on orthographic information than do poor readers and that poor readers rely more on contextual information than do good readers. These researchers suggest that the word recognition process can be influenced by text difficulty. They found that for good readers, use of orthographic cues rose when text difficulty increased and contextual information was limited. This study generally supports the interactive-compensatory hypothesis, while highlighting the complexity of the use of context versus orthographic cues in the reading process.

In summary, results show that for three comparisons the recognition of words was better in context than in isolation. This advantage for context may be attributed to the fact that context is known to facilitate recognition, especially for younger, poorer readers (e.g., Perfetti, 1985; Stanovich, 1986), like the subject of this study. In addition, the superior results for occurrences presented in context over occurrences presented in isolation in the maintenance A tests, but not in the posttests, may be partly a function of the particular stories used in the two contextual measures. Finally, contrasting results for
different words versus occurrences may be attributable to the differences discussed earlier (e.g., sample size, the particular words that were repeated, which words were known, differential opportunities to retrieve a word, and scoring differences).

Research Question Three

Research Question Three asked: “If positive effects on word learning are observed for the use of predictable books and associated procedures, are these effects maintained after a 4-week period following termination of the study? Are these effects maintained after a 6-week period following termination of the study?” This research question assessed the effect of using predictable books on word recognition in isolation and in context from posttests to maintenance A tests and in isolation from maintenance A test to maintenance B test.

Summary of findings. As indicated in Chapter 3, not only was there significant word learning from pretest to posttest for words in isolation, but also these statistically significant results were maintained when pretest results were compared with the maintenance A test. Perhaps even more important, however, the student maintained learning from the posttests to the maintenance tests. Results related to Question Three
are presented in Chapter 3 and briefly summarized here.

Inspection of the data for different words in isolation, shows that learning was maintained at least 4 weeks after instruction. A fixed-effect meta-analysis indicated that there were no statistically significant differences for the comparison involving the posttest and maintenance A test. A paired t-test confirmed this finding.

Results on the posttest and maintenance A test (words presented in isolation) also show that the number and percentage of occurrences recognized (known) was maintained at least 4 weeks after the end of instruction. Unbiased mean levels of word knowledge (accounting for partial knowledge) showed there was no deterioration in word knowledge from the post- to the maintenance A test (for occurrences presented in isolation).

For words presented in context, recognition of different words was also maintained 4 weeks after the end of instruction. Moreover, there was a modest increase from posttest to maintenance A test. Unbiased mean levels of word knowledge (including the effects of partial knowledge) were also obtained for the post- and maintenance A tests (for different words presented in context). There were no significant differences for
this comparison.

In addition, data were obtained comparing occurrences presented in context. Results on the posttest and maintenance A test showed that the number and percentage of occurrences recognized (known) was maintained at least 4 weeks after the end of instruction. Unbiased mean levels of word knowledge (including partial knowledge) also were obtained, showing no deterioration in word knowledge from the post- to the maintenance A test.

Inspection of the data shows that there was a modest decrease in the number and percentage of different words recognized for the maintenance A and the maintenance B tests (for words in isolation), the decrease was not statistically significant. Unbiased mean levels of word knowledge (including the effects of partial knowledge) were also obtained for the maintenance A and the maintenance B tests for different words presented in isolation; no significant differences were found.

Results comparing occurrences recognized on the maintenance A versus the maintenance B tests (for words presented in isolation) showed that there was no difference in the number and percentage of occurrences recognized (known). The maintenance B test was given 6
weeks after the end of instruction; only the more stringent measure consisting of words presented in isolation was administered at that time. There was no statistically significant difference in correct responses for the maintenance A versus the maintenance B test. Unbiased mean levels of word knowledge (accounting for partial knowledge) showed no deterioration in knowledge from the maintenance A to the maintenance B test.

Discussion of findings. Retention of word learning was demonstrated, for the subject of this investigation, at least 6 weeks after the end of instruction for words presented in isolation and at least 4 weeks after the end of instruction for words presented in context.

Many of the factors discussed as influencing initial learning in relation to results for Question 1 also affect long term retention. Maintenance results obtained in the present study may, then, be partly attributed to several of these factors: (a) the amount of practice provided during the study; (b) the large number of exposures to the words; and (c) the attention given to the internal features of words through masking activities and game-like activities.
Spaced practice is an additional factor affecting retention not previously discussed. The weekly review of all target words from previous focus books provided spaced practice (see procedures listed for Day 1 in Chapter 2). There is support in the literature for the benefits of spaced practice for long-term retention in laboratory studies. For example, Melton (1970) found that in addition to repetition ensuring better recall of words than single presentations, recall probability was also dependent on the "distribution" effect. That is, performance was better if other items separate the occurrences of the repeated word. In fact, the greater the "lag" (i.e., the number of items between repetitions of the word), the greater was the probability of its being retained in memory.

The increase in retention with the repetition of words and where there is greater lag between items has been attributed to: (a) the increased opportunity for consolidation of the activity trace into long-term memory when the word is repeated (see Landauer, 1969) and (b) the increase in total rehearsal time between presentations (see Atkinson & Shiffrin, 1968).

Landauer (1969) states that currently it is thought that experience is first represented in reverberatory form and later transformed into a
permanent form. In the first process, neural reverberation (i.e., the activity trace) decays steadily and the subsequent repetitions of the experience reset the consolidation process as though the earlier experience had never occurred. This allows for more total consolidation activity for distributed practice than for practice that is massed. The consolidation process is thought to be an involuntary and unconscious procedure by most researchers and the increased total processing involved in the repetitions is thought to increase long-term storage strength. The "rehearsal" hypothesis formulated by Atkinson and Shiffrin (1968) suggests that there is more total rehearsal time for an item that is repeated when the lag (number of items) between repeated presentations of an item is greater. This benefit has been attributed to an increase in differential processing during long lags as compared to short lags. The rehearsal process is conceived to be voluntary rather than involuntary.

Finally, "encoding variability" (Madigan, 1969; Melton, 1970) increases the chances for retrieving a word that has been encoded. For example, if a word has occurred in two contexts, and, therefore, two routes exist for its retrieval, it is more likely to be
retrieved than if it has occurred only in one. Spaced repetitions increase the probability of more than one encoding context and consequently the probability of long-term recall.

These laboratory findings have important implications for instructional practice, indicating an advantage for distributed or spaced practice, such as that included in this study, where long-term retention is the goal.

Research Question Four

Research Question Four stated: "How many exposures to words are required by a nonreader for word learning, as assessed by cumulative recording?" This research question assessed the number of exposures needed for initial learning to take place and for maintenance of learning 6 weeks after the end of instruction (as measured by the maintenance B test score).

Summary of findings. Results for Question Four show that on the average, for the 72 different target words, 33 exposures were required for initial word learning in isolation. For the different target words recognized 6-weeks after instruction, the average number of exposures for initial learning was 28. "Initial word learning," as a predictor of maintenance
(i.e., retention) was defined as the number of exposures for initial learning to take place as measured by cumulative recording—the experimenter’s records indicated the first time the child recognized the word and the number of previous exposures.

In a multiple regression analysis, initial learning was the best predictor of maintenance 6-weeks after the end of instruction, but was negatively correlated with it; that is, the fewer the number of exposures needed for initial learning of a particular word, the higher was the average word recognition score (across occurrences) on the maintenance B test for that word. Total number of exposures, the number of exposures during the 3-day instructional period focusing on each of the books and any additional exposures during work on any other focus book through the end of the study, was also a significant predictor of maintenance and positively correlated with it. Directed instruction (i.e., exposures only during the 3-day instructional period for a particular focus book and the target words associated with that book), surprisingly, was not a significant predictor of maintenance.

Discussion of findings. The data showing that, on the average, 33 exposures were required for initial
word recognition in isolation are closely consistent with a classic study by Gates (1931) in which he documented that children with average intelligence, like the subject of the present study, required an average of about 35 exposures to a word for learning to take place. (It should be noted, however, that as stated in the discussion related to Question One, the level of abstraction and the similarity to other words may affect the average number of exposures required for learning a particular word.) Interestingly, even fewer initial exposures were needed—28, on average, for initial learning of those words that were maintained 6 weeks after the end of instruction.

Results of the multiple regression showed that initial learning was the best predictor of maintenance and was negatively correlated with it (indicating that the fewer the number of exposures needed for initial learning, the higher was the maintenance B test score). These results suggest that those words that were easiest for the child to learn were more likely to be maintained. One possible explanation for this might be that, though unknown in terms of immediate and reliable recognition, these words may have been more familiar to the child before the onset of the study and thus, as they were easier to learn, they also were easier to
remember.

The literature related to incremental learning theory and thresholds of learning is pertinent to this explanation for why some words were easier to learn and why these same words were easier to remember, as well. Research by Postman (1962) suggests that learning is gradual and that as study time increases, more and more is learned about an item. That is, new knowledge is added to old knowledge as study time is added. There is a threshold, or level of knowledge, that must be exceeded for knowledge to be detected (i.e., the probability of a correct response depends on the amount of knowledge at any given time). Until knowledge is firmly internalized so that there is automatic recognition without conscious thought, knowledge fluctuates and an item may or may not be remembered from time to time. However, as the amount of practice goes up, the current amount of knowledge also increases, and with it, the likelihood that it will be remembered on any occasion. In addition, the more that is known about an item, the less information that will have to be added to recall it.

This contrasts with older "all or none" learning theories where it was hypothesized that a learner either knew information or did not (Rock, 1957; Estes,
1960). Incremental learning theory, however, suggests that we may view learning as falling into 3 areas: 
(a) below a threshold where learning is demonstrable ranging from no knowledge to some, but in all cases level of knowledge is low; (b) somewhat above the threshold where learning is demonstrable (a "gray area" where knowledge is sometimes demonstrable, exceeding the level needed for detection, but can change from time to time—sometimes falling below the level where it can be detected); and (c) firmly above a threshold where learning is demonstrable (where though knowledge states still vary from moment to moment, they always remain above a threshold at which knowledge can be detected).

In the case of word learning, children may already have some knowledge about certain words that have frequently occurred in the oral language they use and that have appeared in the texts to which they have been exposed. These words about which the child has some knowledge because of repeated exposures, though still below the threshold where learning can be detected, will require less additional information to move above the threshold where knowledge can be detected than other words for which there have been fewer or no such previous experiences.
In regard to the subject of the present study, it seems probable that she missed some words on the pretest because they had not reached the threshold where learning is demonstrable—that is, they were not at the stage where she was able to give any visible demonstration of knowledge. However, other words missed on the pretest may have been above her threshold of learning, but only slightly. That is, they were in that gray area of phase b (see above) where even though she was able at times to give a visible demonstration of knowledge, her recognition of the word was not dependable. Sometimes she knew the words and sometimes she did not—and on the pretest she did not. For this second category of words that were in the phase b stage, slightly above her threshold of learning, it would be logical that it took fewer exposures for these words to become solidified in her automatic recognition. These words also would be more likely to be maintained because after the exposures provided in the study they may have been above the phase b stage and, therefore, were solidified in her recognition and were remembered. The first category of words, however, where she had been well below her threshold of learning may, after the exposures provided in the study, have somewhat exceeded the threshold for detection, but
still may have been in the phase of stage and thus not
maintained.

