

AN ANALYSIS OF RX FOR DISCOVERY READING® FOR ELEMENTARY
STUDENTS BELOW AVERAGE IN READING

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An Analysis of Rx for Discovery Reading® for Elementary Students Below Average in
Reading

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Abstract

Susan Stanley. AN ANALYSIS OF RX FOR DISCOVERY READING® FOR ELEMENTARY STUDENTS BELOW AVERAGE IN READING. (Under the direction of Dr. Karen L. Parker) School of Education, October, 2007.

Rx for Discovery Reading® is an intervention developed by the National Institute for Learning Development to impact the reading abilities of students below grade level in reading. The program was designed to address every area of reading acquisition, but, for this study, the areas of phonological processing, decoding, and fluency were investigated using pre- and post-test scores from the *KTEA-II*, *GORT*, and *DIBELS*. The problem studied was whether *Rx for Discovery Reading*® would raise the mean standard scores in the three areas at the conclusion of the field test. Using a small-group format, twenty-nine students who were not on grade level in reading according to the most recent annual achievement test were involved in the intervention for fifty forty-five minute sessions over one school year. Eight NILD educational therapists in a variety of geographical areas in the United States and Canada implemented the intervention, working with a group of four students each. At the conclusion of the field test, the data were examined, and it was discovered that the students participating in the *Rx for Discovery Reading*® program had significantly higher post-test standard scores than the pre-test standard scores in the reading abilities of phonological processing, decoding and fluency. These results demonstrate that this intervention may contribute greatly in enabling students become more proficient readers, overcoming a reading deficit. Further study is encouraged to ascertain the impact of the program on the reading areas of vocabulary and comprehension.

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Chapter 1

Introduction to the Study

“Reading is the fundamental skill upon which all formal education depends.

Research now shows that a child who does [not] learn the reading basics early is unlikely to learn them at all. Any child who does [not] learn to read early and well will not easily master other skills and knowledge, and is unlikely to ever flourish in school or in life” (Moats, 1999, p. 5). Approximately twenty percent of students in elementary schools nationwide have significant struggles in learning to read; another twenty percent lack the ability to read fluently enough to be able to engage in reading independently; twenty-five percent of the adult population in America lack the basic literacy skills that are required to succeed in a typical job (Moats, 1999).

According to the Commission on Reading in *Becoming a Nation of Readers*, “reading is a process of constructing meaning from written texts. It is a complex skill requiring the coordination of a number of interrelated sources of information” (Anderson, Hiebert, Scott, & Wilkinson, 1985, p. 6). The question becomes: “What is the best way to teach this ability to construct meaning from the written text?”

In the history of American education, reading instruction has varied, offering a variety of strategies that would aid students in learning to read. Over the years, some of the instructional techniques worked and some did not. With the pendulum swinging between whole language instruction to phonics training, there are millions of children who traversed through their academic careers continuing to struggle with the acquisition of efficient reading ability (Cowen, 2003, p. vii).

In 1997 a decision was made by the United States Congress to ascertain the most effective reading instruction that would impact positively all students' reading ability, especially those who continued to be below level. Congress instructed the National Institute of Child Health and Human Development along with the Secretary of Education to convene a national panel of reading experts (National Institute of Child Health and Human Development [NICHD], 2000). Their task was to "assess the status of research-based knowledge, including the effectiveness of various approaches to teaching children to read" (NICHD, 2000, p. 1-1).

The National Reading Panel (NRP) submitted the first progress report to Congress in 1999. The conclusions of the report showed that there are five specific areas of reading instruction that will make the most impact in teaching children to read. Instruction in phonemic awareness, phonics, fluency, vocabulary and comprehension was shown by the NRP's research to be the most effective and complete program of reading instruction for developing excellent reading ability (NICHD, 2000).

This dissertation is a report on the *Rx for Discovery Reading*® field test conducted by the National Institute for Learning Development (NILD) to establish the efficacy of this program used for reading intervention, specifically ascertaining the program's impact on the areas of phonemic awareness, phonics, and reading fluency, which are three of the five essential elements for literacy development delineated by the NRP. The study was based primarily on the data received from the NILD educational therapists who implemented the program over a period of one school year consisting of fifty sessions of group intervention. The educational therapists worked with lower elementary students from urban and rural private schools throughout the United States

and Canada who were below level in reading according to their most recent annual achievement test scores in reading. The first chapter of this dissertation includes the background of the study, the problem statement that was researched, and the professional significance of the study. It also includes an overview of the methodology implemented for the study and concludes with some of the special terms used.

Background of the Study

Rx for Discovery Reading® (See Appendix 1) is a program developed by the National Institute for Learning Development (NILD) that includes each specific area of reading instruction delineated by the NRP. NILD, as an organization, was established in 1982. Deborah Zimmerman, working with Dr. Rosa Hagin and Dr. Archie Silver, researchers at Bellevue Psychiatric Hospital in New York City, developed the specific intervention method used by NILD. Zimmerman worked initially with stroke patients and then moved to schools and clinics, working with children who had not learned to read well. Her method relied on deficit stimulation to impact perception and cognition rather than relying on a compensatory method of instruction, which relies on a student's strengths to overcome weaknesses (NILD, 2004, p. I-9).

Beginning in 1973, Grace Mutzabaugh, the lower school principal at Norfolk Christian Schools in Norfolk, Virginia, began working with Zimmerman to establish the method of deficit stimulation for the students at her school. By 1982, the program became known as NILD Educational Therapy®. Currently, through the use of twenty-five techniques, students receive intense, individual stimulation through guided questioning and interactive language, working with a human mediator, moving toward independent learning in the classroom (NILD, 2004, I-7).

Although NILD has been intervening in students' reading deficits for over twenty-five years, the delivery method has been on an individual basis, impacting the student's processing deficits in the areas of visual, auditory and/or cognitive processing. Realizing that the one-on-one delivery is an expensive mode of delivery, especially in many school environments, an experimental group model, *Rx for Discovery Reading*®, was developed. The program was initiated as a stream-lined intervention for small group implementation for students below level in reading. At present the focus is on the areas of phonemic awareness, phonics, and fluency, impacting the student's reading deficits. Vocabulary and comprehension building strategies will be added to the program in the future. The program includes *The Blue Book Method*, *Sounds of Speech*, and *Sounds of Reading* along with reading texts for practice in reading fluency with prosody.

- *The Blue Book Method* is a systematic, explicit phonics program that uses an associative keyword approach, based on a modified Orton-Gillingham method. A variety of exercises are used to rehearse the sound/symbol relationships, including decoding, structural analysis, syllabication, categorization according to phonemic concepts, spelling rules, dictation and writing. The materials used with *The Blue Book Method* include *The Blue Book*, *The Phonic Spelling Workbook*, *The Teacher's Word Lists*, and *Student Reference Sheets and Writing Exercises*. A game, based on the Bingo game, entitled *KEYWO*, is used to help develop automaticity of the various parts of the technique (Dwyer, 1983).
- *Sounds of Speech: Phonological Processing Activities* contains the *Phonological Awareness Skills Survey (PASS)*, an assessment that is designed to inventory the student's phonological and phonemic awareness level. Also included in the text

are activities to impact the phonological and phonemic levels. These activities are used in conjunction with *The Blue Book Method* (Barbour, Keafer, & Scott, 2003).

- *Sounds of Reading: Decoding and Fluency Activities* was “developed to assist students in developing foundational skills necessary in decoding and fluency while gaining the most benefit from *The Blue Book Method*” (Barbour, 2006, p. 6). The tools of *Sounds of Reading* include *Fry’s Instant Sight Words and Phrases*, Repeated Oral Reading (ROR) and the Neurological Impress Method (N. I. M.) (Barbour, Keafer, & Scott, 2005).

Problem Statement

Because this is a new intervention that has not been studied previously, this research project sought to answer the following question:

What is the effect of the *Rx for Discovery Reading*® program on the reading abilities of second, third, fourth, and fifth graders who were below grade level in reading?

Hypotheses

Hypothesis #1: There is no difference between the mean pre- and post-test standard scores in phonological processing for students in grades two through five who participated in the *Rx for Discovery Reading*® program field test.

Hypothesis #2: There is no difference between the mean pre- and post-test standard scores in decoding abilities for students in grades two through five who participated in the *Rx for Discovery Reading*® program field test.

Hypothesis #3: There is no difference between the mean pre- and post-test standard scores in fluency for students in grades two through five who participated in the *Rx for Discovery Reading*® program field test.

Professional Significance of the Study

When the NRP was initially established, one of the goals was to find the answer to why so many students' "educational careers are imperiled because they do not read well enough to insure understanding" (Snow, Burns, & Griffin, 1998, p. 1). When reading instruction is effective, it is built on a foundation of many factors. Although reading's main purpose is obtaining meaning from print, understanding the alphabetic code is foundational. Students must develop an understanding of the sound/symbol concept as well as have practice with a variety of texts to develop fluency. Background knowledge, including vocabulary acquisition, helps form meaning and interest in written text. Procedures for monitoring comprehension must be taught. Interest and motivation in reading also need to be developed (Snow, et al., 1998; NICHD, 2000).

Rationale

It is hoped that the field test for *Rx for Discovery Reading*® will make a contribution to the knowledge of interventions for students struggling in reading. Although there are many reading interventions available, many rely solely on compensatory methods, using the students' strengths and ignoring the weaknesses. *Rx for Discovery Reading*®, a newly created program, offers an intervention more therapeutic in nature, using human mediation through the use of guided questioning and interactive language to help students acquire the skills for developing fluent reading. Because the program has been recently developed, this field study was implemented to

discover if the intervention impacted positively the reading achievement in the areas of phonological processing, phonics and fluency of the students involved. Before the enrollment in the program, only 3 of the 29 students participating had been in any other intervention. Those three students had had a year of tutoring before entering *Rx for Discovery Reading*®.

Phonological Processing:

Phonological awareness is the broad area of understanding the sound/symbol relationships of the alphabetic code. Phonological awareness is being able to generate rhymes, identify and work with syllables, and identify and work with onsets and rimes in syllables (Armbruster & Osborn, 2001).

Phonemic awareness is the more specific end of the phonological awareness spectrum. It is phonemic awareness that provides a foundation for learning to read and to spell (Gillingham & Stillman, 1997). At this level, the student is able to focus on and manipulate individual sounds to create a new word. In phonemic awareness, manipulating sounds involves identification, isolation, segmentation, deletion, addition, substitution, categorization, and blending (Armbruster et al., 2001). “Phonemic awareness can be developed through systematic practice in categorizing words on the basis of common beginning, middle, and end sounds” (Pressley, 1998, p. 98). The NRP found that phonemic awareness can be taught and learned in a relatively short amount of time (NICHD, 2000; International Reading Association [IRA], 2002). After participating in a program of intense phonemic awareness instruction that is purposeful and deliberate for eleven to fifteen hours, a student may have significant gains in phonological processing (Barbour, et al., 2003; IRA, 2002; Yopp & Yopp, 2000).

Phonemic awareness instruction not only helps children to read, it also aids them in learning to spell as well (Moats, 2000). When students understand that the sounds and the letters are related predictably, they are more able to relate the sounds to letters in order to spell words. Phonemic awareness instruction is more effective when it focuses on one to two types of phoneme manipulation. It is also more beneficial when used in a small group setting in which children benefit from listening to others in the group and receiving feedback from the instructor (Armbruster, et al., 2001; NICHD, 2000; Mathes, Denton, Fletcher, Anthony, Francis, & Shatschneider, 2005).

According to Adams (1999, p. 49),

...approaches including systematic phonic instruction result in comprehension skills that are at least comparable to, and word recognition and spelling skills that are significantly better than, those that do not.

Furthermore, approaches in which systematic code instruction is included alongside meaning emphasis, language instruction, and connected reading are found to result in superior reading achievement overall. And these conclusions seem at least as valid for children with low reading-readiness profiles as they are for their better prepared and more advantaged peers.

Fluency:

A fluent reader is one who reads with prosody, focusing on the meaning of the language and has developed automaticity in processing the form of the language (Snow, et al., 1998; IRA, 2005). These are considered the central elements of reading fluency (Kuhn & Stahl, 2000). When a student continues to struggle with decoding the language, the student exhibits slow, choppy reading, depending on decoding skills to decipher

words. Most of the student's cognitive abilities are spent processing the form of the language. Consequently, fluency cannot be established and comprehension of the material is inhibited (Snow, et al., 1998; NICHHD, 2000; Armbruster, et al., 2001; Samuels, 2002; Pikulski & Chard, 2005).

Fluency instruction for struggling readers needs to include a variety of strategies.