In further examining the results of the multiple regression analysis, the significant effects for total number of exposures in relation to maintenance of words learned was not particularly surprising. This result may be explained by the amount of time that passed between the end of directed instruction for each word and the end of the study. During this time there were additional exposures to the words, during weekly reviews and incidental occurrences of the words in new focus books, that may also have contributed to the subject's recognition of the words. In his classic book, Huey (1908/1968) states:

Perceiving being an act, it is, like all other things that we do, performed more easily with each repetition of the act. To perceive an entirely new word or other combination of strokes requires considerable time, close attention, and it is likely to be imperfectly done, just as when we attempt some new combination of movements, some new trick in the gymnasium or new “serve” at tennis. In either case repetition progressively frees the mind from attention to details, makes facile the total act, shortens the time, and reduces the extent to which consciousness must concern itself with the process. (p.104)

More recent research confirms Huey’s views and suggests that frequency is one of the most important variables in word recognition (Gough, 1984).
While on the face of it, the absence of significant effects for directed instruction as a predictor of maintenance seems surprising, this fact, however, may be attributed to the fact that the variable defined as initial learning was also already a part of the variable defined as directed instruction. After initial learning occurred, any additional instruction during the 3 days of directed instruction contributed only 1% of the variance, a small contribution, making little difference to maintenance. That is, since the child now knew the word after a given number of initial exposures during directed instruction, additional exposures added a minimal amount to the total variance.

In interpreting the results of the multiple regression analysis, it should be remembered that in Chapter 3, caution was advised because of the small amount of variance (10%) totally accounted for by the three variables (initial learning, directed instruction, and total number of exposures). That is, other variables that might account for the remaining 90% of the variance of average word recognition scores on the maintenance B test were not examined in the regression analysis (e.g., previous exposures to the word before onset of the study, whether the particular
subject had a well-developed concept of the word, whether the word was of interest to the subject, whether similar words were presented in the same learning set, or other possible factors—or various combinations of these). An additional reason for caution in interpreting the results of the multiple regression analysis is because the data employed were not normally distributed, likely because a single subject was involved in the study.

Research Question Five

Research Question Five asked: "What effect does the use of predictable books for instruction have on the affective responses of a second-grade nonreader, as assessed by a self-report reading attitude scale, an observation checklist, and experimenter anecdotal notes?"

Summary of findings. Results for the Heathington Primary Scale (Heathington, 1975) show a gradual increase in positive attitude toward reading over the three test periods (pre-, post-, and maintenance). Percentile ranks of 21, 38, and 50, respectively, show performance to be below average for the first two tests and average for the last. However, equivalent linear T-scores (computed from the mean and standard deviation of Heathington's sample population) showed there were
no statistically significant increases in positive attitude toward reading between testing periods.

Clusters of items have been suggested by Heathington that identify specific areas of a child's reading environment for which he/she may have positive or negative feelings. At pretest two areas had mean ratings below neutral (Reading at Home and Other Recreational Reading). However, at post- and maintenance tests, no areas had mean ratings below neutral.

Results on the Heathington and Alexander Reading Observation Checklist completed by the researcher tended to support some of the findings on the Heathington Primary Scale. Specifically, results show the child's relatively positive attitude toward reading in supported, classroom or tutoring situations and her less positive attitude toward reading outside the school setting where less support is available (e.g., at the library and in her spare time at home).

Experimental anecdotal notes showed that the student exhibited a number of affective behaviors, which may positively affect reading, on one or more days for most of the 10 books. These behaviors included: (a) her enthusiastic participation in game-like activities, (b) her persistence when performing
difficult tasks, (c) her interest in and careful examination of illustrations and text, (d) her consistent volunteering of information related to the books, (e) her confident participation in the reading of text, and (f) her enjoyment of writing and illustrating innovated stories. In addition, certain behaviors which may negatively affect reading were seldom exhibited. These included being tired or fidgety and off task during sessions, as well as demonstrating resistance to activities.

**Discussion of findings.** The lack of a statistically significant increase in positive attitudes toward reading over the course of the study may be attributed to the subject’s relatively positive attitude toward some areas of reading, despite her serious reading difficulties. These positive attitudes seemed to be in place even before the study was initiated, as evidenced by the subject’s responses on the Heatonington Primary Scale (Pretest) which indicated a positive attitude (happy/very happy) for 50% of the items on the scale.

Additional evidence of the student’s relatively positive attitude toward reading before the onset of the study is provided by comments made by her teachers and by her parents as indicated in Chapter Two of this
report. Though her classroom teacher stated that the student appeared to be intimidated by reading when in the regular classroom and merely looked at the pictures in books during independent reading time, two other teachers in the school who provided reading instruction for her (a special reading teacher and another classroom teacher) reported that she tried hard and participated eagerly in reading activities. Her tutor while attending a university-based reading clinic concurred with the latter view. Her parents also, stated that she enjoyed books and being read to and tried to read on her own when she was with them.

Those modest increases in positive attitude toward reading that were seen may have resulted from the use of certain types of books and activities during the study. The use of predictable literature and game-like activities designed to provide opportunities for success, indeed, gave the student numerous chances to succeed, thereby likely increasing her confidence in her ability to learn to read, as well as her enjoyment of reading activities. Research has shown that the use of predictable literature may increase enjoyment for poor readers because: (a) the repetition employed in the text gives the child an opportunity to succeed in recognizing words and (b) this literature often
consists of appealing books using natural language (Bridge, Winograd, & Haley, 1983; Chandler & Baghban, 1986; Leu, DeGroff, & Simons, 1986; Moore, 1990; Reutzel & Fawson, 1989,1990). (Because the procedures implemented in this study required repeated reading of the books, there was a question as to whether boredom would set in; however, this student did not demonstrate any resistance to or boredom with the repeated readings.) Game-like activities, like those employed in the study, also have been found to be motivating for children (e.g., Slaughter, 1993).

Research by Nielson (1978) also suggested that to keep low-achieving students from avoiding reading, programs need to foster positive reading experiences. In Nielson's study, the reading materials were chosen and all activities, including those for assessment, were designed to provide such opportunities. For example, as in the present investigation:
(a) repetitive language in books provided opportunities to recognize many of the words, (b) the limited number of target words during any given instructional period aided learning, and (c) the inclusion of known words in all game-like activities and assessments insured opportunities for success. These same types of opportunities may be responsible for the modest
increase in positive attitude toward reading that the student in the present study did achieve.

Finally, results of the present study showed the student's relatively positive attitude toward reading in supported, classroom- or tutoring-type situations and her less positive attitude toward reading in less supported situations (e.g., at the library and in her spare time at home). As a reader with limited word recognition and word identification skills, it is not surprising that reading is not usually her activity of choice in unsupported situations. While on the other hand, in one-to-one situations she functioned quite well. The support provided by one-to-one tutoring and its benefits for reading disabled students have been well documented (Anania, 1982; Burke, 1984; Johnston & Allington, 1991; Wasik & Slavin, 1993).

Limitations of the Study

The following limitations should be considered when interpreting the results of this study. First, effects of the extraneous variable history (Campbell & Stanley, 1963) represent a possible confound since there was no control for the effects of the subject's instruction in school during the course of this study. However, it should be noted that past
school instruction had produced little progress in the area of reading. In addition, because the study involved a single subject, results should not be assumed to generalize to other students until replications are undertaken to investigate this possibility. Additionally, no comparison was made between the method that was successfully used here and other potential methods for achieving these ends. Finally, the contextual assessments may constitute a limitation. The stories used for these assessments were locally developed. While checked by two judges in addition to the researcher to determine if they met the pre-established criteria (e.g., natural language structures, inclusion of all target words across the stories, etc.), there was no pilot study to determine their reliability and validity.

Contributions to Research in Reading

There is exceedingly little research addressing the instructional needs of nonreaders. The present investigation is a foundational study that provides insights into the possible value of one method of instruction with students similar to the subject of this investigation—those with severe reading difficulties. In addition, although there are a number
of studies with beginning readers of average achievement suggesting the efficacy of using predictable books (and procedures commonly suggested for use with them), there are only a few studies related to the use of predictable books for increasing word recognition for learners having literacy problems.

Suggestions for Future Research

A number of suggestions for future research emerge as a result of the present study. This descriptive study, involving one nonreader, should be followed with, both, replication of the study with other nonreaders under case study or single-subject experimental research paradigms, and with experimental research involving groups thus allowing for generalization of results.

In addition, research might be undertaken to identify other populations such as learning disabled or mildly retarded students to determine if they might benefit from the particular characteristics of predictable books in their reading instruction.

Also, it would be valuable to determine the most effective instructional methods to use with these books. For example, the relative contributions of instructional methods, involving authentic text
experiences and contextual exposure, such as previewing, predicting, shared reading, choral reading, assisted reading, silent reading following a tape, visual cloze activities, and innovating on text could be explored. The comparative value of such follow-up activities as masking, various game-like activities using words in isolation and requiring the student to attend to graphic cues/internal features of words could also be examined. In addition, more research is needed to determine the amount and type of practice (e.g., the number of exposures needed to recognize and maintain a word; the relative amounts of isolated versus contextual practice) needed to increase word recognition of beginning and disabled readers. If research was more clear concerning these issues, students might be less likely to be short-changed by inadequate methods of instruction.

Finally, although low motivation proved not to be a factor with this subject, more research is needed to identify the particular factors related to the development of positive attitudes toward reading in disabled readers. Research has shown that students, such as nonreaders, who have repeatedly experienced failure in reading have severe problems with motivation (Ignoffo, 1993-94) and often adopt an attitude of
"learned helplessness" (Dweck & Goetz, 1978), believing there is nothing they can do to become successful readers. Research by Covington and Omelich (1979) and Wigfield and Asher (1984), however, has shown that such negative attitudes can be overcome if the learning environment provides the student with opportunities for success and a sense of the value of a successful outcome. Methods for shaping instructional environments to change these negative attitudes and promote positive attitudes should be investigated.

There is a great need for studies involving instructional methods for learners having literacy problems and particularly that small minority of nonreaders who have been so neglected in research. It is hoped that this study will provide one foundation for such research.

Summary of Chapter

This chapter presented a discussion of the findings for each of the five research questions addressed in the present study. A number of factors were proposed as contributors to the results reported in Chapter 3. These included: (a) the use of predictable books with repetitive, natural language patterns and predictable plots, (b) the use of
procedures that provided opportunities to successfully practice target words both in isolation and in context, (c) many exposures to the target words, (d) opportunities to focus on the orthographic features of the target words, (e) the highly supportive one-to-one tutoring situation, (f) the use of enjoyable predictable literature and game-like activities, (g) the student's relatively positive attitude toward reading, and (h) the limited number of target words. This chapter also outlined limitations of the study and a brief statement of both the contributions of this investigation to research in reading and suggestions for future research were presented.

Summary of the Dissertation

Purpose and Methods

The present study explored the cognitive and affective effects of using predictable books. Specifically, it provided data on the word learning and affective responses of one second-grade nonreader when instructional procedures typically used with predictable books to facilitate early word learning were employed. A descriptive study was implemented focusing on a single subject with a severe reading delay, using case study methodologies accompanied by
some quantitative and statistical analyses. Data collection included audiotapes and observational notes, as well as pretests, posttests, and maintenance tests for both cognitive and affective responses. The data were analyzed both descriptively and inferentially, and were presented in tables, graphs, and observational notes. The dependent variables included six cognitive assessments and four affective assessments.

The subject, from a large metropolitan school district, participated in the investigation over a period of 20 weeks. During the first week the subject and the researcher met on 3 days for 1 hour each day and cognitive and affective pretests were administered at this time. During the following 10-week period the predictable books were introduced, at a rate of one per week, and target words for each book were taught and tested over a 3-day period as described in Chapter 2. In the week following this 10-week period, the cognitive and affective posttests were administered. No sessions occurred for a 4-week period following the posttests. During the fifth week after the posttests, the cognitive and affective maintenance tests were administered. Two more weeks followed with no sessions. In the 20th week the final cognitive maintenance test was administered.
Descriptive cognitive data were analyzed using trend analysis illustrated in graphic and tabular form. In addition, cognitive data were analyzed inferentially using logit, multiple-logit, paired t-tests, t-tests based on a mixed-effects Anova, fixed-effect meta-analyses and step-wise multiple regression analyses. The data yielded information on differences in and stability of word learning from pretest to posttest to maintenance testing periods. Affective data for the self-report Heathington Primary Scale were analyzed using linear standard scores. Data for the Observation Checklist were analyzed and presented in tabular form. Observational notes were organized and presented in a table.

Results

Results related to differences in words recognized in isolation from pretest to posttest indicated for the severely delayed reader in this investigation that (a) there was substantial gain in word learning from pretest to posttest; and (b) frequency of exposure to words affected word learning more than imageability (degree of concreteness) or grammatical function.

Results for words recognized in isolation versus in context showed that while there were no differences
at the end of instruction, word recognition in context was superior to that in isolation 4 weeks after the end of instruction in two out of three statistical analyses.

Results related to stability of learning demonstrated that learning was maintained at least 6 weeks after the end of instruction for words presented in isolation and at least 4 weeks after the end of instruction for words presented in context.

Results regarding the number of exposures required for initial word learning and maintenance of learning indicated that initial learning occurred after an average of 33 exposures to a word. In addition, there was evidence that (a) the fewer the number of exposures required for initial learning the higher was the likelihood of a word being maintained and (b) total number of exposures to a word was positively related to maintenance. However, because of the small amount of variance accounted for by the predictor variables included in the regression analysis used to examine this question, other variables not investigated may also importantly have influenced word retention.

Results related to the affective effects of using predictable books included those obtained on the Heathington Primary Scale and the Heathington and
Alexander Observation Checklist, as well as observations by the experimenter. The student's relatively positive attitude toward reading before the beginning of the study may explain the lack of statistically significant increases in positive attitude obtained for these affective measures. However, the modest increase in positive attitude toward reading that was seen from pretest to posttest, was maintained at least 4 weeks after the end of instruction. In addition, there is evidence of the subject's relatively positive attitude toward reading in supported, classroom or tutoring situations and her less positive attitude toward reading in less supportive reading situations.

Conclusions

The findings of the present study with one second-grade nonreader allow for the following conclusions by this researcher:

1. Word learning can occur for severely reading disabled students such as the subject of this study, given appropriate instruction

2. The natural language and the repetition provided by the use of predictable books, and procedures typically recommended for use with these books, may increase recognition vocabulary for students
with severe reading disabilities.

3. Students with severe reading disabilities, such as the subject of this study may not presently be receiving the kind of intensive help needed to progress in reading and to cope with reading required for other subjects, in the school situation. Group-based reading lessons at school may be geared to materials beyond the present reading capacity of these students and leave them without sufficient support for reading.

4. Severely reading disabled students may benefit from one-to-one "tutoring" situations for reading instruction. This type of instructional situation may allow for (a) a better fit of materials to the student's present level of ability, (b) more opportunities for response and for feedback, and (c) more opportunities for success and, therefore, increased motivation.

5. While imageability of words affects learning, frequency may be a more important factor. Opportunities for meeting target words in both isolation and in context, as well as providing appropriate amounts of practice may increase word learning for severely disabled readers.

The major problem with severely disabled readers is that of gaining entre into initial reading
acquisition. Once this has occurred, as in the word learning program in the present study, a well-balanced reading curriculum is necessary for these readers to continue to progress, as is the case with all learners. Such a curriculum should include numerous opportunities to read and to be read to, introduction to multiple word identification strategies, instruction for increasing knowledge of word meanings, and an emphasis on comprehension of text.

The subject of this investigation showed significant increases in word learning over the course of this study. There are other nonreaders similar to the subject of the present study who may also benefit from the instructional methods used in this research. It is hoped that this investigation will provide a foundation and impetus for future research on the use of these and other instructional methods designed for use with disabled readers.
USING PREDICTABLE BOOKS WITH A NONREADER: COGNITIVE AND AFFECTIVE EFFECTS
Volume II
DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Evelyn Z. Becker, B.A., B.S., M. A.

***

The Ohio State University
1995

Dissertation Committee: Approved by

Dr. Sandra McCormick
Dr. Johanna DeStefano
Dr. Ayres D'Costa

Sandra McCormick
Adviser
Department of Educational Theory and Practice
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APPENDIX A

Cloze Activity
Cloze Activity

Story:  Brown Bear, Brown Bear, What Do You See?

Brown Bear, Brown ____, what do you see?
I see a red bird looking at me.

Yellow Duck, Yellow ____, what do you see?
I see a blue horse looking at me.

Black Sheep, Black ____, what do you see?
I see a goldfish looking at me.

Goldfish, Goldfish, what ____ you see?
I see a teacher looking at me.

Children, Children, what do you see?
We see a ____ bear, and a teacher looking at us.
That's what we see.
APPENDIX B

Sample of an Innovating on Text Chart
Innovating on Text

Original Text:  I Went Walking
I went walking.  What did you see?
I saw a black cat looking at me.
I went walking.  What did you see?
I saw a brown horse looking at me.
...
I went walking.  What did you see?
I saw a red cow looking at me.
I went walking.  What did you see?
I saw a lot of animals following me!

Innovated Text:  I Went Swimming
I went swimming.  What did you see?
I saw a wave splashing on me.
I went swimming.  What did you see?
I saw a crab in the sand by me.
I went swimming.  What did you see?
I saw a big seashell in front of me.
I went swimming.  What did you see?
I saw my mom waving at me.
APPENDIX C

Pretest
Day 1 Pre-test: Words in Isolation

*a *they *kept
duckling this walking
early where what
have at ate
*is *and *he
morning black cake
my did hen
one horse into
*there *just *she
seen looking Mack
you me by
cat of that
*an *too *I
not saw up
jumped were
duckling to to
*it *go *the
at zoo looking
little cat we
we him morning
*go *a *and
his was horse
to going his
were morning little
went so
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<td>walk</td>
</tr>
<tr>
<td>went</td>
<td>sheep</td>
<td>swim</td>
</tr>
<tr>
<td>bear</td>
<td>chick</td>
<td>boy</td>
</tr>
<tr>
<td>*I</td>
<td>*too</td>
<td>*an</td>
</tr>
<tr>
<td>brown</td>
<td>butterfly</td>
<td>can</td>
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<tr>
<td>do</td>
<td>going</td>
<td>good</td>
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<td>duck</td>
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<td>in</td>
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<td>*there</td>
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<td>yellow</td>
<td>for</td>
<td>Spot</td>
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<tr>
<td>we</td>
<td>out</td>
<td>where</td>
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<td>*he</td>
<td>*and</td>
<td>*is</td>
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<td>blue</td>
<td>came</td>
<td>be</td>
</tr>
<tr>
<td>at</td>
<td>zoo</td>
<td>to</td>
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<tr>
<td>pet</td>
<td>bear</td>
<td>was</td>
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<td>*they</td>
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<td>were</td>
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<td>for</td>
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<td>were</td>
<td>was</td>
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<td>to</td>
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Day 3 Pre-test: Words in Isolation

*I I
basket growling
door hear
night children
*he *it *there
dear
zoo
from
to
with
your
to
big
pet
him
*too
send
cat
cake
*said
children
so
*a

*an

to

was

*it *there *an
came

said

zoo Mack
to
APPENDIX D

Sample of a Target Words Occurrences Chart
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<td></td>
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<td>read word and</td>
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<td>Masks/chart</td>
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Day 1

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<td>new focus book/</td>
</tr>
<tr>
<td>read word and</td>
<td>sentence it</td>
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<td>appears in</td>
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Day 2

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Day 3

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APPENDIX E

Sample of a Daily Assessment Form
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APPENDIX F

Daily Assessment Cumulative Record Form
Appendix F

Daily Assessment: Cumulative Record Form

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<th>Day 2</th>
<th>Day 3</th>
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Target Words Known on Daily Posttest
Not Previously Known

Total # Exposures to Word in Books and Activities

Target Words Previously Known, But Unknown on Daily Posttest
APPENDIX G

Posttest
Day 1 Posttest: Words in Isolation

*a
not
not
*is
with
ate
hear
said
*there
little
into
where
all
*an
swim
send
out
hen
*it
chick
his
pet
went
*they
lion
be
brown
sheep
*kept
of
your
can
Spot
*and
jumped
roaring
growling
butterfly
*he
from
were
duck
elephant
*just
seen
have
children
pet
morning
*too
black
his
walk
do
*go
at
were
not
*I
polar
boy
big
this
*the
peacock
his
went
Day 2  Posttest: Words in Isolation

*the  *go  *it

dear  no  came

bellowing  cake  him

early  went  looking

Mack  night  bear

*I  *too  *an

came  that  cake

door  said  went

did  little  said

saw  where  little

*she  *just  *there

taking  all  horse

him  horse  his

good  pet  at

what  his  were

*he  *and  *is

looking  do  came

like  at  him

bear  were  cake

bed  children

*kept  *they  *a

walking  morning  morning

were  duckling  Mack

little  not
One morning I saw a mother duck and a little duckling in my pond. The little duckling was looking at me and I looked at him, too. He was yellow like a lion. Soon, the ducks came out of the water. Where were they going? They were going for a walk. They did not want to swim this morning.