- Repeated and monitored oral reading improves reading fluency and overall reading achievement (Armbruster, et al., 2001, p. 24; NICHHD, 2000; Pikulski & Chard, 2005)
- Assisted reading (Neurological Impress Method) or reading while listening allows students to hear and practice fluent reading, practicing until they themselves can read the text fluently with prosody (Rasinski, 2006; Pikulski & Chard, 2005; Osborn & Lehr, 2003).
- Increased amount of reading that students do is important because as words are encountered repeatedly, there are a number of beneficial outcomes, such as improvements in word recognition, speed, ease of reading and comprehension (Samuels, 2002, p. 174; Pikulski & Chard, 2005).
- Continued practice reading "sight words" so that automaticity is developed is also an important strategy. The "sight word" variable is strongly related to text reading rate (Torgesen, et al., 2006; Pikulski & Chard, 2005).

Currently, there is no research evidence to support that instructional time spent on sustained silent reading or independent reading with little or no guidance or feedback will improve reading fluency or reading achievement (Armbruster & Osborn, 2001; NICHHD, 2000).

Repeated Oral Reading:

Repeated oral reading is a strategy in which students read and reread a selection of text many times to improve reading fluency. Improvement is developed in prosody, word recognition accuracy and reading speed (Samuels, 2002). “Through repeated readings, even dysfluent readers are more able to capture the prosodic and syntactic essence of the text, thus improving the surface-level processing of the passage as well as text comprehension” (Rasinski, 2006, p. 14). “The greater support given to readers through repeated readings of instructional text in various venues and with various procedures, children are able to learn from material that they initially read with significant difficulty” (Stahl & Heubach, 2005).

Significant growth in reading level and reading rate has been found when students read repeated readings of phonics, sight phrases, and oral reading of text selections for as little as five minutes at a time (Mercer, Campbell, Miller, Mercer, & Lane, 2000; Dowhower, 1987). Repeated reading is more effective when the succession of readings have overlapping words. These shared words aid in developing reading speed as students gain recognition and automaticity of decoding of the familiar words (Rashotte & Torgesen, 1985). “Each passage is read only four times, because research by O’Shea, Sindelar, & O’Shea (1985) has shown that most of the gains in reading speed, word recognition, error reduction, and expression in oral reading are acquired by the fourth reading” (Samuels, 2002, p. 178).

Neurological Impress Method:

The neurological impress method is used to improve prosody. During the method, the instructor reads aloud in unison with the student (Heckelman, 1969). This

method is one of the easiest and most cost-effective methods of developing fluency. The teacher positively reinforces the student's reading throughout the exercise. "This close physical, one-to-one relationship of the teacher and the student contributes to a psychological affect component" (Heckelman, 1969, p. 280). Students participating in this method for as few as three to seven hours over a few weeks made significant gains in reading fluency (Flood, Lapp, & Fisher, 2005; Rasinski & Hoffman, 2003; McAllister, 1989).

Sight Words:

Direct instruction of sight words can impact student reading rate and fluency. Using a list of the most used sight words, a teacher helps the student develop automaticity in reading the words. Research holds that automatically recognizing sight words helps a student read a selection more fluently (Tucker, 1989; Singh & Singh, 1988; Frantantoni, 1999).

Small Group Instruction:

Small group instruction is a more effective model to aid students in learning to read than in large groups, such as a classroom. Children benefit from being able to listen to the other students' responses as well as the feedback from the teacher (Armbruster & Osborn, 2001). "Struggling readers need more time in small groups in which instruction is targeted to their level of competence" (Walpole, Justice, & Invernizzi, 2004, p. 279). By making task demands match with student competence, small group instruction promotes more effective student engagement, affording more student success (Walpole, et al., p. 279).

Findings and Implications:

The tenets of *Rx for Discovery Reading*® are research-based. Small-group instruction has proven to be a benefit as students aid each other with teacher feedback in developing reading abilities. By using direct instruction of phonological processing from eleven to fifteen hours, students gain significantly in phonemic abilities. Using the neurological impress method, repeated oral reading, and sight word acquisition, students develop fluent reading. These abilities move a student toward reading with comprehension.

Overview of Methodology

Subjects:

The twenty-nine subjects in this field test, from grades two, three, four and five, attended private parochial schools in a variety of areas in the United States and Canada. The subjects represented Caucasian, African-American and Latin ethnicity enrolled in private Christian and parochial schools from Maryland, Ohio, South Carolina, Alabama, Florida, New Hampshire, and Ontario, Canada. The criterion for placement in this study was achievement level below average in reading, based on the students' most current annual achievement reading test scores, developing a convenience sample for the study. Three of the twenty-nine students had previously been enrolled for one year in a reading tutoring program. The remaining twenty-six students had had no previous intervention. The subjects were chosen by the eight educational therapists participating in the study, who were employed at private Christian and parochial schools in rural, urban and inner city locations ranging from total school enrollment of eighty-five to one thousand. Each

educational therapist worked with a small group comprised of three to four students. The students had not previously worked with the educational therapist.

Instruments:

The field test for *Rx for Discovery Reading*® was an experimental study using pre- and post-test standard scores. The subjects chosen for the study received testing from the *Kaufman Test of Educational Achievement, Second Edition (KTEA-II)* using the standard reading battery and the supplemental reading subtests. The assessment ascertained the student's current levels in letter/word recognition, nonsense word decoding, phonological awareness, word recognition fluency, and decoding fluency. The pre-test was from *KTEA-II* form A with post-testing using the *KTEA-II* form B.

The pre- and post-testing also included the *Gray Oral Reading Test (GORT)*, fourth edition, to ascertain the student's oral reading proficiency. Pre- and post-tests used alternate readings.

The *Dynamic Indicators of Basic Early Literacy Skill (DIBELS)*, curriculum-based measures, was administered three separate times throughout the school year: for pre-testing, testing after the twentieth session, and post-testing. *DIBELS* includes a set of measures that are standardized and individually administered for assessing early literacy development. The fluency measures were quickly and easily administered regularly to monitor the development of pre-reading and early reading skills.

Test Reliability and Validity:

The reading subtests in the *KTEA-II* are associated with the highest stability (.93 - .97). The internal coefficients are impressive by traditional psychometric standards by age and grade. The subtests for the *KTEA-II* are highly correlated with other

achievement and cognitive assessments that offer information on validity (Buros, 2006; Kaufman & Kaufman, 2004).

The average coefficients for the *GORT* ranged from .91 to .97, showing that the test is reliable for all subgroups receiving the assessment. The criterion-prediction validity of the test showed high correlation to other measures of reading (Buros, 2006; Wiederholt & Bryant, 2001).

Procedures:

Prior to the beginning of the new school year, the educational therapists screened subjects for participation in their small groups based on achievement test scores in reading. The educational therapists then participated in an intense, three-day training workshop on the methods of delivery of the *Rx for Discovery Reading*® program. Subject information was shared at the training. This included each of the student's grade level, age level, reading level and geographic location. There was no specific identifying information shared that would have violated the confidentiality of the students' identification. The students were assigned a number to use as identification throughout the study. The students' parents signed a release form, granting the educational therapist their permission to work with each of the students involved in the study. The release form was kept on file with each particular educational therapist. The list of students was kept on file by the researcher.

Upon completion of the training, the educational therapists began implementing the *Rx for Discovery Reading*® program during the second week of school, completing pre-testing prior to beginning the intervention. The subjects met with the therapist for two forty-five minute sessions weekly throughout the school year for a total of fifty

sessions. The intervention was completed during each session with the only homework assigned being oral reading out of a selected text. The student was assigned a certain number of pages that were to be read to an adult in the home. The educational therapist made the decision as to which particular text would be used and how many pages the student was responsible to read. The program did not give specific guidelines for this type of activity. The *DIBELS* was administered during pre-testing, after the twentieth session and after the last session to ascertain fluency progress.

Since the field test was designed by the National Institute for Learning Development, the field test was under that organization's auspices. The researcher from NILD was in constant contact with the variety of groups. Personal contact was limited due to the geographical expanse of the field test sites, although the researcher was able to observe one session in Florida. Contact was made by phone and/or email. The researcher was available for questions or assistance with program delivery to insure that the educational therapists followed the guidelines of the study.

The post-testing was completed following the fiftieth session, using the *KTEA-II* form B, including the reading tests from the standard battery and the supplemental subtests and alternate readings from the *GORT*. The data were gathered and forwarded to the researcher, using a provided format (See Appendix 2).

Definitions of Key Terms

Auditory Processing – the ability to attend to, understand and derive meaning from a sound (NILD, 2003).

Automaticity – fluent performance without the conscious deployment of attention (Learning First Alliance [LFA], 2000)

Cognition – the mental process of knowing, including aspects such as awareness, perception, reasoning, and judgment (<http://dictionary.reference.com/browse/>).

Cognitive Processing – the ability to relate language and concepts to each other in a meaningful way (NILD, 2003).

Compensatory – serving as or providing a substitute or counterbalance (<http://dictionary.reference.com/browse/>).

Comprehension – the ability to understand written language (LFA, 2000).

Decoding – the ability to translate a word from print to speech, usually by employing knowledge of sound-symbol correspondences; also, the act of deciphering a new word by sounding it out (Moats, 2000).

Deficit Stimulation – stimulation of the student’s weak perceptual and cognitive areas by a human mediator producing independent learners in an integrative setting (NILD, 2003)

Fluency – speed and accuracy in recognizing words and comprehending connected text while coordinating the two (LFA, 2000).

Guided Questioning – cumulative review directed by precise questioning, taking the student back to prior experience with a specific task or event; provides prompts and leads students to new levels of performance. The mediator as well as the student develops questions for clarification while actively participating in the interaction (Hopkins, 2007).

Interactive Language – a strategy that leads students to generate clear, verbal responses to develop precise oral language that aids in developing and directing their thinking processes (Hopkins, 2007).

Literacy – this includes reading, writing, and the creative and analytical acts involved in producing and comprehending texts (LFA, 2000).

Mediator – an experienced, intentioned, and active human being who interacts with the child and interprets and explains both present and historic reality to him or her. The quality of this interaction will influence the degree of later learning or cognitive modifiability of which the individual will be capable (Skuy, 1996).

NILD educational therapist – an educator trained to implement NILD Educational Therapy®.

Perception – the act or faculty of apprehending by means of the senses or of the mind; cognition; understanding (<http://dictionary.reference.com/browse/>).

Phonemic Awareness – the conscious awareness that words are made up of segments of speech that are represented with letters in an alphabetic orthography (Moats, 2000).

Phonics – the study of the relationships between letters and the sounds they represent; also used to describe reading instruction that teaches sound-symbol correspondences (Lerner, 2003).

Phonological Awareness – the general ability to attend to the sounds of language as distinct from meaning (Lerner, 2003).

Prosody – a linguistic term that describes the rhythmic and tonal aspects of speech (Samuels & Farstrup, 2006).

Sight Words – words a reader recognizes without having to sound them out (Armbruster, Lehr, & Osborn, 2003).

Syllabication – the act of breaking words into syllables (parts of words that contain a vowel sound) (LFA, 2000).

Syntactic – based on the rule system governing sentence formation (Moats, 2000).

Visual Processing – the ability to understand and attach meaning to what one sees; the ability to differentiate, interpret, and remember what is seen (NILD, 2003).

Vocabulary – words that must be known to communicate effectively (Armbruster & Osborn, 2001).

Chapter 2

Review of Literature

This literature review focuses on the history of reading instruction in the United States of America, while highlighting remedial instruction for students struggling with reading acquisition. Specific information will be delineated as to the historical formation of the remedial techniques used in the *Rx for Discovery Reading*® program to show the importance of the program in answering the reason for this study, which is to help students acquire the abilities to read fluently.

Historical Foundations

Since the founding of the American colony by the British, with the establishment of Jamestown, instructing students to read has been a formidable focus of American education. The question has been and remains: “What is the best method of reading instruction to assure every student acquires the ability to read?” “In what seems to be an almost endless pendulum swing from one extreme position to another, the search for answers to various philosophical or pedagogical questions in reading education has continued almost unabated for more than 100 years” (Smith, 2002, p. xii). As Nila Blanton Smith stated in *American Reading Instruction* (2002, p. 391):

Many turning points have marked this ever-continuing story. For a period of years, reading methods and materials are quite similar, so similar in fact that an uninformed examiner might arrive at the conclusion that all had been turned out of the same matrix, with just a slightly different crimp here and there in the contour of the mold. Then rather suddenly, this pattern is abandoned and readers representing it march out of classrooms

passively, silently, noiselessly to repose in the dusty attics of homes or the unused storage rooms of schools. Then a new plan becomes popular and we teach reading according to this plan until another turning point arrives. Thus, epoch after epoch of reading instruction passes through the chronicles of time.