*This keyed copy of the contextual assessment is for examiner use, only, in administering and scoring the test. The student will read from a similar, but unmarked copy.

kw = word known by the student previous to the study
1,2,... = cumulative number of occurrences of the word, to this point
______ = word requiring assistance from the examiner
Mack went to the zoo. He wanted to pet all the animals. As he went walking he could hear the elephant bellowing. The brown bear and the polar bear were growling and roaring. He could see the blue peacock preening. He could not pet the animals.

Then Mack went to the petting zoo. He could pet the horse, the chick, the hen, and the sheep, so he still had fun at the zoo.
The children were looking for their cat. Their big black dog, Spot, looked, too. They asked everyone, "Have you seen our cat? Where could he be?"

"We do not see your dear little cat," everyone said.

"What can we do? We want him to come home with us," said the children. "His bed is empty. Please send him home," they said. Early one morning, their cat came home.
Posttest: Words in Context

A little boy was taking a cake to his grandmother. He put it into a basket and jumped up on his horse. The horse galloped all the way. That night he rode from place to place. When he came to his grandmother's door he was so hungry that he ate the cake by himself. It was so good! Soon no cake was left. So he kissed his grandmother's cheek and went home. On the way home he stopped for awhile to watch a butterfly. When it flew away he went home, too.
Posttest: Words in Context

One morning I saw a mother duck and a little duckling in my pond. The little duckling was looking at me and I looked at him, too. He was yellow like a lion. Soon, the ducks came out of the water. Where were they going? They were going for a walk. They did not want to swim this morning.

* This unmarked copy of the contextual assessment is for student use, only, in administrating the test.
Mack went to the zoo. He wanted to pet all the animals. As he went walking he could hear the elephant bellowing. The brown bear and the polar bear were growling and roaring. He could see the blue peacock preening. He could not pet the animals.

Then Mack went to the petting zoo. He could pet the horse, the chick, the hen, and the sheep, so he still had fun at the zoo.
The children were looking for their cat. Their big black dog, Spot, looked, too. They asked everyone, "Have you seen our cat? Where could he be?"

"We do not see your dear little cat," everyone said.

"What can we do? We want him to come home with us," said the children. "His bed is empty. Please send him home," they said. Early one morning, their cat came home.
A little boy was taking a cake to his grandmother. He put it into a basket and jumped up on his horse. The horse galloped all the way. That night he rode from place to place. When he came to his grandmother's door he was so hungry that he ate the cake by himself. It was so good! Soon no cake was left. So he kissed his grandmother's cheek and went home. On the way home he stopped for awhile to watch a butterfly. When it flew away he went home, too.
APPENDIX H

Maintenance A Test
Day 1: Maintenance A Test
*a
looking
Spot
cake
ate
*is
jumped
little
saw
pet
*there
that
his
lion
no
*an
all
of
black
out
*it
duck
him
were
morning
*kept
bellowing
what
early
send
*and
peacock
brown
did
big
*just
like
with
good
roaring
*too
hear
polar
not
Mack
*go
elephant
said
his
were
went
*I
into
swim
your
basket
night
came
his
little
Day 2: Maintenance A Test

*the  *go  *it
growling  went  him
walk  dear  do
children  chick  bear
galloped  be  said

*I  *too  *an
flew  looking  not
boy  cake  went
him  little  cake
hen  pet  little

*she  *just  *there
can  that  his
do  his  at
door  all  pet
sheep  at  horse

*he  *and  *is
bed  were  duckling
bear  where  Mack
said  horse  *a
came  morning  

*kept  *they
seen  children
went  not
One night Ted went to sleep and dreamed that he was at the zoo. He could hear all the animals. The polar bear was growling. The lion was roaring. The elephant was bellowing. There was a blue peacock and a brown bear, too. Early in the morning he jumped up from his bed. Mother said she was taking him to the zoo!
A little boy went for a walk. As he was walking he saw a mother duck and a little duckling in a pond. He said, "This is a good day to play in the pond. He hopped into the pond, but he couldn't swim. The little duckling and its mother helped him out of the pond. He would not hop in the pond any more. He would not do that again!"
The children went to a farm. There was a yellow hen and a little chick. A black sheep came by. A butterfly flew by. A horse galloped by. The children were happy.
One morning Grandmother said, "I will send a basket to Mack. There will be a surprise in it. He will like it. Mack went on a picnic with his pet dog Spot. He took his dear grandmother's surprise. It was a big cake. He ate it up. What a fine cake! Soon his cake was gone.
Dan and Ann were looking for their horse, Happy. They were looking for him all morning. "Where can he be?" they cried.

"Have you seen our pet?" they asked the mailman. "Do you know where he is?" "No, I did not see your horse," he called. Then their friend Sam came to their door. Happy was at his side.

They looked at Happy. They were so glad to see their pet.
One night Ted went to sleep and dreamed that he was at the zoo. He could hear all the animals. The polar bear was growling. The lion was roaring. The elephant was bellowing. There was a blue peacock and a brown bear, too. Early in the morning he jumped up from his bed. Mother said she was taking him to the zoo!
A little boy went for a walk. As he was walking he saw a mother duck and a little duckling in a pond. He said, "This is a good day to play in the pond. He hopped into the pond, but he couldn't swim. The little duckling and its mother helped him out of the pond. He would not hop in the pond any more. He would not do that again!"
The children went to a farm. There was a yellow hen and a little chick. A black sheep came by. A butterfly flew by. A horse galloped by. The children were happy.
One morning Grandmother said, "I will send a basket to Mack. There will be a surprise in it. He will like it. Mack went on a picnic with his pet dog Spot. He took his dear grandmother's surprise. It was a big cake. He ate it up. What a fine cake! Soon his cake was gone."
Dan and Ann were looking for their horse, Happy. They were looking for him all morning. "Where can he be?" they cried.

"Have you seen our pet?" they asked the mailman. "Do you know where he is?" "No, I did not see your horse," he called. Then their friend Sam came to their door. Happy was at his side. They looked at Happy. They were so glad to see their pet!
APPENDIX I

Maintenance B Test
Day 1 Maintenance B Test: Words in Isolation

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<td>cake</td>
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</tr>
<tr>
<td>that</td>
<td>went</td>
<td>polar</td>
</tr>
<tr>
<td>him</td>
<td>came</td>
<td>horse</td>
</tr>
<tr>
<td>went</td>
<td>do</td>
<td>him</td>
</tr>
<tr>
<td>children</td>
<td>his</td>
<td>went</td>
</tr>
<tr>
<td>his</td>
<td>morning</td>
<td>pet</td>
</tr>
<tr>
<td>not</td>
<td>were</td>
<td>were</td>
</tr>
<tr>
<td>little</td>
<td>said</td>
<td>little</td>
</tr>
<tr>
<td>at</td>
<td>all</td>
<td>bear</td>
</tr>
</tbody>
</table>
Day 2 Maintenance B Test: Words in Isolation

*is
*an
*she
basket
into
at
galloped
did
sheep
*and
a
*kept
bed
like
what
his
looking
all
*they
*the
*there
early
saw
can
boy
dear
Mack
*be
*go
*just
hear
growling
pet
jumped
where
be
*it
*too
*I
morning
of
with
not
send
seen
door
roaring
bear
have
ate
were
horse
duckling
that
cake
cake
went
looking
his
*his
pet
Mack
morning
were
said
not
at
little
where
came
were
APPENDIX J

Letter From IRA Permissions Editor
Permissions Editor  
International Reading Association  
800 Barksdale Road  
P.O. Box 8139  
Newark, DE 19714-8139  

August 6, 1993

Dear Sir or Madam:

I am a doctoral candidate at The Ohio State University. I am writing to request permission to include the Heathington Primary Scale, as it appears in your publication Attitudes and Reading by J. Estill Alexander and Ronald Claude Filler, in my unpublished doctoral dissertation entitled "Using Predictable Books With a Nonreader: Cognitive and Affective Effects." See enclosed pages from your publication.

May I have permission to include the directions for administration, the 20 items of the scale, and a facsimile of the answer sheet? I would appreciate your indicating to whom this request should be sent if it should be directed elsewhere. A release form is provided below, as well as a self-addressed, stamped envelope for your convenience. A copy of this letter is enclosed for your files. Your prompt consideration of this request will be appreciated.

Sincerely,

Evelyn Becker

Evelyn Z. Becker  
3120 Elbern Avenue  
Columbus, OH 43209

---

I (we) grant the permission requested as stated in this letter.

Date 8-11-93  
By [Signature]

Permissions Editor

[Signature]
APPENDIX K

Heathington Primary Scale (Pretest)
Primary Scale: Pretest

How do you feel...

1. when you go to the library?

2. when you read instead of playing outside?

3. when you read a book in free time?

4. when you are in reading group?

5. when you read instead of watching TV?

6. when you read to someone at home?

7. about the stories in your reading book?

8. when you read out loud in class?

9. when you read with a friend after school?

10. when you read stories in books?

11. when you read in a quiet place?
12. when you read a story at bedtime?

13. when it’s time for reading circle (group)?

14. when you read on a trip?

15. when you have lots of books at home?

16. when you read outside when it’s warm?

17. when you read at your desk at school?

18. when you find a book at the library?

19. when you read in your room at home?

20. when you read instead of coloring?
APPENDIX L

Heathington Primary Scale (Posttest)
Primary Scale: Posttest

How do you feel...

1. when you are in reading group?

2. when you read instead of watching TV?

3. when you read stories in books?

4. when you read in your room at home?

5. when you read on a trip?

6. when you find a book at the library?

7. when you read to someone at home?

8. when you read at your desk at school?

9. when you read out loud in class?

10. when you read with a friend after school?

11. when you read instead of playing outside?
12. about the stories in your reading book?

13. when you read instead of coloring?

14. when you read a book in free time?

15. when you have lots of books at home?

16. when you read in a quiet place?

17. when you read a story at bedtime?

18. when you go to the library?

19. when its time for reading circle (group)?

20. when you read outside when it's warm?
APPENDIX M

Heathington Primary Scale (Maintenance Test)
Primary Scale: Maintenance Test

How do you feel ...

1. when you read instead of coloring?

2. when you read in your room at home?

3. when you find a book at the library?

4. when you read at your desk at school?

5. when you read outside when it's warm?

6. when you have lots of books at home?

7. when you read on a trip?

8. when it's time for reading circle (group)?

9. when you read a story at bedtime?

10. when you read in a quiet place?

11. when you read stories in books?
12. when you read with a friend after school?

13. when you read out loud in class?

14. about the stories in your reading book?

15. when you read to someone at home?

16. when you read instead of watching TV?

17. when you are in reading group?

18. when you read a book in free time?

19. when you read instead of playing outside?

20. when you go to the library?
APPENDIX N

Answer Sheet for Heathington Primary Scale (Pretest)
1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

Pretest
APPENDIX O

Answer Sheet for the Heathington
Primary Scale (Posttest)
Posttest
APPENDIX P

Answer Sheet for the Heathington
Primary Scale (Maintenance Test)
APPENDIX Q

Sample of Teacher Observation Form - Book 4
Appendix G

Teacher Observations of Cognitive and Affective Behaviors

Book: The Cake That Mack Ate Day in Cycle: 1

Procedure #

1. Talking about the title, illustrator, author, etc.
2. Predicting.
3. Teacher reads and points
4. Guided Discussion.

Date: 11/9

Cognitive Behaviors and Related Observations

1. The student pointed to the names of the author and the illustrator and explained what each did.

2. The student predicted from looking at the pictures that the story involved someone's birthday—probably Mack's. She also knew the story took place on a farm and recognized and named corn plants and farm animals (e.g., the hen), pictured.

3. The student followed the text as the teacher read, only after being reminded to do so.

4. The student remembered her predictions and knew after hearing the story that they were correct.

Affective Behaviors and Related Observations

1. The student repeated the names of the author and the illustrator, without being prompted to do so, as I read them to her.

3. The student initially had to be reminded to follow the text. She was eating a snack and this distracted her, somewhat.

4. The student showed confidence in the correctness of her predictions, answering without hesitation. She was able to recount her predictions and show the teacher where in the book there was proof to support her.
Appendix Q (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: The Cake That Mack Ate  Day in Cycle: 1
Procedure #

5. Locating previous target words in the new book.
6. Engaging in a game-like activity using the target words in isolation.
7. Shared reading activity.

Date: 11/9

Cognitive Behaviors and Related Observations

5. The student recognized all target words from the previous book except the word of when presented in isolation. She hesitated on the word did, but figured it out. None of the words were in the current book.

6. The student noted that the main character in the book, Mack, was pictured on the bingo cards. She had difficulty figuring out the word that and the words was and went were not recognized. She glanced at the book cover (lying nearby) to aid in recognizing the words cake and ate.

7. The student followed the text and was able to fill in the words when I paused.

Affective Behaviors and Related Observations

6. The student looked carefully for the words and showed enjoyment as she played, smiling and giggling.

7. As we read, the student said in an excited tone of voice, "I understand what you're doing!—referring to my pausing for her to fill in some of the words. Her excited tone of voice indicated that she was pleased with herself for figuring this out.
Appendix Q (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: The Cake That Mack Ate Day in Cycle: 1

Procedure #

8. Engaging in a game-like activity (Concentration) using target words in isolation.

Date: 11/3

Cognitive Behaviors and Related Observations

8. The student self-corrected on the word into, first saying onto. She did not recognize the word was the first time it appeared in the "game", but did recognize it the second time. She remembered if a word had appeared previously and could locate it.

9. The student did not recognize the word went the first time she encountered it as a missing word. She was able to figure out seed, first saying saw, then see, and finally seed. She appeared to depend on memorizing the text, plus using first letter sounds to figure out missing words. For example, she would go back to reread the sentence when unsure of a word that was missing or that she did not recognize and correct herself if she had guessed a word that begins with a different initial letter.

Affective Behaviors and Related Observations

8. The student enthusiastically attended to the game, giggling happily as she found each pair of words.

9. The student stayed with the task in spite of the fact that it was difficult for her.
Appendix Q (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: The Cake That Mack Ate Day in Cycle: 1

Procedure #


Date: 11/9

Cognitive Behaviors and Related Observations

10. The student self-corrected on the word *that* and identified the word *went*. She recognized all other target words within 3 seconds.

Affective Behaviors and Related Observations

10. The student appeared to enjoy the game-like activity, smiling and giggling as she played, and responding quickly and confidently.
Appendix Q (continued)
Teacher Observations of Cognitive and Affective Behaviors

Book: The Cake That Mack Ate  Day in Cycle:  2

Procedure #

1. Choral reading.
2. Engaging in a game-like activity using target words in isolation.

Date: 11/11

Cognitive Behaviors and Related Observations

1. While reviewing the story before the choral reading from the chart, the student remarked that on each succeeding page the sentence increased in length; and, that at the end of the story, the words all came together to make a little story. This was a pretty good description of a cumulative story such as this one. The student also remembered the major elements of the story (e.g., the hen that laid the egg that went into the cake, etc.). She also remembered the farmer and his wife when asked about characters other than Mack that were in the story. While reading the chart, she miscued on the word that, saying who once early in the story. This miscue did not change the meaning of the sentence. Also, she tended to lag behind on the choral reading of the chart story.

2. The student recognized the word was when it appeared in the "game," although she has had difficulty with this word before. She self-corrected on the word that, first saying this. She was unable to recognize the word blue.

Affective Behaviors and Related Observations

1. The student became quite excited and anxious to tell me about the story's unusual cumulative form, even breaking in as I further described this type of story, to add her own thoughts about it.

2. The student noticed words on the gameboard and asked the teacher to read them to her and commented on the pictures. She carefully attended to all phases and aspects of the game.
Appendix Q (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: The Cake That Mack Ate Day in Cycle: 2

Procedure #

3. Assisted reading from a story chart.
5. Matching randomly ordered word cards to words on a chart.
6. Finding similar or repeated words on a chart.

Date: 11/11

Cognitive Behaviors and Related Observations

3. The student hesitated on the words corn and grew. She said grow for grew and wife for woman. Several times she reread a sentence to figure out a word. The words these, was, and made were not recognized.

5. The student was unable to recognize the words these, was, or made. She self-corrected on the words went and into. She found and read phrases on the chart that contained each of the words.

6. The student found 3 words beginning with the letter t and noticed that they all had th and sounded alike at the beginning. She also found 2 words beginning with the letter m—Mack and married. She found 3 words that ended with the letter e and with prompting found 3 words that ended with the letter d (The sentence was pointed out to her and she found the words.).

Affective Behaviors and Related Observations

3. The student persisted in reading the story and trying to figure out words unknown to her.

5. The student looked carefully to find phrases on the chart that contained the words presented to her. She would cough, clear her throat, or adjust her seat when unable to recognize a word quickly.

6. The student persisted with the task, though finding ending letters was difficult for her, as evidenced by the long time it took her to find these words.
Appendix Q (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: The Cake That Mack Ate  Day in Cycle: 2

Procedure #

7. Masking activity.
8. Sentence strip activity.

Date: 11/11

Cognitive Behaviors and Related Observations

7. The student was able to read each word when masked or isolated from the rest of the sentence.

8. The student was able to read each sentence strip and match it with the same sentence in the story chart, phrase by phrase.

9. As the student "played", she hesitated only on the words that and was before identifying them. She self-corrected on the word see, first saying saw.

Affective Behaviors and Related Observations

8. The student yawned and sighed, showing she was becoming tired and that this activity involving rather long sentences was somewhat difficult for her. She continued to try her best, however, and remained good humored.

9. The student giggled and hummed as we "played".
Appendix Q (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: The Cake That Mack Ate  Day in Cycle: 3
Procedure #

1. Reading silently following book on an audio-tape.
2. Engaging in a game-like activity involving attending to the internal features of the words.
3. The child reads the book orally and independently.

Date: 11/13

Cognitive Behaviors and Related Observations

1. The student followed the text, pointing with her finger as she read. She kept pace with the tape, turning pages at the appropriate times.

2. The student quickly completed the first three words (ate, cake, and that), presented together, recognizing each word. She recognized hen when completed and identified into. The teacher had to prompt her with the w to complete went, and she identified the word after looking at it carefully.

3. The student read the book with only a few errors (e.g., the word these was unknown).

Affective Behaviors and Related Observations

2. The student thought carefully before selecting letters. Sometimes she would first identify a word and then fill in a final missing letter. When unable to quickly come up with a letter to complete a word, she sighed, but continued trying.

3. After reading the story, the student said, "That cake must have been big. I'll bet he (Mack) had a stomach ache!" She signed and read haltingly, but persisted and remained engaged in the task and interested in the story.
Appendix Q (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: The Cake That Mack Ate  Day in Cycle:  3

Procedure #

4. Innovating on text.

Date:  11/13

Cognitive Behaviors and Related Observations

4. The student was able to come up with a topic for the story and to elaborate on it, adding elements to write about (sprinkles, mom. store). She had some difficulty replicating the pattern used in the book. She was unable to read the words these and sold and read the story in a slow, halting style.

5. The student did not recognize the words went and self-corrected on that.

Affective Behaviors and Related Observations

4. The student was restless and moved around, changing her seat as she composed the story.

5. The student hummed and sang as we started the assessment "game."
APPENDIX R

Sample of Teacher Observation Form - Book 7
Appendix R

Teacher Observations of Cognitive and Affective Behaviors

Book: Where's Spot? Day in Cycle: 1

Procedure:

1. Talking about the title, author, etc.
2. Predicting
3. Teacher reads and points
4. Guided discussion

Date: 11/30

Cognitive Behaviors and Related Observations

1. The student was able to point to the title and the author's name.
2. The student was able to predict that Spot's mother was looking for him in order to give him his dinner.
3. The student correctly noted when I said "by Eric Hill" that the print only said "Eric Hill," not "by Eric Hill."
4. The student reviewed the events of the story using the illustrations to aid her, sometimes.

Affective Behaviors and Related Observations

1. The student said she had "read" this book in kindergarten. She did not seem to mind working with it again.
2. The student looked carefully at all pictures, commenting as she leafed through the book to preview it.
3. The student followed the text carefully as I read, noting when my reading did not match the text exactly.
4. The student commented that her predictions were correct and that the story had a happy ending.
Appendix R (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Where's Spot? Day in Cycle: 1

Procedure#

5. Locating previous target words in the new focus book.


7. Shared reading activity.

Date: 11/23

Cognitive Behaviors and Related Observations

5. The student identified at and where, as well as self-correcting on for (she first said if) and on did (she first said do). She also self-corrected on hen (first saying chick) and went (first saying what, as well as saying bear for brown and then self-correcting. Come and chick were the only words she could not identify. She knew that the word where was in the new book and was able to identify and read a sentence with the word. She did not identify that as being in the new book.

6. The student did not recognize basket, good, Spot, can, door, or boy. She said by for boy.

7. The student was able to supply missing words.

Affective Behaviors and Related Observations

5. The student kept with the task and gave each word careful thought before deciding if it might be in the new focus book.

6. The student looked carefully at words and repeated them when I supplied them for her.
Appendix R (continued)

Teacher Observations of Cognitive and Affective Behaviors

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Book: Where's Spot? Day in Cycle: 1

Procedure#

8. Engaging in a game-like activity using target words in isolation (Concentration).

Date: 11/23

Cognitive Behaviors and Related Observations

8. The student recognized all words except be while playing the game.
9. The student was able to use the sentence context to supply the missing words. She self-corrected on no (first saying in) and could not identify that.
10. The student recognized all words quickly except be and blue, which she self-corrected on.