1607-1776

The methodology of teaching reading in early America involved a variety of teaching techniques. The earliest instructional method utilized the hornbook, a paddle-like board with a sheet of paper containing the alphabet and, at times, syllables and religious selections. The name “hornbook” came from the fact that a thin, translucent sheet of horn covered the paper to protect it from a student’s fingers. The children were to memorize the information displayed, using rote learning (Smith, 2002).

Freedom of worship drove the first colonists to America’s shores. As a result, the first reading book in the American colonies was the primer, a small book containing all a person needed for their spiritual existence. Later, the alphabet, lists of syllables, and words were added. This book became the standard textbook for reading instruction. The ABC, a schoolbook that better served for reading instruction and religious training, was later introduced once a student completed the hornbook. It was common to find a classroom utilizing the hornbook, primers, ABCs as well as religious Psalters (Smith, 2002). The Psalter was a book of psalms used for the purpose of devotions (Robinson, 1977). Although more reading texts became available, teaching reading remained primarily a rote learning task with the addition of recitation of the material that was learned.

The first reading textbook designed specifically for America was *The New England Primer*. Throughout the American colonial period, it remained the standard book for reading instruction. The book contained the alphabet, vowels, and consonants followed by the syllabarium. The syllabarium contained a list of syllables beginning with two letters and continuing to more complex syllables. Alphabet verses beginning with a letter of the alphabet followed by sentences containing religious instructions was included. There were also Bible verses, arranged alphabetically, followed by the Lord's Prayer and the Apostle's Creed. Students were to memorize the alphabet, vowels and consonants. The syllabarium was to be deciphered by spelling each syllable orally, then attempting to pronounce each one. The instruction was usually accomplished orally in a large group (Smith, 2002). The information was arranged from simple to more complex but did not include any provision for repetition or distribution of the words that were introduced. Words were introduced at a rate of twenty to one hundred per page (Robinson, 1977).

The speller came into use in 1760 as an additional text to teach reading in the American colonies. The speller, like the primer, contained the alphabet in lower and upper case, syllables, religious lessons, proper names in Scripture, weights and measures, as well as Scripture verses. Students were expected to memorize the information in the speller as well as the primer (Smith, 2002). The usual sequence of instruction included learning the alphabet by rote memorization, forward and backward. Upon completion, the student then was instructed to point out the individual letters of the alphabet as they appeared in the words in the speller. Once students knew the alphabet and recognized the letters on the printed page, they were introduced to the syllabarium and began to

memorize the lists of syllables. The students then used the information learned about the letters and syllables to begin spelling lists of short words. Memorization of sentences and reading selections followed, and, on occasion, the student was to answer questions about the selections. The main focus of the lesson was on the content to be learned, not necessarily on the methodology used to teach the skill of reading (Robinson, 1977; Smith, 2002). Once the primer and speller were completed, the student began to read from the Bible, memorizing many of the verses (Smith, 2002). The delivery of lessons in this time period was in one-room school rooms taught in small and large groups in rural areas as well as urban schools, where children were arranged by age and grade. Rote learning continued to play a large role in most classrooms (Israel & Monaghan, 2006).

1776-1840

During and following the Revolutionary War, reading instruction moved from religious instruction to developing patriotic Americans. “Reading content now had several new functions to perform: it was expected to purify the American language; to develop loyalty to the new nation, its traditions and institutions, its occupations and resources; and to inculcate the high ideals of virtue and moral behavior which were considered so necessary a part of the general program of building good citizenship” (Smith, 2002, p. 34). In an attempt to establish a uniform American language, it also became exceedingly important in reading instruction to teach rules and correct pronunciation and enunciation to overcome prevailing dialect. Moralistic training continued to be an important goal in reading instruction during this period (Smith, 2002; Robinson, 1977).

Noah Webster became the first American author to write a set of readers, which included a spelling book for teaching beginning reading, a grammar book, and a book containing reading and speaking selections for advanced readers to teach American values. The speller became the most popular of the three texts and later came to be called the *Blue-Back Speller* because of the color of the binding (Smith, 2002). With the *Blue-Back Speller*, a type of phonics was developed. Sounds were taught, letter by letter, followed by learning syllables one at a time. Although the methodology was an attempt to teach students to read, the focus remained articulation and correct pronunciation (Robinson, 1977).

Because of the desire for American children to develop proper pronunciation, the authors of the time instructed teachers that “great pains should be taken to make reading appear like real life... Children should never be allowed to pronounce a sentence or even a word, in that dull, monotonous humdrum style, which so often disgraces our common schools” (Smith, 2002, p. 65). Teachers were also instructed to model fluent reading of sentences before the student attempted to read, demonstrating proper pauses, emphasis, and inflection. They then had the student repeat what was read until he could pronounce it correctly. For the first time in American reading instruction, emphasis was placed on fluency in reading (Smith, 2002).

The alphabetic method, which required students to identify a word that was unfamiliar by saying the names of the letters aloud, syllable by syllable, was one of the methods used during this period. It was believed that the key to every aspect of written language was spoken letters and syllables. As the same time, phonics instruction was used in some school rooms, instructing children to sound out and blend the sounds of the

letters in an unfamiliar word. The initial publication in 1836 of the *McGuffey Eclectic Readers* series used the alphabetic system of reading instruction but moved to the phonics method with successive publications. The use of diacritical marks was also used in McGuffey's readers (Israel & Monaghan, 2006).

Whole-word instruction came into existence in 1828 with the publishing of Samuel Worcester's *Primer of the English Language*. This type of instruction was used one of two ways: 1) a word-to-letter approach followed by conventional reading instruction or 2) a word-to-meaning approach that moved instruction directly to the meaning of words while downplaying the role of the letters. Included was the sentence method, which was a method of instruction having students move from the whole sentence to the component words (Israel & Monaghan, 2006).

The Pestalozzian Primer was introduced by Keagy, a physician, emphasizing meaning and thinking in reading instruction. Keagy believed that students should read for knowledge not just read lists of words mindlessly. His methodology was to have students build up knowledge prior to reading and begin reading while recognizing whole words by sight. Once students became more fluent readers, word analysis could then become part of the instruction (Robinson, 1977).

1840-1880

The mid-1800s saw American reading instruction moving to carefully graded series called *readers*. Initially, the patriotic themes remained along with the moralistic teaching, but, by the end of the period, the patriotic themes were reduced and the moralistic teaching all but disappeared. The books contained a variety of subjects including science, philosophy, history, art, economics and politics (Smith, 2002). As the

instruction moved more to reading for meaning, the content of these readers began to emphasize information with stories based on real events (Robinson, 1977). Literature selections for the upper grades began to be produced. Emphasis was placed on oral reading, including choral reading, in large groups (Smith, 2002).

Because the emphasis for correct pronunciation remained, phonics instruction began to be introduced. Teachers were expected to move from the simple to the more complex. Because of this shift in instruction, syllabariums were discontinued from being used in the classroom. The upper grades began to receive instruction in developing meaning from the text through questions on the reading selections and through vocabulary instruction (Smith, 2002).

The progressive method of instruction, introduced by Horace Mann, was reputed in the mid to late 1800s. This method used whole-to-part instructional methods, stating that children learn best by methods that are more natural. It was believed that students learned more easily when they were interested in a subject, thus moving to adapt subject matter to the student instead of the student to the subject matter. The whole-word approach was the reading instruction of choice in progressive education (Israel & Monaghan, 2006).

Mann wove Pestalozzian principles and methods into American reading instructional practices. This was the initial attempt to develop a conceptual framework for reading instruction. He believed that previous methodology did not give students a chance to think, so, using Keagy's methods introduced in the previous time period, he began a movement that stressed using all of the senses and immediate application of meaningful situations. This resulted in substantiating the word method, using pictures

and materials that used objects and experiences that were familiar to the students (Robinson, 1977).

A new trend that began to emerge in reading instruction during this time period was the notion of silent reading. Students were instructed to read through a selection silently, utilizing a dictionary for any words they could not readily identify. Increased attention to meaning in reading was the impetus to require students to become independent readers, relying on silent reading and the use of the dictionary to establish the meaning from the selection read (Smith, 2002).

1880-1910

By the late 1800s, American democracy was firmly entrenched and the nation began to move away from explicit patriotic teaching and toward other pursuits that included music, art and literature. Reading became the medium through which Americans could develop a more cultural awakening (Smith, 2002). “[W]ell-defined aims, methods, and materials all directed toward the goal of developing permanent interest in literature” (Smith, 2002, p. 109). The prevailing idea was that learning to read was important, but learning what to read was equally as important (Smith, 2002).

This new cultural emphasis began to change reading instruction. One reading series in 1901 stated that “the content of the reading lesson is of more value than its form, and that an appreciation of good literature is worth more than the mechanical ability to read” (Smith, 2002, p. 114). During this period, a new interest in reading research began to emerge. Edmund Burke Huey’s *The Psychology and Pedagogy of Reading* was born out of this interest. His book became the first of many that offered a scientific contribution to the instruction of reading. Huey covered topics concerning the history,

the psychology, and the hygiene of reading as well as a pedagogy of reading (Smith, 2002; Robinson, 1977).

Also, for the first time, special attention began to be given to students who were exhibiting reading disability. It was postulated by the medical profession that “congenital alexia” or “word blindness” was the main reason students could not acquire the skills to become readers. Data from adults who had lost their ability to read because of brain injury became the impetus for future research. Experiments were performed for these patients, retraining them in reading using the alphabetic-spelling method (Smith, 2002).

Laboratory-type studies began to be completed in order to discover the reasons why some students were not learning how to read and the reasons why reading was so significant in the daily life of Americans. Although these studies did not impact classroom instruction, they began to call attention to factors such as reading rate, distinctions between oral and silent reading and the individual differences in reading ability (Robinson, 1977).

Professional books in reading began to come into prominence, offering instructions for teachers, whose primary task for reading instruction was to develop an appreciation for literature. Courses for teachers in reading instruction also began to be developed in the universities in the country. The use of silent reading was once again emphasized along with developing a love of literature. Also, outgrowths of the word method, the sentence method and the story method began to be used. Phonetic methods were expanded to a completely synthetic structure, although reading teachers continued to use either the phonetic method or the expanded word method (Smith, 2002; Chall,

1967). Pollard's synthetic method was introduced in 1889. Her emphasis in reading instruction was on phonics, but, like Mann and Keagy, she gave careful consideration to her student's interests and attempted to insure that the readings and exercises she included in her text remained interesting (Robinson, 1977).

The use of literature in children's reading series became widely used after the turn of the century. Based on the belief that the basal readers of the past were not real literature, there was a decided move to dismiss the "moralistic, child-centered stories found in earlier reading series and substitute stories that supposedly reflected the evolving beliefs of primitive people – myths, fables, nursery tales and fairy tales" (Israel & Monaghan, 2006, p. 7). Reading series began merging the new ideas of progressive instruction along with incorporating traditional phonics. At the same time, more and more series were using the whole-word method, making it the preferred method (Israel & Monaghan, 2006).

1910-1925

American reading instruction during this era was heavily influenced by the advent of the scientific movement in education. In 1909, Edward Lee Thorndike published and presented his handwriting scale, which was the beginning of scientifically measuring reading abilities. More assessments covering different aspects of reading ability soon followed. For the first time, it was possible to have scientific information about the effectiveness of reading instruction (Smith, 2002).

Thorndike was also instrumental in developing four laws of learning. Through his research with animals, he ascertained that learning is faster and becomes more permanent when complex tasks are broken into simpler steps and arranged in the proper

sequence from easier to more difficult, learning can be strengthened by isolated practice of these steps, remembering is increased through reward, and training in each specific skill is required because transfer from one skill to another can only happen through training (Thorndike, 1906).

Early in the twentieth century, through the work of Thorndike, the field of educational psychology emerged. This was the impetus to move the field of reading instruction to be conceptualized as a reasoning ability. Thorndike's work with mental measurement and developing word lists was an impetus for strengthening the scientific movement in reading instruction (Israel & Monaghan, 2006).

The *Gray Standardized Oral Reading Paragraphs*, published in 1915, became the first measure to assess oral reading ability. More assessments followed, mainly testing silent reading. This opened the gates for much more reading research to follow (Robinson, 1977).

Major changes in reading instruction followed the nation's entrance into World War I, during the years of 1917-1918, when it was discovered that thousands of American soldiers could not read well enough to follow printed instructions in their military manuals. This brought an outcry for improvement in reading instruction as it appeared evident that the current methodology had been unsuccessful in meeting the reading instructional needs of a large group of Americans (Smith, 2002).