Affective Behaviors and Related Observations

8. The student giggled throughout the game and watched word cards carefully as we played.
9. The student took some time and effort reading and rereading the sentences to figure out the words.
10. The student giggled and made comments about previous games as she played. She watched all moves carefully and followed directions on the gameboard and those given in previous sessions.
Appendix R (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Where's Spot? Day in Cycle: 2

Procedure:

1. Choral reading.

2. Engaging in a game-like activity using target words in isolation.

3. Assisted reading from a story chart.

Date: 12/2

Cognitive Behaviors and Related Observations

1. The student read where is for where's and closet for clock. Otherwise, she read keeping pace with the teacher and without errors.

2. The student self-corrected on be (saying do at first). She hesitated on basket and door, but was able to identify them. She quickly recognized all other words.

3. The student said ate for eaten, and the teacher supplied the word. The student self-corrected on the word behind (first saying in). She said under for inside, but self-corrected on this word. She said closet for clock and the teacher supplied the word. The teacher also supplied the word stairs. The student read all other words without assistance.

Affective Behaviors and Related Observations

2. The student giggled and answered quickly, paying close attention to the "game."

3. The student coughed or cleared her throat when she was unsure of herself. She appeared to do this to give herself more time to figure out the words. This behavior has been observed on other occasions, as well.
Appendix R (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Where's Spot? Day in Cycle: 2

Procedure:

4. Matching ordered word cards to words on a chart.
5. Matching randomly ordered word cards to words on a chart.
6. Finding similar or repeated words on a chart.

Date: 12/2

Cognitive Behaviors and Related Observations

4. The student sometimes had difficulty finding words in the story. Sometimes she would wait to tell me the sentence the word appeared in until she’d used it to figure out the word. She is still unsure of try, sometimes recognizing the word, but sometimes not. She doesn't always give the teacher a complete sentence or just the one sentence a word is in when asked to do so.

5. The student had no difficulty with this task.

6. The student was able to find words beginning with the letter h (he, his, he’s, hasn’t). She was not familiar with the word apostrophe or know the purpose of an apostrophe, at first--but was able to state both after working with he’s and hasn’t. She was also able to name the missing letters in each contraction, finally.

Affective Behaviors and Related Observations

4. The student persisted at the task, but coughed or cleared her throat to gain time occasionally.

6. the student word hard to find the words and gave much thought to the task. She giggled and remained good natured when prompted to use various strategies.
Appendix R (continued)

Teacher Observations of Cognitive and Affective Behaviors

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Book: Where's Spot? Day in Cycle: 2

Procedure:

7. Masking activity.
8. Sentence strip activity.

Date: 12/4

Cognitive Behaviors and Related Observations

7. The student was able to recognize Spot and where when the words were masked and presented in isolation. She identified basket, when masked, after some thought.

8. The student was able to read each sentence strip, locate the sentence on the chart, and read the sentence from the chart. However, for one sentence she had difficulty with the word closet, eventually identifying it, but then mismatching the sentence to the chart and later correcting herself when this placement was questioned.

9. The student recognized all current target and previous target words, except for the word for which she self-corrected on (saying if at first).

Affective Behaviors and Related Observations

8. The student cooperated throughout the task and successfully completed each part with good humor.

9. The student hummed and showed excitement, crying "No!" when certain moves were made that put her winning in jeopardy.
Appendix R (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Where's Spot? Day in Cycle: 3

Procedure#

1. Reading silently following book on an audio-tape.
2. Engaging in a game-like activity involving attending to the internal features of the words.
3. The child reads the book orally and independently, receiving assistance only if needed.

Date: 12/4

Cognitive Behaviors and Related Observations

1. The student carefully pointed to the words and kept pace with the tape as she read.

2. The student was able to complete all words and pronounce them.

3. The student read the book with no difficulty and miscued only on eaten (saying "aten").

Affective Behaviors and Related Observations

1. The student smiled and commented as she read.

3. The student showed enjoyment as she read, smiling, giggling, and commenting as she went along (e.g., She asked, "Whose house is this anyway?")
Appendix R (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Where's Spot? Day in Cycle: 3

Procedure#

4. Innovating on text.

Date: 12/4

Cognitive Behaviors and Related Observations

4. The student came up with a similar title using the name of her grandmother's dog. She quickly thought of the next three lines based on the same pattern as the one in the original story. She was able to supply a number of lines based on places where her grandmother's dog might be and to continue the pattern in the original story with no prompting. She devised an appropriate ending for the story and used the word "lapping" to describe the dog eating his food. She was able to read her completed story without assistance.

5. The student recognized all new target words except for a self-correction on be (she first said boy, but quickly corrected herself without prompting).

Affective Behaviors and Related Observations

4. The student volunteered the comment that her favorite part of the lesson is playing the "games" and that she enjoys writing her own stories, too.

5. The student drew from her experiences at her grandmother's house to write her story. She has spoken of her grandmother a number of times during the lessons and related several stories read to her to her experiences with her grandmother. She enthusiastically and easily composed her story and read it back to the teacher later. She also made a number of detailed illustrations showing what happened in the story.
APPENDIX S

Sample of Teacher Observation Form - Book 9
Appendix S

Teacher Observations of Cognitive and Affective Behaviors

Book: Polar Bear, Polar Bear, What Do You Hear? Day in Cycle: 1

Procedure:

1. Reading title, author, etc.
2. Predicting.
3. Teacher reads and points.

Date: 12/14

Cognitive Behaviors and Related Observations

1. The student recognized the bear on the cover as a "snow" bear because he is white. She identified the title and recognized Eric Carle's name, but thought he was the author, at first. She later identified him as the illustrator after being told that Bill Martin, Jr. was the author.

2. The student predicted that this book is about animals in the zoo who are asking, "What do you hear?"

3. The student attended to the print as the teacher read and pointed.

Affective Behaviors and Related Observations

1. The student was not as forthcoming as usual, but did answer questions when prompted to do so.

3. The student asked to use the restroom as soon as I finished reading, perhaps explaining her less than forthcoming than usual behavior up to this point.
Appendix S (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Polar Bear, Polar Bear, What Do You Hear?
Day in Cycle: 1

Procedure#

4. Guided discussion.
5. Locating previous target words in the new focus book.

Date: 12/14

Cognitive Behaviors and Related Observations

4. The student was able to confirm that her predictions were correct and to recall the animals in the story, as well as some of the sounds they made.

5. The student was able to identify 2 of the 3 previous target words as being in our new book. She was able to pronounce all three words, as well as find a sentence containing the words and read it. She did not recognize a number of the previous target words when presented in isolation (good, have, this, chick, flew, and taking) and she self-corrected or identified 11 other words (do, swim, went, where, did, saw, what, looking, black, be, and came). Her miscues showed that she was using first-letter cues, usually. When asked to compose a sentence using the word this, she was only able to do so after several model sentences were given.

Affective Behaviors and Related Observations

5. The student giggled, made several extraneous comments, and noted that the word bed looked like a bed—showing her use of striking visual features to identify words. She often made comments when she was struggling to identify a word and unable to do so.
Appendix S (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Polar Bear, Polar Bear, What Do You Hear? Day in Cycle: 1

Procedure#

7. Shared reading activity.

Date: 12/14

Cognitive Behaviors and Related Observations

6. The student did not recognize the following new target words: children, bellowing, like, and lion. She identified the words elephant and polar and she self-corrected on the word growling, after saying galloping at first.

7. At first the student said see for hear because of interference from having read Brown Bear, Brown Bear, What Do You See? She followed the text carefully and was able to supply almost all words and phrases when the teacher paused. She commented that it was harder to recognize words in "small" letters than in "tall" letters—referring to lower and upper case print.

Affective Behaviors and Related Observations

6. The student volunteered that the word children means "when there is a whole room full of children; when there is only one, it is child." The student's sense of humor and appreciation for exactness in language usage surfaced when she said that she didn't have "the lion" on her word card, but just lion. This comment occurred when the teacher asked her to look for "the lion" on her "game" card.

7. At one point, the student related what was in the book to her own pet cat (belonging perhaps to her grandmother). She also asked me to describe several animal sounds that were unfamiliar to her.

Appendix S (continued)
Teacher Observations of Cognitive and Affective Behaviors

Book: Polar Bear, Polar Bear, What Do You Hear?  
Day in Cycle: 1

Procedure:

8. Engaging in a game-like activity using target words in isolation.

Date: 12/14

Cognitive Behaviors and Related Observations

8. The student did not recognize the words children, like, or growling the first time they appeared in the "game," but she did recognize them the next time they occurred. She did recognize all other words.

9. The student was able to read all target words and to find the correct word to complete each sentence. She only needed assistance with a few other words (snorting, boa constrictor, and yelping); these were not target words.

10. The student recognized all words except the word hear.

Affective Behaviors and Related Observations

8. The student giggled excitedly when anticipating making a word match. She paid close attention to all words and usually made a match as soon as both words were exposed the first time.

10. The student commented as the activity progressed and smiled with pleasure when she recognized the words.
Appendix S (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Polar Bear, Polar Bear, What Do You Hear?  
Day in Cycle: 2

Procedure:

1. Choral reading.
2. Engaging in a game-like activity using target words in isolation.
3. Assisted reading from a story chart.

Date: 12/16

Cognitive Behaviors and Related Observations

1. The student kept pace with the choral reading, looking at each word as the teacher pointed to it and only pausing for the teacher to supply a few words that were not target words (snorting, hissing, braying, trumpeting, snarling, and boa).

2. The student was unable to recognize the following current target words: hear, children, growling, and polar. She self-corrected on the word blue, first saying bear. She only tried to use the initial sound to figure out the word polar, before giving up. In the other cases, she simply waited for the teacher to supply the word.

3. The student pointed as she read and when her pointing did not match the word she said on one occasion, she went back and corrected herself, pointing to each word as she said it correctly. She only needed the following non-target words supplied: snorting, fluting, braying, boa, hissing, trumpeting, leopard, and snarling. She self-corrected on the word an, first saying a.

Affective Behaviors and Related Observations

2. The student focused on all words presented and repeated any words that were supplied for her, looking at the word, without prompting.

3. The student read confidently and at a good pace.
Appendix S (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Polar Bear, Polar Bear, What Do You Hear?
Day in Cycle: 2

Procedure:

4. Matching ordered word cards to words on a chart.
5. Matching randomly ordered word cards to words on a chart.
6. Finding similar or repeated words on a chart.

Date: 12/16

Cognitive Behaviors and Related Observations

4. The student usually was able to locate words quickly on the chart, but on two occasions needed assistance and prompting in a strategy to use to do so. She did not consistently use any strategy to locate words in an ordered way, until prompted to do so. She was able to recognize all words presented except for the words hear and growling.