Silent reading, once again, became a major goal in American reading instruction. It was determined in educational circles that this was the most prevalent method individuals used to acquire visual material during a lifetime. Because of this, students were to be instructed in developing efficient silent reading skills to "enable the individual

to meet the practical needs of life” (Smith, 2002, p. 154). Comprehension became an important part of the instructional method for teaching silent reading. Instead of simply reading because of interest, silent reading needed to be more directive in establishing reasons for reading a selection (Smith, 2002; Chall, 1967). The lessons usually began at the sentence level with directions for the reading given orally or written on the chalkboard. The students then were to read silently to ascertain the answers to the questions as well as to interpret the meaning of the passage (Robinson, 1977).

Along with directed silent reading, speed in reading also became an important addition to reading instruction in the classroom. Teachers began to use timed readings to develop faster reading rates, believing that speed and alertness were integral parts of demonstrating proficient reading (Smith, 2002). Along with this, the beginnings of assistance for poor readers began to appear in the instructional day. The concern continued to grow out of the necessity to meet needs based on the individual differences exhibited by the students (Robinson, 1977).

Because educational psychologists expanded concern for students who were not reading well, public schools began to seek ways to help students who were having difficulty reading. The term *remedial reading* began to be used during this time period. Two of the pioneers in developing diagnostic assessments, as well as remedial reading techniques, were William S. Gray and Arthur I. Gates (Smith, 2002). Gray published *Remedial Cases in Reading: Their Diagnosis and Treatment* in 1922, identifying several categories of students and listing the causes for their reading difficulties. His book helped establish the use of multiple methods of instruction in reading to meet individual needs more fully. The text also aided in the establishment of the specialty of remedial

reading as well as the need for formation of reading clinics. Gates was instrumental in establishing the concept of reading readiness, believing that many students failed to learn to read because instructions began before the student was ready. He also fostered the idea of reading instruction's being an integrated task, taught in the context of the activities and interests of the student (Israel & Monaghan, 2006). Emphasis in remediating reading disabilities was also placed on techniques that aimed at remedying motor aspects of reading, including erratic eye movements, extraneous bodily movements, and improper breathing and vocalization. Reading clinics became even more popular, offering individual help for students with reading disability (Smith, 2002).

A variety of new techniques began to come into use. The experience chart became an important part of instruction. Teachers discussed with students about their individual experiences, dictating sentences about those experiences while the students copied them, followed by students' oral reading of what was written. Also, individual instruction was introduced. Classrooms began to be divided in order to meet the individual needs more effectively. Ability grouping, in a small group format, came to be the technique of choice to reach this goal (Smith, 2002).

1925-1935

The decade of 1925 to 1935 saw a time of intensive research in reading instruction, including application of what reading research had revealed as the most appropriate methodology for meeting student needs in reading acquisition. In 1925, the first National Society for the Study of Education (NSSE) yearbook was published, devoted to the topic of reading instruction. The book contained a compilation of topics, including reading as a thought producing process and the enjoyment of literature,

providing for individual differences in the classroom as ascertained by classroom tests. Included was a chapter on phonics instruction, stating that formal phonics training should be deferred. The concern was developing students who were “word-callers” and not fluent readers (Israel & Monaghan, 2006, p. 16). A division in philosophy in regard to how to teach reading began to emerge. One group believed that teaching sequential skills planned carefully by the teacher was the method that would offer the most success. The other camp, the so-called *activity movement*, believed that students learned better if allowed to solve problems and carry out their own purposes. A child’s individual experiences were to be used to offer this latter type of instruction (Smith, 2002; Chall, 1967; Robinson, 1977). Reading instruction was incorporated throughout the day, and the basal reader series was widely used. Instruction became concentrated around reading as the core, with all other activities supplementing reading ability (Smith, 2002).

Preprimers were introduced during this period. The prevailing attitude of educators alleged that children needed specific preparation to be able to acquire reading ability. These texts were used in conjunction with reading series or were utilized as a stand-alone instructional piece (Smith, 2002). Great care was taken to introduce only words that were used most frequently based on vocabulary lists in the texts. The preprimers included far fewer words than the succeeding primers in the basal series. Words were repeated often to help students remember them. Gray and Gates were the most prominent developers of these basal series (Robinson, 1977).

Phonics instruction became intrinsic, using word form, context cues, and meaning to be able to decipher a word. The emerging thought was that direct phonics instruction was a disgrace and was no longer needed. Children were to think the parts of the word

instead of sounding them out orally as an aid to decoding. Phonics became subordinate to other phases of reading instruction (Smith, 2002). Explicit phonics' instruction was relegated to those students who continued to struggle learning to read (Robinson, 1977).

With the publishing of the 1925 yearbook, the necessity to develop strategies for diagnosis and remediation of reading failure was introduced (Israel & Monaghan, 2006). Remediation for struggling readers became the main focus of reading research. The causes, proposed by Samuel T. Orton, were insufficient mental ability, hereditary factors, emotional disturbances, visual and auditory deficits, inaccurate reading habits, and cerebral imbalance (Smith, 2002). Orton was an American neurologist who developed a theory hypothesizing that the lack of the establishment of cerebral dominance could be the cause for language and reading difficulty. He objected to the use of "word blindness" but coined the term *strephosymbolia*, which was an attempt to describe reversals and inversions some students experienced in attempting to read (Lerner, 1971; Tierney, Readence, & Dishner, 1980). To meet the growing demand for remediating these students' failures, most teachers' manuals included techniques to help students who were reading disabled (Robinson, 1977).

Grace M. Fernald, who worked with students who were deficient in reading in The Clinic School, introduced a remedial technique using a kinesthetic method, encouraging the student to trace over a word using one or two fingers. While tracing, the student was to say the word in parts and continue until he could reproduce the word without looking at the text (Smith, 2002). Along with Orton, Fernald believed that the simultaneous stimulation of all of the input modalities would reinforce learning. With the students' hearing the word, saying the word, seeing the word, feeling the word, writing

the word and spelling the word, memory for the word would be longer lasting (Lerner, 1971; Tierney et al., 1980). For slow, halting oral reading, the intervention provided was to give the student incentive for accumulating a list of recognizable sight words. Also, during the same time period, public schools began to incorporate remedial reading into their reading instruction, and the first reading clinic was developed on a college campus (Israel & Monaghan, 2006).

1935-1950

This time period ushered in a time of national and international unrest in America. With the Great Depression and World War II, including the use of the atomic bomb, reading instruction was impacted on many fronts. The social values of reading became important, and reading research, as well as the publication of new reading series, was inhibited. Once again, a world war demonstrated that American soldiers were not literate to the level of reading and implementing military instructions. The one difference during this Second World War was the discovery that soldiers could be taught to read in a short amount of time. There was a shift from the more informal reading instruction to a renewed emphasis on a more systematic reading instructional program. Radio, comics and movies began to take over individuals' interests, creating concern that reading was falling victim to these new hobbies (Smith, 2002).

By the 1930s, reading failure continued to be an area of examination. During this time period, the thought was that students did not acquire reading ability because they were introduced to reading instruction before they were ready. It was believed that the optimum age for reading readiness was six and a half years. Also supported was the idea that, at any grade level, a student's physical, mental, emotional, and social maturity made

a large impact on his ability to become a proficient reader. Being able to adapt instruction to a student's individual needs was another key factor (Israel & Monaghan, 2006). The multiple-causation theory of reading disability also began to appear in the research of the era, predicting that personality, emotions, psychiatric and psychological deficits could affect a student's ability to learn to read (Smith, 2002). To meet the individual needs of students in the reading classroom, the main approach became grouping students according to ability levels, with flexibility in groups a higher priority than reading achievement. Because remediation continued to be a growing concern, many instruments were developed during this era. Among these were the telebinocular, ophthalmograph, metronoscope, tachistoscopes, and the Harvard Films (Robinson, 1977). Reading clinics were becoming more prevalent in cities across America, and teachers were receiving training in helping struggling readers (Israel & Monaghan, 2006).

Vocabulary development was emphasized in the mid 30s, although word acquisition continued to be based on methods other than phonics. "Children were to figure out words through their configuration; their larger component parts (such as compound words like *policeman*); on occasion through smaller components, such as *th* in *that*, and a few letter sounds, most useful when they begin a word" (Israel & Monaghan, 2006, p. 20). Phonics was used but supplemented with training in use of context clues, picture clues, dictionary skills and structural analysis (Chall, 1967). Children were to be taught the most frequent and obvious letter sounds, but formal rules were thought too complicated for students to acquire (Israel & Monaghan, 2006). Skills charts were added to basal readers, and work-type reading became more prevalent in the classroom.

Students were instructed to read for information, evaluation, organization and retention,

moving through steps in comprehension from the simple recall to the more complex critical thinking (Robinson, 1977).

More and more training was being offered to teachers in the 1940s, demonstrating the link between student maturation level and learning. Students whose maturation seemed to be slower than the norm were named *slow learners*. Teachers began to receive hints on how to help these students in the classroom learn to read (Israel & Monaghan, 2006).

1950-1965

Throughout the years of the 50s and 60s, there was a growing concern for the survival of democracy. This was also a time of expansion of knowledge and technology. The threat of a global expansion of communism caused a feeling of nationalism to grow ever stronger. Gwinn, a statesman of the period, stated in 1951, that

the task of public education in this age is to develop the knowledge, appreciations, skills and attitudes necessary for living in a changing world, to develop faith in the values of democracy, to develop the understandings and ideals necessary to the achievement of a free world, and to develop the ability to defend democracy against the threat of totalitarianism (Smith, 2002, p. 289).

Governmental concern for education came to the forefront, and support for education for the masses was supported. The poverty-stricken and jobless needed to be taught to read. The integration of the races in classrooms was a prominent governmental concern during this time period. Providing remediation for *slow learners* also became a goal using governmental assistance (Smith, 2002).

By the 50s, students who exhibited proficient reading skills were considered healthy while those that continued to struggle were considered to have a kind of illness that needed therapeutic intervention offered by specially trained educators. Classes in diagnosis and remediation became a standard for any teacher seeking a masters degree in reading (Israel & Monaghan, 2006). Research in a variety of fields, including sociology, psychology and physiology, began to appear, developing answers to the question of what was causing reading disability. Medical treatment, including medication, was realized for use as an intervention for struggling readers. The term *word blindness* disappeared from use, being replaced by a new term, *dyslexia*, that became popular as the definition for reading defects. Reading clinicians and reading specialists used a variety of techniques to remediate reading failure including tests, materials, methods and networking with other professionals from a variety of disciplines. *Reading improvement* became the catch word of the period (Smith, 2002).

During this decade, the whole-word method continued to be the favored method of reading instruction. Goals for excellent reading instruction were outlined in the 1949 National Society for the Study of Education (NSSE) report. These goals included directives for teachers to offer students a variety of reading experiences, coordinating the reading program with the students' community and family lives, reading in conjunction with language arts, offering a reading program that continued through all grades, and using flexible groupings for meeting individual student needs. Basal readers became the core of the reading program. This afforded the opportunity for small-group instruction, allowing different groups to be working on different levels of reading texts

simultaneously. Students could be grouped according to their levels of need in reading instruction (Israel & Monaghan, 2006).

In 1955, Rudolf Flesch wrote the book, *Why Johnny Can't Read – And What You Can Do About It*. In the book, Flesch blamed reading experts for substituting the whole-word approach to reading instruction instead of the phonics method. He stated that this move was the impetus leading to the epidemic of reading failure among young students. He believed that reading professionals had misinterpreted their own research, showing no favorable results from the whole-word approach to reading instruction (Flesch, 1955). Flesch reported that in analyzing the reading research, there were far more studies that supported the superiority of systematic phonics over the whole-word method. He believed that basal readers, intrinsic phonics, experience charts, reading readiness, and reading vocabulary were not based on scientific research and were not successful methods in teaching students to read (Israel & Monaghan, 2006).

Because of Flesch's indictment, reading professionals established the International Reading Association, a unified organization of reading professionals including anyone who cared about reading instruction. It was believed that an organization devoted to the interests of the reading community would help clarify research-based reading instruction (Israel & Monaghan, 2006). The organization was established on the premise that it was open to all individuals who were interested in reading, no matter what the person's philosophy of reading instruction might be based upon. Its first president was William Gray (Israel & Monaghan, 2006).

1965-1980

The following decades saw two important studies that continue to impact reading instruction today. In 1967, *The Cooperative Research program in First-Grade Reading Instruction*, the so-called the First-Grade Studies, conducted by Guy L. Bond and Robert Dykstra, compared different reading instruction in first grade, and the effects on reading acquisition of each. Through the comparison of twenty-seven different reading projects from 1964 to 1967, Bond and Dykstra concluded that reading instruction would be improved if teachers had better training in teaching reading; classrooms that used an integrated approach, combining systematic phonics with reading for meaning and writing, surpassed the exclusive use of basal readers; the two most important predictors of success in learning to read was a knowledge of the alphabet and the ability to discriminate between word sounds (Bond & Dykstra, 1997; Cowen, 2003; Snow, et al., 1998).

In 1967, Jeanne Chall completed her monumental treatise, *Learning to Read: The Great Debate*. Chall used critical review procedures to examine the empirical research, classroom practices and basal reading series to end the debate once and for all (Smith, 2002). Her goal was to answer the question, “Do children learn better with a beginning method that stresses meaning or with one that stresses learning the code” (Chall, 1967, p. 75). She had ascertained that from 1930 to the 1960s reading instruction in America had concentrated on teaching students to read whole words and sentences while deemphasizing phonics. Silent reading was stressed over oral reading because oral reading was too closely linked to phonics instruction. Students were encouraged to attempt to identify words by sight using pictures and context clues. Phonics had not been banned but had been moved to a minor role in reading instruction (“A Tribute”, 2001).

One of Chall's goals was to ascertain the reasons for reading failure. She stated, "Severe disability seems to result when a child has a predisposition (a set of characteristics that make it difficult for him to associate printed symbols with their spoken counterparts) and is exposed to an initial method that ignores this predisposition" (Chall, 1967, p. 174). Chall recommended several broad changes in reading instruction. These included an early emphasis on phonics instruction, an increase of reading challenge at every grade level, the development of new assessments for reading ability and improved reading research. She noted the importance of the conclusions found through the research being accessible to non-researchers, such as principals and teachers (Chall, 1967; Snow, et al., 1998).

Skills management systems began to be used in conjunction with basal reading series. Students were given mastery tests and then provided with instruction to help them learn those aspects of reading instruction that had not been mastered. The skills were developed by using worksheets, workbooks, and other skills materials. Students would then complete another assessment to ascertain development of the missing skill. This cycle continued until all of the skills had been mastered. More difficult texts, increased phonics training, and specific skills development were utilized innumerable (Pearson, 2002).

Linguistics became a focus of reading instruction during the late 60s and 70s. The perspective of the linguist showed that aspects of reading did not need to be taught explicitly, as students would develop the ability to decode certain spelling combinations automatically based on oral language. Noam Chomsky, a linguist of the times who was considered a generative-transformationalist (Lerner, 1971), published a work reputed

that language is complex but proposing instead that it is acquired easily and naturally by children in their environment. If simply exposed to language, the child would learn to read (Pearson, 2002).

Through the work completed by Chomsky and other linguists, the field of psycholinguistics was formed. The philosophy supported by psycholinguistics was that children learned to read by reading. Teachers did not need to teach reading but were to help children read. Literacy experiences were to focus on developing meaning. Natural language patterns were used to predict words and meanings. It was psycholinguists who introduced the link between oral and written language. Authors framed vocabulary in texts for beginning readers by the natural language patterns students had developed. Emerging readers used their knowledge of language in order to predict words and meanings (Pearson, 2002).

Schema theory was developed by cognitive psychologists of the period. This theory stated that by using the schemata in memory, the student can more adequately structure learning. The schemata needed for learning to read included *discourse structure*, which is the organization of words, sentences, paragraphs that are expected in reading (Smith, 2004). The theory predicted that the ability to acquire new learning is based on prior knowledge. With the lack of foundational learning, establishing new ideas is difficult. Schema theory was popular in the 70s and 80s, offering a new paradigm for reading comprehension (Pearson, 2002).

In the early 70s, the United States government sponsored an extensive study entitled "Project Follow Through." "The objective of [the study] was to determine which general educational approaches or models worked best in fostering and maintaining the

educational progress of disadvantaged children across the primary school years” (Snow, et al., 1998, p. 175). Head Start, a governmental funded preschool program, had begun several years before. The impetus for the study was to ascertain the success of this program. Twenty different delivery methods were assessed with significant findings indicated. Of the major findings studied, conclusions were drawn that there was no one model that raised the students’ test scores in every location; those methods that implemented instruction in basic skills for language, math, vocabulary and spelling had better success in helping the students gain the prerequisite skills for each subject; through the basic skills instruction delivery, students’ self esteem was strengthened more than in other models; there was no systematic program that raised cognitive conceptual skills’ scores, nor did those systems that emphasized the cognitive areas over the basic skills show any gains. It was concluded that there was almost no delivery system that had produced the positive gains that were expected. Instead, there were more negative effects than positive (Stebbins, St. Pierre, Proper, Anderson & Cerva, 1977). However, one method, the Direct Instruction Model, seemed to run contrary to the report. Through this method, students received systematic teaching of phonemic and language skills. Students that continued in the instructional program through third grade performed on or close to national norms on measures of reading, language, spelling and math (Snow, et al., 1998).

Reading instruction gained new techniques during this chronological era. In 1976, the federally funded Center for the Study of Reading brought reading comprehension to the forefront of reading instruction. Comprehension skills began to be explicitly taught. These included monitoring of comprehension during reading, using graphic organizers and questioning the author, to name a few. Authentic literature

became the supplementary reading of choice. Reading and writing became inherently intertwined, and reading became more integrated with other curricular arenas (Pearson, 2002).

1980-Present

The decade of the 80s and 90s saw the emergence of whole language instruction in reading. Phonics began to lose its emphasis and literature moved to the forefront. Integrated activities in language arts became more of the core instruction with skills moving to the background. In whole language, teachers became facilitators, observing their students and making decisions about what they needed. Situations in the area of reading were then developed to help the students discover insights in learning for themselves. Activities and tasks were developed to support the learning experiences the students needed at any particular time. Reading became a meaning-making activity moving away from being a perceptual process (Pearson, 2002).

Becoming a Nation of Readers: The Report of the Commission on Reading was published in 1985, following the critical report, *A Nation at Risk: The Imperative for Educational Reform*, written in 1983 concerning the state of American education. Richard Anderson, Elfrieda Hiebert, Judith Scott, and Ian Wilkinson sought to answer the concerns raised about America's schools (1985). "[The] report fulfilled a need for careful and thorough synthesis of an extensive body of findings on reading. In its pages, the leading experts present their interpretations of our current knowledge of reading and the state of the art and practice in teaching reading" (Anderson, et al., 1985, p. v) The report corroborated previous studies in stating the importance of teaching the alphabetic system early in a student's educational career. Phonics was to be the engine to establish

the alphabetic principle, but it was to be taught early and simply, phasing out by the second grade for the majority of students. Reading from meaningful texts and developing an interest in and motivation for reading was established as necessary. Writing and reading together were shown in the research to be helpful in developing life long readers (Anderson, et al., 1985, Spalding & Spalding, 1986; Cowen, 2003). For the first time, automatic word recognition to develop fluency as a critical part of developing independent readers was outlined (Anderson et al., 1985; Cowen, 2003).

The year following the publication of *Becoming a Nation of Readers*, the United States Department of Education's Office of Educational Research began accepting proposals for more in-depth study and review of the research to understand thoroughly the importance of phonics and early reading instruction. The office wanted a straight-forward report dealing with the subject in an objective manner. Marilyn Jager Adams, a cognitive and developmental psychologist working in the Center for the Study of Reading, took on the task. *Beginning to Read: Thinking and Learning About Print* was published in 1990 (Adams, 1999). Her book developed a comprehensive, exhaustive look at the past two decades of basic and applied research in the field of reading. In her treatise, Adams reconciled phonics and whole word instruction by offering a more balanced approach. She stated: "...[T]o learn how to read, children need to read words quickly, accurately, and effortlessly in order to read with understanding and with skillful comprehension...phonics instruction is not enough...children must practice decoding by seeing and understanding these newly learned words by reading them in authentic, connected texts" (Cowen, 2003, p. 44).

Through the Office of Special Education Programs, the Office of Educational Research and Improvement and the NICHD, the Committee on the Prevention of Reading Difficulties in Young Children, chaired by Catherine Snow, was established in 1998 to develop a study to attempt to abate the continuing “Reading Wars.” *Preventing Reading Difficulties in Young Children* “was undertaken with the assumption that empirical work in the field of reading had advanced sufficiently to allow substantial agreed-upon results and conclusions that could form basis for breaching the differences among the warring parties” (Snow et al., 1999, p. v). The report upheld much of Marilyn Adams’ work in stating that an integrated approach to reading instruction would help develop successful readers. The conclusions in the report stated that the efficacy of teaching the alphabetic principle through phonics instruction while establishing the construction of meaning with opportunities to build fluency were emphasized for acquiring reading ability (Cowan, 2003).

In 1997, the United States Congress mandated the National Institute for Child Health and Human Development (NICHD) to congregate a national panel to assess the research-based knowledge establishing the effectiveness of various approaches to reading instruction. The National Reading Panel was to be composed of fourteen individuals, including leading researchers from colleges of education in the field of reading, reading teachers, educational administrators, and parents (NICHD, 2000). “A progress report was submitted to the Congress in February 1999. The information provided in the NRP Progress Report, the *Report of the National Reading Panel*, and this *Report of the National Reading Panel: Reports of the Subgroups* reflects the findings and determinations of the National Reading Panel” (NICHD, 2000, p. 1-1). The report

delineated the various topics that were of importance in teaching children to read, stating the necessity of instruction in five essential elements. These elements included developing phonological processing, explicitly teaching phonics, offering techniques for fluency, teaching a variety of ways for vocabulary acquisition and expanding instruction in comprehension activities. The methodology used as well as the research literature analyzed was indicated. Foundational to the overall study was *Preventing Reading Difficulties in Young Children*, offered in 1998 by Snow, Burns, & Griffin of the National Research Council (NRC) (NICHD, 2000). “The NRC Committee identified and summarized research literature relevant to the critical skills, environments, and early developmental interactions that are instrumental in the acquisition of beginning reading skills” (NICHD, 2000, p. 1-1).

In 2001, the *No Child Left Behind Act* became law. The provisions of the law included the following goals:

- that all students would be reading and doing math at grade level by 2014,
- that there would be higher expectations for every student and greater accountability for every school,
- that annual assessments and disaggregated data to observe progress would be provided,
- that there would be highly qualified teachers in every classroom,
- that timely information and options for parents would be disseminated, and
- that schools would have the freedom and flexibility to invest in what works (U. S. Department of Education [U. S. D. O. E.], 2001).

One aspect of the law stated that practitioners in education were to use scientifically-based research to drive their instruction. This was especially true in the area of interventions for students with reading deficits. Among these interventions was the call for individual tutoring by qualified tutors for at-risk students in grades one through three, instruction in phonemic awareness and phonics, and reducing class size in kindergarten through third grades (Whitehurst, 2003). Through early identification and provision of systematic, intensive instruction in phonological awareness, phonics, reading fluency, vocabulary and comprehension strategies, the majority of students at risk for reading failure could learn to read at average or above average levels (Lyon & Chhabra, 2004; Lyon, Fletcher, Shaywitz, Shaywitz, Torgesen, Wood, Shulte, & Osborn, 2001; Torgesen, 2002). Without this type of systematic, intensive approach, the majority of at-risk readers rarely caught up (Lyon & Chhabra, 2004; Shaywitz, 2003).

Rx for Discovery Reading® was formulated based on the conclusions of the National Reading Panel in 1999, *Beginning to Read*, and *Preventing Reading Difficulties in Young Children* to impact students with reading deficits in order to answer the call of *No Child Left Behind*. The previous historical research reviews definitively stated that phonological processing, fluency, sight word acquisition intervention delivered intensely in a small-group format would impact students' reading deficits positively. As Moats stated, in *Speech to Print*, "Once behind in reading, few children catch up to grade level unless they receive intensive, individual, expensive, and expert instruction, a scarce commodity in most schools" (Moats, 2000, p. 4). Historically, research continues to uphold these findings. This will be shown in the remaining aspects of this chapter as the

specific areas of reading instruction that *Rx for Discovery Reading*® implements are discussed based on historical perspective.

Phonological Processing:

Rx for Discovery Reading®, through the use of *Sounds of Speech*, helps students develop accurate phonological processing. Moats defined *phonological processing* in her

treatise *Speech to Print*:

Awareness of speech sounds, or phoneme awareness, in turn, is an aspect of a more fundamental linguistic competence known as phonological processing. Children who learn to read well are sensitive to linguistic structure at the level of speech sounds, parts of words, meaningful parts of words, sentences, and text. They can recognize repetitious patterns in print and connect letter patterns with sounds, syllables, and meaningful word parts quickly, accurately, and unconsciously. Effective teaching of reading presents these concepts in an order in which children can learn them and reinforces appreciation of the whole system in which these elements are arranged (2000, p. 8).