5. The student quickly found sentences with the matching word for each card and read each sentence without assistance. She used the strategy she was prompted on in the previous activity--checking each line, in order, to find the words.

6. The student was able to find repeated occurrences of the words hear and what on the chart. She was also able to give the teacher the beginning sound of the word hear and to find two other words that begin with the same sound (hissing and hippopotamus).

Affective Behaviors and Related Observations

4. The student appeared to be randomly searching the chart for the words and gave up if they were not located easily.
Appendix S (continued)

Teacher Observations of Cognitive and Affective Behaviors

---

Book: Polar Bear, Polar Bear, What Do You Hear?  
Day in Cycle: 2

Procedure:

7. Masking activity.  
8. Sentence strip activity.  

Date: 12/16

Cognitive Behaviors and Related Observations

7. The student identified the base words and endings for the following words: roaring, hissing, and snarling. When she was unable to identify the word snarling, she was not able to think of a strategy for figuring it out. When asked to find a little word in the word hear, she responded first with the word he. When asked for a word she could hear in hear, she responded with the word ear. She commented that "the words ear and hear rhyme."

8. The student was able to read each sentence strip and match it to a sentence on the chart.

9. The student recognized all target words except hear and polar which she identified (figured out). She also self-corrected on the word it, first saying in and then at before saying the word correctly.

Affective Behaviors and Related Observations

7. The student concentrated on the task throughout the activity.

9. The student looked carefully at all words as they were presented, sometimes repeating them, and giggled with pleasure as she "played."
Appendix S (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Polar Bear, Polar Bear, What Do You Hear?
Day in Cycle: 3

Procedure#

1. Reading silently following book on an audio-tape.

Date: 12/18

Cognitive Behaviors and Related Observations

1. The student anticipated the words in the text, audibly verbalizing most of them slightly ahead of the audio-tape.

Affective Behaviors and Related Observations

1. The student showed enjoyment and pride in her ability to anticipate the words in the text before hearing them on the audio-tape by verbalizing the words in advance of the tape, where only silent reading had been asked of her. Just after reading, the student pointed out a number of cut-outs she had made that were displayed in the room. She also pointed out a cross section from a tree that was on a nearby table and commented that cutting down trees can be a bad thing as it affects the air we breathe and the amount of oxygen we have. This student has made other comments such as this, showing that she is absorbing a great deal of information through listening and is interested in and sensitive to a number of issues that she has been exposed to.
Appendix S (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Polar Bear, Polar Bear, What Do You Hear?
Day in Cycle: 3

Procedure#

2. Engaging in a game-like activity involving attending to the internal features of the words.
3. The child reads the book orally and independently receiving assistance only if needed.

Date: 12/18

Cognitive Behaviors and Related Observations

2. The student named the two strategies she uses to figure out words when engaging in this game-like activity. The strategies named were: (a) choosing the letters of the alphabet, in order and (b) choosing vowels. She used the vowel strategy several times, successfully, but then tried the letter, because she recognized that the letters ea already guessed and the letter r would make the word ear. Then, after making one random letter guess, she added the letter h to make the word hear. The student then returned to an alphabet strategy, as well as naming another vowel as she attempted to complete the other two words. She was able to recognize both words when completed. Two more words were completed and recognized. For one of the words, she was able to listen for the missing last sound/letter when she recognized that the word, when complete, would be elephant.

3. The student read the book at a good pace. Only a few non-target words required assistance (snarling, braying, and snorting). She did use picture cues in the first part of the book and was more hesitant when reading the last part where picture cues were not as helpful.

Affective Behaviors and Related Observations

2. The student's concentration on the task was obvious from her facial expression and her continued use of strategies until all words were completed.
Appendix S (continued)

Teacher Observations of Cognitive and Affective Behaviors

Book: Polar Bear, Polar Bear, What Do You Hear?
Day in Cycle: 3

Procedure#

4. Innovating on text.

Date: 12/18

Cognitive Behaviors and Related Observations

4. When reading the chart of the original story to establish the pattern for her new story, the student only required assistance with the words snarling and braying. The student readily supplied an idea for her innovated story, after just a few minutes of thought. She decided to write about her mom and came up with the word pretty when asked for a word to describe her mother. She easily followed the pattern of the original story in constructing her new one. Her ideas were in a logical progression as she composed each new line of the story. The student read her story aloud, when completed, making several miscues in the form of additions and substitutions. She was able to correct each one, however, as they were brought to her attention.

5. The student recognized all target words quickly.

Affective Behaviors and Related Observations

4. The student giggled delightedly as she constructed her story and chatted about the ideas she planned to include in this story. She seemed very pleased to be writing a story about her mom and shared her warm feelings about good times she had shared with her mother while visiting her grandmother in Virginia. She was anxious to illustrate her story, too, and did so in vivid colors and in great detail.

5. The student smiled and commented pleasantly as she played, helping the teacher with her words.
APPENDIX T

Levels of Word Recognition for Different
Comparisons of Testing Conditions
Figure 6. Level of word recognition for 111 occurrences of target words presented in isolation for four testing conditions. Scoring: 0 = unknown, 0.5 = mediated, and 1 = known.
Figure 6 (continued)

Level of Word Recognition
Figure 6 (continued)

Level of Word Recognition

<p>| | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
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<td>b</td>
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<td>door</td>
<td>duck</td>
<td>duckling</td>
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</tr>
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</table>

- Pretest in Isolation (a)
- Posttest in Isolation (b)
- Maintenance Test A in Isolation (c)
- Maintenance Test B in Isolation (d)
Figure 6 (continued)
Figure 6 (continued)

- Pretest in Isolation (a)
- Posttest in Isolation (b)
- Maintenance Test A in Isolation (c)
- Maintenance Test B in Isolation (d)

Level of Word Recognition

Words

looking  looking  Mack  Mack  morning  morning  morning
Figure 6 (continued)

Level of Word Recognition

- Pretest in Isolation (a)
- Posttest in Isolation (b)
- Maintenance Test A in Isolation (c)
- Maintenance Test B in Isolation (d)

Words:
- night
- no
- not
- of
- out
Figure 6 (continued)

![Bar chart showing level of word recognition for different conditions: Pretest in Isolation (a), Posttest in Isolation (b), Maintenance Test A in Isolation (c), and Maintenance Test B in Isolation (d). The x-axis represents different words: said, said, saw, seen, send, sheep, Spot. The y-axis represents the level of word recognition.]
Figure 6 (continued)

![Bar chart showing levels of word recognition for different tests and words.]

Legend:
- ■ Pretest in Isolation (a)
- □ Posttest in Isolation (b)
- ▲ Maintenance Test A in Isolation (c)
- ■ Maintenance Test B in Isolation (d)

Words:
- swim
- taking
- that
- this
- walk
- walking
Figure 6 (continued)

Level of Word Recognition

- Pretest in Isolation (a)
- Posttest in Isolation (b)
- Maintenance Test A in Isolation (c)
- Maintenance Test B in Isolation (d)

Words:
- went
- went
- went
- went
- were
- were
- were
- were
Figure 6 (continued)

- **Pretest in Isolation (a)**
- **Posttest in Isolation (b)**
- **Maintenance Test A in Isolation (c)**
- **Maintenance Test B in Isolation (d)**

Level of Word Recognition

Words:
- were
- what
- where
- with
- your
Figure 7. Level of word recognition for each of 111 occurrences of target words presented in the Posttest condition for words in isolation and in context. Scoring: 0 = unknown, .5 = mediated, and 1 = known.
Figure 7 (continued)

Level of Word Recognition

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<th>Posttest in Isolation (b)</th>
<th>Posttest in Context (e)</th>
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<td>be</td>
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<td>bed</td>
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<td>bellowing</td>
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<td>big</td>
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<td>black</td>
<td></td>
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</tr>
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<td>boy</td>
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<td>brown</td>
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<tr>
<td>butterfly</td>
<td></td>
<td></td>
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<tr>
<td>cake</td>
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<td></td>
</tr>
</tbody>
</table>

437
Figure 7 (continued)

Level of Word Recognition

Words

- Posttest in Isolation (b)
- Posttest in Context (e)
Figure 7 (continued)

Level of Word Recognition

Words

- be
- be
- be
- be
- be
- be
- door
- duckling
- duckling
- elephant
- be
- be
- be
- be
- did
- did
- be
- be
- be
- be
- be
- be
Figure 7 (continued)

Level of Word Recognition

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<td>galloped</td>
<td>1</td>
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<tr>
<td>good</td>
<td>1</td>
</tr>
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<td>growling</td>
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<td>hen</td>
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<tr>
<td>him</td>
<td>1</td>
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</tbody>
</table>
Figure 7 (continued)

Level of Word Recognition

- Horse
- His
- Him
- Be
- Be
- Be
- Be
- Be
- Be

Posttest in Isolation (b)
- Posttest in Context (e)
Figure 7 (continued)
Figure 7 (continued)
Figure 8. Level of word recognition for each of 111 occurrences of target words presented in the Maintenance A Test condition for words in isolation and in context. Scoring: 0 = unknown, .5 = mediated, and 1 = known.
Figure 8 (continued)

Level of Word Recognition

Words

- Maintenance Test A in Isolation ($\diamond$)
- Maintenance Test A in Context ($\blacksquare$)
Figure 8 (continued)

Level of Word Recognition

<table>
<thead>
<tr>
<th>Words</th>
<th>Maintenance Test A in Isolation (c)</th>
<th>Maintenance Test A in Context (f)</th>
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<tr>
<td>dear</td>
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</tbody>
</table>
Figure 8 (continued)

Level of Word Recognition

Words

- Maintenance Test A in Isolation (c)
- Maintenance Test A in Context (f)
Figure 8 (continued)
Figure 8 (continued)

Level of Word Recognition

Maintenance Test A in Isolation (c)
Maintenance Test A in Context (f)
Figure 8 (continued)
Figure 8 (continued)

Level of Word Recognition

Words

- Maintenance Test A in Isolation (c)
- Maintenance Test A in Context (f)
Figure 9. Level of word recognition for each of 111 occurrences of target words presented in isolation for two testing conditions. Scoring: 0 = unknown, .5 = mediated, and 1 = known.
Figure 9 (continued)

Level of Word Recognition

0 0.5 1

0

b c be b c bed b c bellowng b c b c big b c b c black b c b c boy b c b c brown b c b c butterfly b c b c cake

Words

Posttest in Isolation (b)
Maintenance Test A in Isolation (c)
Figure 9 (continued)
Figure 9 (continued)

Level of word recognition
Figure 9 (continued)

Level of Word Recognition

Words

- Posttest in Isolation (b)
- Maintenance Test A in Isolation (c)
Figure 9 (continued)

Level of Word Recognition

<table>
<thead>
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<th>Words</th>
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<td>with</td>
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<td>your</td>
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Figure 10. Level of word recognition for 111 occurrences of target words presented in context for two testing conditions. Scoring: 0 = unknown, .5 = mediated, and 1 = known.
Figure 10 (continued)