Although phonological processing has come to the forefront in educational research most recently, the field itself had a slow emergence, beginning early in the twentieth century. Raymond Dodge, a psychologist in the early 1900s, initiated studies on eye movement and perception. Although he did not pursue practical application of these studies to the pedagogy of reading, the findings opened up some new thinking about phonological processing. Jay Samuels (2004) used Dodge's eye movement and perception theories to develop the Laberge-Samuels model, consisting of the visual

memory system, phonological memory system, and semantic memory system. As visual information comes in through the eyes, it is the phonological memory system that makes sense of the word parts or the whole word.

The decades between 1900 and 1950 saw the emergence of the whole word approach to reading (Graves & Dykstra, 1997), championed by John Dewey, professor of philosophy at Columbia University in New York City and later by Gates and Gray, researchers from New York and Chicago, respectively. Consequently, phonics was once again subordinated as this new reading philosophy emerged (Balmuth, 1982).

Contrary to the prevalent approach to reading at the time, Leonard Bloomfield, who is referred to as “the father of modern American descriptive linguistics,” published his book entitled *Language* in 1933. The book contained a comprehensive treatise on the state of linguistic science at the time. He expounded on the implications of linguistics in teaching reading. His premise was that reading was essentially a process of decoding the phoneme-grapheme relationship (Lerner, 1971). Bloomfield believes that, once a student is familiar with all of the letters, upper and lower case, and has a proficient understanding of the left-right progression of reading, words with specific phonemic patterns would be taught first, organized in sets that mirrored word families (Bloomfield & Barnhart, 1961; Balmuth, 1982). Irregularly spelled words and those not following phonemic patterns need to be taught systematically “with the precise sequences and times of introduction determined by experimentation based on rational linguistic understanding” (Balmuth, 1982, p. 204). He advocates using color or marks to indicate those spellings not following phonemic patterns (Bloomfiend & Barnhart, 1961; Balmuth, 1982).

Bloomfield chose to teach his son to read through the method he had developed. In 1937, he gave his notes to a lexicographer, Clarence Barnhart, who, in turn, taught his own son to read using Bloomfield's method. Encouraged by this successful reading instruction, the men attempted to promulgate Bloomfield's method of using phonemic-based information into the teaching of reading with larger groups of students. Because the whole-word method was intrinsically entrenched at the time, they only had success in one small parochial school in Chicago. In 1961, Bloomfield's theory and specific exercises were posthumously published in the book, *Let's Read*.

In 1959, Sledd wrote a text entitled *A Short Introduction to English Grammar*. In it, he defined phonemic awareness:

A phoneme is a minimum structural unit in the sound system of a language. A phoneme as such does not have any meaning but since differences between phonemes distinguish one morpheme [or meaningful linguistic unit] from another, a difference between phonemes often signals a difference in meaning. For example, the difference between /b/ and /f/ distinguishes 'bat' from 'fat' (Sledd, 1959, p. 237).

In the 1960s, with the emergence of the linguist's approach to reading instruction, Ruth Strickland (1964) attempted to clarify the meaning of the term *phoneme*. In her definition, she stated the importance of the sound/symbol connection. She reported: "A *grapheme* is a significant unit of graphic shape and a *phoneme* is a significant unit of speech sound. Mastery of the correspondence between the phonemes of the language and the graphemes used to represent them is essential to the carrying on of the reading process" (Strickland, 1964, p. 10).

Chall, in her extensive review of the research in the late 1960s, made some tenable generalizations about phonological processing while reviewing what had been researched to answer the question of whether a student needed to learn the alphabet. She formed three conclusions: that students who knew the alphabet before learning to read were helped in the beginning stages of reading instruction, that knowing the sounds associated with the letters and being able to discriminate the differences before learning to read also helped the student in the beginning stages of reading, and that in grades 1, 2 and 3, sound/symbol knowledge had a greater influence on reading achievement than mental ability. Chall also concluded that mental aptitude seemed to have an even lesser impact on the reading achievement of a student's ability to understand sound/symbol relationships using decoding skills (Chall, 1967).

Marilyn Adams brought the importance of phonological processing to the forefront of reading instruction in *Beginning to Read*. She stated: “[P]honological processing is an invaluable asset to experienced readers...skillful reading depends critically on the speed and completeness with which words can be identified from their visual forms...the development of the orthographic processor is owed primarily to the guidance and input of the phonological processor” (Adams, 1999, p. 215). She continued: “Thus, a seemingly reasonable hypothesis about the phonological processor is that its existence is a consequence of the alphabetic foundation of our script and its use, a fortuitous vestige of having learned to read by sounding out words...phonological processing adds a critical degree of insurance and efficiency to the reading system” (Adams, 1999, pp. 189, 191). Phonological processing begins with the ability of the student to recognize words as individual units of speech. The next stage is to understand

that words are broken into syllables that are distinct in speech. The finest level of phonological processing is the understanding that phonemes are separate speech sounds that make up syllables, which, in turn, develop into whole words (Adams, 1999).

Although awareness of words seems to be a natural acquisition for students, developing phonemic awareness can be slow and difficult. For some students, phonemic awareness seems to develop simultaneously with word recognition skills. For those students who have failed to learn to read, the lack of phonemic awareness seems to be a characteristic. Although it has not been spontaneously acquired, it can be taught successfully. When students are given the opportunity to receive instruction in phonemic awareness, the results are quite dramatic (Adams, 1999). Research has indicated that among students who do not receive direct instructional support for developing phonemic awareness, approximately twenty-five per cent of middle-class students and decidedly more disadvantaged students demonstrate serious difficulty in learning to read (Adams, Foorman, Lundberg, & Beeler, 1998).

In order to identify the subtypes of reading disability, a study was conducted in 1998 to determine the specific reasons for students' inability to become proficient readers. A group of nine researchers used eight measures of cognitive and language functions to extrapolate seven reading-disabled subtypes. Of those seven, five were shown to have a relative weakness in phonological awareness (Morris, Shaywitz, Shankweiler, Katz, Shaywitz, Stuebing, Fletcher, Lyon, & Francis, 1998). The students in this study demonstrated "outright impairment or relative weakness on the measure of phonological awareness skills" (Morris, et al., 1998, p. 368), leading the researchers to

conclude that identification of the specific deficit would aid in appropriate intervention for students with reading deficits.

Preventing Reading Difficulties in Young Children describes phonological awareness as the ability to pay attention to the phonological structure of words instead of only their meanings and syntactical use. Labeled as a metalinguistic skill, a foundation in phonological processing treats language as a thorough process rather than simply a means of communication. This skill has been determined to be a strong predictor of future reading ability with the strongest predictor being letter identification (Snow, et al., 1998; Ehri & Nunes, 2002). Snow made the following statement:

There is converging research support for the proposition that getting started in reading depends critically on mapping the letters and the spellings of words onto the sounds and speech units that they represent. Failure to master word recognition impedes text comprehension. There is evidence that explicit instruction that directs children's attention to the phonological structure of oral language and to the connections between phonemes and spellings helps children who have not grasped the alphabetic principle or who do not apply it productively when they encounter unfamiliar printed words. Of course, intensity of instruction should be matched to children's needs. Children who lack these understandings should be helped to acquire them; those who have grasped the alphabetic principle and can apply it productively should move on to more advanced learning opportunities (Snow, et al., 1998, p. 321).

In 1999, when the National Reading Panel convened and developed its report on teaching children to read, it also found that instruction in phonological awareness was vital for students' future success in learning to read. The results, found through a meta-analysis of the body of research on reading ability, stated that teaching phonological awareness was clearly effective and improved a student's ability to manipulate phonemes found in speech. As the skill is strengthened, it transfers to learning to read and spell. The benefits not only are for word reading but transfer to reading comprehension as well (NICHD, 2000).

According to the NICHD, any student from preschool to older students who struggles with reading ability acquisition can benefit from explicit instruction in phonological awareness (2000). "Various forms of phoneme manipulation might be taught, including identifying or categorizing the phonemes in words, segmenting words into phonemes, blending phonemes to form words, deleting phonemes from words, or manipulating onsets and rimes in words" (NICHD, 2000, p. 2-41; Ehri & Nunes, 2002). The most effective methods appear to be when the focus is on one to two skills at a time, rather than a multitasked approach. Also, teaching the skills with the use of letters yields larger effects, since letters help make the connection between phonological processing and reading (NICHD, 2000; Ehri & Nunes, 2002). Effect size of reading success was greater for programs using explicit instruction for less than twenty hours (NICHD, 2000).

Phonemic awareness instruction helps many types of children learn to read, including preschoolers, kindergartners, first graders, younger children at risk, older disabled readers, low as well as middle-high

socioeconomic status children, and children learning to read in English as well as other alphabetic languages... Phonemic awareness is not an end but rather a means to enhance children's learning of the alphabetic system for use in their reading and writing (Ehri & Nunes, 2002).

For a program to deliver extensive phonemic awareness development, it must have the following characteristics:

- systematic and gradual progression through a sequence of activities that are both developmentally appropriate and linguistically significant,
- short, active, and fun opportunities for manipulating the sound/symbol structure of language,
- only brief opportunities of carefully chosen print during the initial lessons,
- instruction in blending, separating, and substituting sounds,
- modeling of reading ability,
- use of manipulatives and body movement for active responses rather than relying on worksheets, which are rarely effective (Moats, 2000).

Phonics

Phonological awareness is the specific skill that involves manipulating the sounds found in speech. Phonics is defined as the method of teaching reading by emphasizing how spellings in words relate to speech sounds in a systematic way (Snow, et al., 1998).

Rx for Discovery Reading® uses *The Blue Book* as the system for instruction in explicit phonics.

As mentioned previously, phonics came to the forefront as the recommended reading instructional method in the late 1700s, early 1800s, when Noah Webster wrote

the *Blue-Back Speller* (Smith, 2002). In the initial chapter of the book, *Analysis of Sounds*, Webster explained that language was the expression of ideas using articulate sounds. These are the sounds made by the human voice. The alphabet is the written symbol of those sounds, which are presented to the eye. He stated: “In a perfect language, every simple sound would be expressed by a distinct character; and no character would have more than one sound. But languages are not thus perfect; and the English Language, in particular, is, in these respects, extremely irregular” (Webster, 1824, p. 7). He then introduced the alphabet and delineated them as vowels and consonants. He began the phonic instruction by giving practice in the pronunciation of the long and short vowel sounds, then connected those sounds with consonant sounds. He gave information about diphthongs, which were described as “the union of two simple sounds uttered in one breath or articulation” (Webster, 1824, p. 8), and the triphthong, “a union of three vowels in a syllable” (Webster, 1824, p. 8). The volume continued with instruction on how to use the key words in the rest of the text to help in word pronunciation (Webster, 1824).

Alexander H. McGuffey wrote *The McGuffey Readers* in the year 1838. The premise for the series of books was a rationale for reading instruction based on the use of phonics. As McGuffey and Webster were contemporaries, McGuffey stated that his instructional methods were “agreeably to the principles of Dr. Webster, whose philological labors entitle him to the gratitude of every American” (McGuffey, 1838, Preface). The initial volume for the series of readers was *The Eclectic Progressive Spelling Book, On An Improved Plan: Of English Ortheopy. Designed to Precede The Eclectic Readers*. As seen earlier in the Webster speller, McGuffey followed the same

format. He initially introduced the alphabet, then divided the letters into vowels and consonants, and, as a differentiation from Webster, added questions at the end of the instruction which gave further thought to what a student had just learned. McGuffey, like Webster, also included information about diphthongs and triphthongs, adding the “h” in the spelling that Webster did not have. Following that instruction in the volume were the sounds of the vowels, double consonants, which are currently called *digraphs*, and then final syllable sounds, including the sound of /shun/, /shus/, and /shul/, using key words to aid in pronunciation. The chapter concluded with the questions for review and clarification. All of this information is contained on pages 5 through 8. The rest of the 142 pages in the text included lists of words for practice (McGuffey, 1838).

The first reader in McGuffey’s series was the *Pictorial Eclectic Primer*. Once the students were introduced to the information in the speller with enough practice to begin to decode text using phonetic information, they began with the initial reader. The book began with a list of the alphabet and the sounds the letters represent. A picture and a key word was used to help in pronunciation. The students began reading immediately in lesson one of the text. The readings were arranged at the beginning with words of no more than three letters and added syllables with no more than three letters toward the end of the text. The primer was followed by readers that gradually offer readings in more complex spelling as well as comprehension questions found in the later volumes. The entire series was made up of one speller, one primer and four readers, using a systematic presentation of readings to move students from relying completely on phonics to being able to read higher level text fluently (McGuffey, 1838).

In the preface of the book, *Pollard's Manual of Synthetic Reading and Spelling*, published in 1889, popular at the time in many educational environments, Pollard stated:

Let the same care be taken to secure good reading as is required to make an accomplished performer on the piano. Let pupils understand the full meaning of this quotation: 'Words should be delivered from the lips as beautiful coin, newly issued from the mint; deeply and accurately impressed; perfectly finished; neatly struck by the proper organs; distinct; in due succession and of due weight.' Make reading of the *first importance*. As in music, let there be scales to practice; drills in articulation; a *thorough preparation* for reading before the simplest sentence is attempted. Let the rules governing the correct pronunciation of words be learned by singing the songs prepared expressly for this purpose and found in the back of this book (Pollard, 1889, p. 3).

Pollard believed that accurate pronunciation and spelling of words was of the utmost importance in teaching children to read. She believed that the method should be based on rules of orthoepy and orthography, teaching the sounds of the letters initially in order to lay a firm and broad foundation upon which to build words. She rejected the teaching of reading based on the whole word with phonic analysis following. Her method used diacritical marking and sounding out of the letters as students learned to read. The students were responsible to mark sounds as they worked on the chalkboard and later as they worked at their seats. They used books constructed by Pollard in which to mark words that had been arranged and classified by the author. The manual began instruction introducing a variety of vowel sounds with markings and key words to aid in

pronunciation. Following vowel sounds were the consonant sounds, including the hard and soft sounds of “c” and “g”. Blended sounds using one to two consonants, as well as vowel sounds, was entitled *Equivalent Consonant Sounds* and *Equivalent Vowel Sounds*. To help the teacher generate interest in learning the sounds, *Suggestive Names* were given to the basic sounds. For instance, for /b/, the name was “[t]he sound that presses the lips together” and /k/, /q/, and /c/ became known as “fish-bone sounds.” The manual offered a systemic system of introducing the sounds of the English language, calling it *The Synthetic Method* (Pollard, 1889). One interesting addition to Pollard’s instruction was the inclusion of *Pollard’s Synthetic Songs*. She stated: “The design of these songs is to make the first lessons of reading easy and attractive. Teachers who have tested this Synthetic Method understand that much depends upon a pleasing presentation of the sounds of the letters. Children are fond of singing, and the letters, arranged to familiar airs, afford them daily recreation and most profitable drills” (Pollard, 1889, p. 220). The songs included the sounds to be learned, drawings to help in remembering the sounds and musical staves with the notes for the songs. This appeared to be the first time music was used to aid in learning to read (Pollard, 1889).

The 1967 First-Grade Studies found that, in comparing basal reading programs, linguistic reading programs, alternative alphabet reading programs and systematic phonics programs, students learned to read more efficiently when phonics training was offered foundationally. The findings indicate that students who were taught using an intensive phonics method exhibited superior word reading skills as well as strong spelling ability (Bond & Dykstra, 1997). It was stated that “[w]ord study skills must be

emphasized and taught systematically regardless of what approach to initial reading instruction is used” (Bond & Dykstra, 1997, p. 74).

In Jeanne Chall’s work, *Learning to Read, the Great Debate*, after review of the current and historical research, she stated: “...[T]he research from 1912 to 1965 indicates that a code-emphasis method – i.e., one that views beginning reading as essentially different from mature reading and emphasizes learning of the printed code for the spoken language – produces better results...” (Chall, 1967, p. 307). She found that when a code emphasis was used, students appeared to develop better overall reading achievement by fourth grade. These students showed a greater accuracy in word recognition and oral reading, leading to stronger development of vocabulary and comprehension abilities. Although beginning readers demonstrated oral reading more slowly, due to the greater stress on accuracy, by the third grade the reading became much more fluent. Using systematic phonics programs, relying on direct teaching of the sound/symbol relationships produced the most successful readers. Beyond third grade, the relationship between phonics and reading achievement remained substantial (Chall, 1967).

The 1985 report from the Commission on Reading, *Becoming a Nation of Readers*, gave information on the teaching of explicit phonics based on research data that had been gathered. The question was asked:

What does research indicate about the effectiveness of phonics instruction? Classroom research shows that, on the average, children who are taught phonics get off to a better start in learning to read than children who are not taught phonics. The advantage is most apparent on tests of word identification, though children in programs in which phonics gets a

heavy stress also do better on tests of sentence and story comprehension, particularly in the early grades” (Anderson, et al., 1985, p. 37).

The commission stated that the fundamental purpose for phonics was to teach students the alphabetic principle. In order for students to be able to use the connections of letters and sounds consistently to aid in the identification of known words and the decoding of unfamiliar words, the alphabetic principle needed to become an operating principle. Phonics was shown to be the engine to develop that skill for students learning to read (Anderson, et al., 1985).

The commission found that the most useful strategies taught in phonics instruction included the teaching of sounds of the letters in isolation and in actual words. Instructing students to blend the sounds of letters to pronounce words was another skill that needed to be taught. Members of the commission found that having students use known words with similar spellings was a useful strategy in word identification. Implementing phonics instruction with opportunities to identify words in meaningful texts was extremely important (Anderson, et al., 1985). “Phonics should be taught early and kept simple” (Anderson, et al., 1985, p. 57).

Adams’ *Beginning to Read: Thinking and Learning About Print*, offers extensive information about reading acquisition and the role of phonics. Through her thorough research, she noted that “...skillful readers visually process virtually every individual letter of every word as they read, and this is true whether they are reading isolated words or meaningful, connected text” (Adams, 1999, p. 409). The most important goal in learning to read is to interrelate the symbols in words with knowledge of the sounds,

contexts, functions and meanings so that the association can be built among the familiar parts (Adams, 1999).

Adams related that learning the ability to decode is being able to make paired-associations. Paired-associate learning consists of three tasks: recognizing the visual stimulus, learning the phonemic response, and then associating these two to attach sound with the symbol. In order to learn the sounds of the specific graphemic units, the phonemes are the proper units of response. To learn longer letter units, a student must know longer phonological patterns that are composites of individual phonemes. Putting words together, a student relies on composites of phonemes, including multiphoneme phonological patterns (Adams, 1999).

According to Adams, it is not enough for a student simply to memorize the sounds that are attached to each letter. A student must understand the sounds in his language. Only by attaching letters to a particular set of familiar sounds learned through speech can a student learn to decode efficiently. Knowing and understanding the relationship between speech and print is extremely important in learning to read words. A student must be aware of the categorical concepts, the classes of parts, including spoken words, phonemes, and syllables. The print concepts include the words and spellings of those words, being aware specifically of the individual letters. Interrelationships of the specific concepts lead to efficient reading acquisition (Adams, 1999; Moats, 2000).

In summary, deep and thorough knowledge of letters, spelling patterns, and words, and of the phonological translations of all three, are of inescapable importance to both skillful reading and its acquisition. By

extension, instruction designed to develop children's sensitivity to spellings and their relations to pronunciations should be of paramount importance in the development of reading skills. This is, of course, precisely what is intended of good phonic instruction (Adams, 1999, p. 435).

According to Snow, et al. (1998), in *Preventing Reading Difficulties in Young Children*, research supported the idea that learning to read depends on attaching the letters and spellings of words with the sounds and speech units which they represent. If a student does not recognize the words, comprehension is greatly impeded. The evidence supports the need for explicit instruction in the phonological structure of oral language and the connections of phonemes and spellings to help students grasp the alphabetic principle on which reading relies.

Explicit instruction in the sound structure of words needs to begin in kindergarten. The explicit instruction needs to continue into first grade, making provision for practice of the sound structures, eventually leading to phonemic awareness, the familiarity with sound/symbol correspondences and common spellings that are used in identifying written words (Snow, et al., 1998).

The National Reading Panel in 1999 found, through the extensive examination of research in reading instruction, that systematic instruction in phonics makes a significant contribution to reading acquisition. Systematic phonics instruction relies on explicit teaching of symbol/sound correspondences and giving students practice using the relationships to decode words. It was also proven that systematic phonics can be implemented through tutoring, either in small groups or in large groups. Although older

students who struggle with reading acquisition benefit from phonics, teaching systematic phonics early in a student's academic career was much more effective. A student's word-reading skills become stronger through systematic phonics training that positively affects reading comprehension. This holds true for younger students who are initially learning to read as well as older students who struggle with reading (NICHD, 2000). "Students taught systematic phonics outperformed students who were taught a variety of nonsystematic or non-phonics programs, including basal programs, whole language approaches, and whole word programs" (NICHD, 2000, p. 2-134). The *No Child Left Behind Act of 2001* (NCLB) used the findings of the National Reading Panel to construct the key components of the bill, supporting the need for systematic and explicit teaching of phonics as the path to excellent reading acquisition (U. S. D. O. E., 2001)

"If a child learns letter names without a clear conceptual and associative emphasis on the sounds the letters symbolize, confusions in reading and spelling will occur" (Moats, 2000, p. 150). Students need to be taught each sound, anchored to the letter to which it corresponds. A key word mnemonic helps aid in acquisition and application of what is learned, leading a student to becoming an excellent reader (Moats, 2000).

Fluency

In addition to the tenet of phonics, fluency development is also a part of *Rx for Discovery Reading*®. Fluency is defined as the ability to decode words automatically, demonstrating reading for meaning with prosody. The decoding and comprehension are accomplished simultaneously with little or no difficulty. The student who orally reads fluently is able to automatically decode effortlessly with accuracy, using appropriate phrasing and expression. Fluency is indicated when a student can read with proper

inflection and correct speed while gaining meaning (Rasinski, Blachowicz, & Lems, 2006; Rasinski & Hoffman, 2003).

Reading with expression, a vital aspect of fluent reading, involves the use of prosodic features that demonstrate the tone and rhythm of language (Dowhower, 1991). Prosodic features include pitch, stress, rate, patterns in language, and appropriate phrasing (Kuhn, 2003).

It is through their grouping of print into meaningful phrases that fluent readers make written text sound like oral language...their use of expression can be seen as an indicator of their understanding of what is being read because they can only begin to apply appropriate phrasing and expression to a text if they are able to make sense of it. It is this prosodic reading, in conjunction with accurate and automatic word recognition that makes for a fluent rendering of a text (Kuhn, 2003, p. 131).

In the early American history of teaching reading, fluent reading was reading orally for elocution practice. Because it became important in the newly formed nation to unify the United States of America, reading instruction took on the task of developing fluency so that dialects across the nation would be erased and the speech of all Americans would become more uniform. Also, teachers during this period focused on fluency to help reading become more like speaking (Smith, 2002).

By the early 1900s, Edmund Burke Huey became a spokesman in the area of reading instruction, especially in the realm of reading fluently. Through his text, *The Psychology and Pedagogy of Reading*, originally published in 1908, he discussed what affected reading fluency. Huey believed that fluent reading was impacted by the type of

text being read. Other factors that he believed had an influence on reading fluency included the physical state of the reader, the level of concentration at the time of reading the selection, the prior experience with the subject being read, and the strategies used by the reader. In his studies, he realized that fluent readers would survey what they were going to read prior to reading the selection, make the decision what parts to omit, decide which vocabulary words were most important, and choose how much to read (Huey, 1968).

During this time period, as mentioned earlier, silent reading became a main emphasis in reading instruction. Despite Huey's research, John Dewey and, even Huey, believed that reading silently was how individuals read throughout their lives, so emphasis should be placed on developing silent reading skills that would aid in reading for meaning. From the earliest part of the twentieth century through the last part of that century, building fluent readers by oral reading was pushed to the back of priorities. The one oral reading technique that continued to be used was round-robin reading in the classroom. Round-robin reading, which was "unrehearsed sight reading, with turn taking" (Samuels & Farstrup, 2006, p. 11), was the dominant technique used for oral reading practice. Oral reading became the tool used by teachers to check for student word recognition skills. Students would read orally for the teacher, who made note of the errors the student made. There would be no coaching from the instructor, just notation for future consideration as to how any errors would be corrected by the student with the teacher's guidance (Samuels & Farstrup, 2006).

In 1974, LaBerge and Samuels published a study expounding the theory of automatic information processing in reading. The theory developed the thought that

perceiving words, sounding out the words, and phrasing the sentences needed to be done at an automatic level, with minimal reliance on attention or cognitive load. This would give readers the opportunity to use their cognitive abilities to develop comprehension of the text being read. It was theorized that poor comprehension was a result of students not reading fluently because they spent too much cognitive effort on decoding words. This was the first time in modern theory the subject of fluent reading and its impact on reading for meaning had been addressed (LaBerge & Samuels, 1974).