Level of Word Recognition
Figure 10 (continued)

Level of Word Recognition

<table>
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<td>cake</td>
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<td>came</td>
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<td>children</td>
<td>0</td>
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<tr>
<td>dear</td>
<td>0</td>
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</table>

- Posttest in Context (e)
- Maintenance Test A in Context (f)
Figure 10 (continued)
Figure 10 (continued)

Level of Word Recognition
Figure 10 (continued)

Level of Word Recognition

Words

- Posttest in Context (e)
- Maintenance Test A in Context (f)
Figure 10 (continued)

Level of Word Recognition

Words

- Posttest in Context (e)
- Maintenance Test A in Context (f)
Figure 10 (continued)

- Posttest in Context (e)
- Maintenance Test A in Context (f)
Figure 11. Level of word recognition for each of 111 occurrences of target words presented in isolation for two testing conditions. Scoring: 0 = unknown, .5 = mediated, and 1 = known.
Figure 11 (continued)

![Graph showing level of word recognition for different words with two test types: Maintenance Test A in Isolation (c) and Maintenance Test B in Isolation (d). Words include: cake, cake, came, came, can, chick, children, children, dear.]
Figure 11 (continued)

Level of Word Recognition

Words

did
door
duck
duckling
ducking
early elephant
c d
c d
c d
c d
c d
c d
c d
c d
c d
c d
c d

Maintenance Test A in Isolation (c)
Maintenance Test B in Isolation (d)
Figure 11 (continued)

Level of Word Recognition

- Maintenance Test A in Isolation (c)
- Maintenance Test B in Isolation (d)
Figure 11 (continued)

Level of Word Recognition

<table>
<thead>
<tr>
<th>Words</th>
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<tr>
<td>no</td>
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</table>
Figure 11 (continued)
Figure 11 (continued)

Level of Word Recognition

<table>
<thead>
<tr>
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<tr>
<td>swim</td>
<td>c d</td>
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<td>went</td>
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</table>
Figure 11 (continued)

Level of Word Recognition

- Maintenance Test A in Isolation (c)
- Maintenance Test B in Isolation (d)

Words

went  were  were  were  what  where  where  with  your
APPENDIX U

List of Target Words

Classified by Level of Imageability
List of Target Words Classified by Level of Imageability

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<thead>
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<td>7. bear</td>
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<td>7. early</td>
</tr>
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<td>8. cake</td>
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<td>8. from</td>
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<td>9. chick</td>
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<tr>
<td>23. taking</td>
<td>23. your</td>
<td>24. went</td>
</tr>
<tr>
<td>24. went</td>
<td>25. looking</td>
<td>26. bellowing</td>
</tr>
<tr>
<td>25. looking</td>
<td>26. bellowing</td>
<td></td>
</tr>
<tr>
<td>26. all</td>
<td>27. all</td>
<td></td>
</tr>
<tr>
<td>27. came</td>
<td></td>
<td>28. came</td>
</tr>
</tbody>
</table>

*High imageability = Words that are directly and specifically imageable. These words have a direct visual sensory referent and easily accessible images.

**Medium imageability = Words that are less specifically visually imageable or have sensory referents other than visual.

***Low imageability = Words that have no sensory referent.
APPENDIX V

Procedural Checklist for Day 1
Appendix V

Procedural Checklist for Day 1

Day 1:

1. The teacher will talk about the important concepts in the book and call attention to the title, author, and illustrator.
   (3 minutes)

2. The teacher will ask the child to predict what the story is about using the illustrations.
   (2 minutes)

3. The teacher will read focus book #1 aloud, pointing to the words as the child observes the text. (5 minutes)

4. The teacher will guide a discussion, checking predictions and asking questions to help the child construct the author's message.
   (5 minutes)
5. The child will locate target words from previous focus books also found in the new focus book. To do so, target words from previous focus books will be presented on cards and read by the child. The child will be asked to find and point to these words if they occur in the new focus book and the child will say each word and read the sentence it appears in, in the new focus book. (This step occurs from Book 2, on.)

6. The child will engage in a game activity using words in isolation (e.g., Concentration, Keyword Bingo, or Hangman). A mixture of known and unknown words will be included. (10 minutes)

7. The teacher will engage the child in a shared reading activity (that is, the teacher will read focus book #1 aloud, pausing for the child to supply predictable words and phrases). The teacher will point as she reads. (5 minutes)
8. The child will engage in a game activity
different from the one used above,
presenting words in isolation. A mixture
of known and unknown words will be included.
(10 minutes)

9. The teacher will engage the child in a
visual cloze activity which will provide
practice of the target words in sentence
context. (10 minutes)

10. For daily assessment the teacher will
engage the child in a boardgame using the
words in isolation. Boardgames used for
assessment will vary from day to day in
terms of pictorial content and arrangement,
but response procedures and opportunities
will be the same each day. The game will
require the child to look at, recognize,
and pronounce the word. (10 minutes)
APPENDIX W

Procedural Checklist for Day 2
Appendix W

Procedural Checklist for Day 2

Day 2:

YES  NO

1. The teacher and child will read the text of focus book #1 aloud chorally from a chart without pictures where appropriate. For some texts it will be necessary to provide pictures for the chart or to use the book instead of a chart in order for the text to remain meaningful. The teacher will point as they read. (5 minutes)

2. The child will engage in a game activity using words in isolation, a mixture of known and unknown words will be included. (Each game used during the 3-day cycle for any focus book will be different.) (10 minutes) There will be additional known words as results of each daily assessment are considered.
3. The teacher will engage the child in **assisted reading** (i.e., the teacher helps a child read a story by briefly reading along if the child has difficulty at any point) from a teacher-made chart of the text of the focus book (without pictures). The child will point to the words as she reads. (5 minutes)

4. The child will place ordered word cards under matching words on the chart used in item #3 above. (5 minutes)

5. The child will place randomly-ordered word cards under matching words on the same chart. (5 minutes)

6. The child will look for words that are repeated, begin alike, or have similar parts in the text on the chart. (5 minutes)
7. The teacher will use masks or frames to focus on letters (to show orthographic sequence by unmasking one letter at a time) or to focus on words or phrases (giving the child an opportunity to give more detailed study to the elements of the word or to recognize the word in isolation). The mask can be removed to allow the child to use surrounding context to aid in word identification if needed. (10 minutes)

8. The child will match sentence strips to sentences on the chart. (5 minutes)

9. For daily assessment, the teacher will engage the child in a boardgame using the words in isolation. The game will require the child to look at, recognize, and pronounce the word. (10 minutes)

COMMENTS______________________________
APPENDIX X

Procedural Checklist for Day 3
Appendix X

Procedural Checklist for Day 3

DAY 3

YES  NO

1. The child will read focus book #1
   silently following the story on a tape.
   The child will point as s/he reads.
   (10 minutes)

2. The teacher will engage the child in a
game activity that involves attending to
the internal features of the words, using
the words in isolation.  (15 minutes)

3. The child will attempt to read the focus
book orally and independently. If the child
is unable to read independently, the teacher
will engage the child in assisted reading.
(10 minutes)

4. The child will be aided in innovating on the
text of the focus book by substituting, adding,
or deleting words or phrases to produce a new
sentence or story on a chart. The child will
supply the "innovations" which will be written on a chart next to the chart of the original story as presented on the previous day. The child will then read the new story. (15 minutes)

6. For daily assessment, the teacher will engage the child in a boardgame activity using the target words in isolation. The game will require the child to look at, recognize, and pronounce each word. (10 minutes)
APPENDIX Y

List of Target Words

Classified by Grammatical Function
List of Target Words Classified by Grammatical Function

Pronouns

1. all So they all rolled over and one flew out.
2. him I sent him back.
3. his There were 6 in his bed and the ....
4. that This is the cake that Mack ate.
5. this This is not my cat!
6. what What did you see?
7. your From all your friends at the zoo.

Nouns

1. basket Try the basket!
2. bear We see a brown bear ... looking at us.
3. bed There were 10 in his bed and the....
4. boy Good boy, Spot!
5. butterfly "I caught a butterfly." said the duckling.
6. cake This is the cake that Mack ate.
7. chick "Me too," said the chick.
8. children I hear children roaring like a lion....
9. duck We see a yellow duck...looking at us.
10. duckling Have you seen my duckling?
11. door Is he behind the door?
12. elephant I hear an elephant trumpeting in my ear.
13. hen This is the hen that laid the egg....
14. horse I saw a brown horse looking at me.
15. lion I hear a lion roaring in my ear.
16. Mack This is Mack.
17. morning Early one morning...
18. night There were none in his bed, so the little one said, "Good night."
19. peacock I hear a peacock yelping in my ear.
20. pet I wrote to the zoo to send me a pet.
21. sheep I see a black sheep looking at me.
22. Spot Where's Spot?
Verbs and Verbal Nouns/Gerunds

1. ate  
This is the cake that Mack ate.

2. be  
Where can he be?

3. bellowing  
I hear a walrus bellowing in my ear.

4. came  
A duckling came out of the shell.

5. can  
Where can he be?

6. did  
What did you see?

7. do  
Red Bird, Red Bird, what do you see?

8. flew  
So they all rolled over and one flew out.

9. galloped  
So they all rolled over and one galloped out.

10. growling  
I hear children growling like a polar bear.

11. have  
Have you seen my duckling?

12. hear  
Polar Bear, Polar Bear, what do you hear?

13. jumped  
So they all rolled over and one jumped out.

14. looking  
I saw a black cat looking at me.

15. roaring  
I hear a lion roaring in my ear.

16. said  
"I am out," he said.

17. saw  
I saw a brown horse looking at me.

18. seen  
Have you seen my duckling?

19. send  
I wrote to the zoo to send me a pet.

20. swim  
"I am going for a swim," said the duckling.

21. taking  
"I am taking a walk," said the duckling.

22. walk  
I am taking a walk," said the duckling.

23. walking  
I went walking.

24. went  
This is the egg that went into the cake....

25. were  
There were 9 in his bed and the ....

Adverbs

1. early  
Early one morning....

2. no  
Is he behind the door? No.

3. not  
This is not my cat.

4. out  
"I am out," he said.

5. where  
Where is my cat?
Adjectives

1. big
   He was too big!
2. black
   I saw a black cat looking at me.
3. brown
   Brown Bear, Brown Bear, what do you see?
4. dear
   Dear Zoo
5. good
   Good boy, Spot!
6. little
   There were 10 in his bed and the little one said, "Roll over! Roll over!"
7. polar
   I hear children growling like a polar bear....

Prepositions

1. at
   I saw a black cat looking at me.
2. from
   From all your friends at the zoo.
3. into
   This is the egg that went into the cake ....
4. like
   I hear children snarling like a leopard.
5. of
   I saw a lot of animals following me.
6. with
   .... with care ....
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