Two methods of aiding in building fluency came into fruition during this time period. In 1969, R. G. Heckelman, a clinical psychologist, developed an oral reading method called *The Neurological Impress Method*. In attempting to help a young girl of average intelligence read more fluently, Dr. Heckelman devised a method by which the instructor and student would read a selection orally and simultaneously at a rapid rate. He found the method had a positive effect on a student's oral reading fluency (Heckelman, 1969). *The Neurological Impress Method* will be discussed at length in another section of this dissertation.

S. Jay Samuels, in the late 1970s, originated another method of developing reading fluency. In a study using several students who were experiencing great difficulty in learning to read, Dr. Samuels had the students select easy stories that were of interest to them. Short selections from the stories were marked off for practice with each student orally reading the selection to an assistant. The assistant recorded the reading speed and indicated the number of word recognition errors. The student then practiced the reading selection silently at his seat until he had his next opportunity to read to the assistant. The research showed that by repeatedly reading the selection, a student was able to read more

fluently (Samuels, 1979). Repeated oral reading will be examined at length in the next section of this dissertation.

In *Preventing Reading Difficulties in Young Children* (1998), the importance of developing fluency was addressed. The improved quality of classroom literacy instruction is what would impact students' reading performance, helping to prevent reading difficulties. Adequate time should be spent initially to develop the ability to read for meaning. Among the literacy practices, "...sufficient practice in reading to achieve fluency with different kinds of texts written for different purposes...[and] [a]ctivities designed to insure these opportunities to learn include practice in reading (and rereading)..." (p. 223) were delineated by the authors. They go on to say, "Because the ability to obtain meaning from print depends so strongly on the development of word recognition accuracy and reading fluency, both of the latter should be regularly assessed in the classroom, permitting timely and effective instructional response when difficulty or delay is apparent" (Snow, et al., 1998, p. 7).

The National Reading Panel, in a meta-analysis of reading research for best practices in reading instruction, focused their attention on the importance of fluency in reading. One of the reasons for their attention on this area of reading ability is the fact that children in American education seem not to be achieving fluency in reading (NICHD, 2000). A study completed by the National Assessment of Educational Progress shows that 44% of students in a fourth grade national sampling are dysfluent, even when reading grade-level texts read with supportive testing conditions. Also included in the study is the close relationship between fluency and comprehension (Pinnell, Pikulski, Wixson, Campbell, Gough, & Beatty, 1995).

Although researchers have held that fluency is critical for reading with meaning, there has been no consensus as to the best practice. The National Reading Panel examined the results of studies that focused on programs that encouraged students to read extensively on their own with little guidance or feedback and also on studies focused on oral reading programs using guidance and feedback. Among the programs studied, use of repeated oral reading (Samuels, 1979) and neurological impress (Heckelman, 1969) were analyzed as to the effectiveness of these two approaches. The panel discovered that these guided repeated oral reading procedures “had a consistent, and positive impact on word recognition, fluency, and comprehension as measured by a variety of test instruments and at a range of grade levels” (NICCHD, 2000, p. 3-3).

Repeated Oral Reading

One of the specific techniques used in *Rx for Discovery Reading*® to develop students’ fluent reading is repeated oral reading. As early as 1918, the subject of oral reading was a matter for extensive educational research as to its importance in developing the ability to read for meaning. Among the early proponents of oral reading was Charles Hubbard Judd, a college professor whose lifework was discovering the best practice for reading. He wrote *Reading: Its Nature and Development* in 1918, delineating his beliefs on the importance of oral reading. He believed that a student needed to see the relationship between oral language and the printed word. This was foundational to the process of learning to read (Israel & Monaghan, 2006).

In 1976, S. Jay Samuels wrote an article on repeated oral reading entitled, “Automatic Decoding and Reading Comprehension.” His foundational premise in the article was the fact that the human brain acts as a single channel communication device,

being able to focus attention on only one information source at a time. In linking this information to the act of reading, Samuels maintained that as a student becomes a fluent reader, he is more able to automatically decode the words, thus paying attention to the meaning of the text. He stated: “Although the beginning reader cannot easily comprehend what has been decoded because attention is not available for processing meaning, unskilled readers can access meaning by rereading a passage several times” (p. 324). Samuels believed that the initial readings of a passage brought the material to the phonological level so the student could “listen” to the reading instead of actually reading it. Once that level was reached, the student would switch attention to acquiring meaning from what had been previously decoded. He ended by saying, “The time has come for teachers of reading to realize also the importance of practice beyond accuracy as a necessary condition for the development of automatic decoding. Students will learn to read fluently only by reading” (p. 325).

In 1979, Samuels reported the results of his research using repeated oral reading in a series of studies. The method he used was to have students reread a short meaningful passage several times until a specified level of fluency was reached. The procedure would then be repeated with a new passage. In order to help a student understand the necessity for reading a passage several times, Samuels linked the procedure to how athletes and musicians became proficient only through practice. Once the student saw the connection with practice, they were more willing to be involved in the technique. The students also became more motivated to participate when they realized the gains they were making in fluency. This was shown by allowing students to record their results individually on a reading record in graph form. The studies showed not only

improvement in fluent reading but also indicated gains in reading comprehension.

Samuels explained the phenomenon by stating: “As less attention is required for decoding, more attention becomes available for comprehension. Thus rereading both builds fluency and enhances comprehension” (p. 378). Samuels concluded by reporting the results on an empirical study he had implemented, using repeated oral reading for students with normal intellectual ability but weak reading ability. He noted that as repeated oral readings were used in conjunction with regular instruction, significant gains were made in the experimental group in both reading speed and comprehension (1979).

In the late 1980s, Sarah L. Dowhower reported on the continuing research into repeated oral reading and its impact in the classroom. She stated that research had evidenced that repeated oral reading was a viable tool to help disabled readers and remedial readers, as well as developmental readers, become fluent. In reporting on her study (Dowhower, 1987), she found the following:

- Practicing one passage to a set rate of reading speed leads to increases of speed and accuracy in new unpracticed passages.
- Rereading a passage significantly increases its comprehension.
- Comprehension gains on practiced text seem to carry over to new unpracticed text when the stories are at the same reading level, and accuracy and speed have also increased.
- Rereading passages enhances children’s ability to segment text into more meaningful phrases.
- Practicing a series of passages seems to be more effective than repeating just one passage (Dowhower, 1989, p. 504).

She found that after completing a series of five practice stories, students increased their comprehension of the text from 66% to 88% on the pretest and posttest scores for the unpracticed passages. She further found that using passages with a 100 WPM (word per minute) criterion was effective completing three to five rereadings for each passage (Dowhower, 1989).

Torgesen, through his extensive studies using repeated reading to aid students with learning disabilities, found much the same results. In a 1985 study, using twelve elementary level nonfluent readers with average ability, Torgesen, with Carol A. Rashotte, ascertained the impact of repeated oral reading in developing fluency. He found that reading speed was increased if the passages had shared words to help in developing automaticity in decoding (Rashotte & Torgesen, 1985). Torgesen delineated the factors that made repeated reading most effective. These included using specified fluency criteria or rereading a specified number of times, practicing the technique with support from another individual, as well as providing feedback concerning the accuracy and fluency of the reading (Torgesen, Rashotte, & Alexander, 2001). He stated: “The most successful fluency intervention described to date, repeated reading, is effective because it provides the kind of repeated exposure to words that leads either to the formation of new orthographic images or increases efficiency of access to images already formed” (Torgesen, et al., 2001, p. 353).

Steven Stahl and Kathleen Heubach (2005), through their examination of a variety of studies, developed a plan to reorganize a second grade classroom with the goal of improving fluency. Knowing that students move from decoding to reading for meaning by being able to read fluently, they established five goals for the reading program:

(1) each lesson would be oriented for comprehension, emphasizing fluent oral reading, (2) reading material would be at the student's instructional level, (3) students would participate in partner reading, (4) students would increase the amount of reading time in school and at home, and (5) support would be provided in their reading through repeated readings. At the conclusion of the study, Stahl and Heubach reported that "...with the greater support given to readers through repeated readings of instructional text in various venues and with various procedures, children are able to learn from material that they initially read with significant difficulty" (p. 58).

Neurological Impress Method

The *Neurological Impress Method* is also a technique used in *Rx for Discovery Reading*® to help students develop fluent reading. Dr. Robert Heckelman (1969) of Merced County, California, chose to test the theory of the so-called *neurological-impress remedial-reading method* (N. I. M.). In trying to find a more efficient means of helping students with reading deficits reach success in reading, he worked with students enrolled in remedial classes for six weeks, totaling seven and one-fourth hours of instruction. After experiencing great success with a student in 1952 using the method, he believed that a larger trial sample was warranted. He described the method as "a system of unison reading whereby the student and the teacher read aloud, simultaneously, at a rapid rate. The [deficient] reader is placed slightly to the front of the teacher holding the book jointly. As the student and the teacher read the material in unison, the voice of the teacher is directed into the ear of the student at close range" (Heckelman, 1969, p. 278). He went on to explain that the teacher varies the level of volume as well as reading slightly faster or slower than the student. At the time of reading, the teacher used her

finger to track the words. There was to be no prior preparations for reading as the reading needed to be spontaneous with as few pauses as possible. The teacher was not to teach decoding skills during the reading or discuss comprehension strategies. The goal at the end of the reading was to call attention to how the student's reading fluency had improved as a continual motivation for continuing to read.

Following the six weeks of instruction, Heckelman found that the mean gain in reading comprehension was 1.9 grade levels, with one student gaining 5.9 grade levels. He believed that there were a series of reasons why the students made such gains using this seemingly simple method of intervention. He hypothesized that many students become locked into a "phonics-bound" condition, continually relying on decoding without moving to fluent reading; using a neurological method impacted the neurological systems operating in the student, specifically in the visual-linguistic and aural-linguistic systems; and the variety of methods to teach reading possibly involved a hierarchy of associations for reading acquisition in the neural structures of the brain with students having defects in this area being slowed down in the process of learning to read. Heckelman conjectured that N. I. M. involved a combination of reflexive neurological systems, bypassing the associational systems, which were negatively impacting the student's reading ability. Exposing the student to accurate reading patterns, the correct systems are deeply impressed, allowing the student to begin to read more fluently (1969).

By 1986, Heckelman had studied many more students impacted by N. I. M. He believed that the proliferation of use of N. I. M. was because research had begun to hypothesize that reading had a neural basis. The N. I. M. that had evolved was an attempt to "utilize alternative neural pathways through a strong reinforcement technique

with a multisensory approach” (p. 412). The method used the modalities of hearing, speech, sight and tactile in conjunction with a model of correct reading, giving the student the ability to “feel” what it was like to read fluently. Believing that students with a reading deficit had impaired visual search functions, Heckelman postulated that by requiring the teacher to track with her finger, the erratic eye movements would be extinguished. The tracking would also aid in correcting left to right disorientation as well as help eliminate visual-spatial difficulties. He further believed that N. I. M. helped increase the chemical substances in the brain, offering the student increased memory capacity and function. The N. I. M. offered a psychological affective component by the one-on-one relationship of the teacher and the student including the unison of the voices during the reading session. Heckelman realized that, although N. I. M. was deceptively simple in its usage, when analyzed, it offered a multi-faceted intervention for students with reading deficits.

The N. I. M. has been shown to impact a variety of student needs in reading. For those students who have not responded to traditional methods of teaching reading or who read slowly and laboriously, N. I. M. helps them improve in their fluency. For the monotonous, one-tone reader or the one who reads too quickly, ignoring small words and punctuation, N. I. M. will help him read with more prosody. This intervention will also work with ESL students and adults who struggle to read also (Sparber, 1979).

Flood, Lapp and Fisher implemented two studies using the N. I. M. in 2005 to attempt to redirect educators to using N. I. M. as a viable multisensory approach to reading instruction. They believed that this important intervention had been forgotten in mainstream education, and they were attempting to bring it back to the classroom. The

initial study included twenty students from third through sixth grades who were below level in reading according to the annual achievement testing. Each student received N. I. M. for 10 minutes a day for 5 weeks. The second study also included twenty students from the third through sixth grades. These students also were below level in reading. The students participated in N. I. M. for 10 minutes daily for four days a week. Both studies indicated that N. I. M. was an effective method to increase fluency without negatively impacting comprehension. The researchers found what Heckelman originally believed about N. I. M.'s being an easy-to-use, inexpensive instructional strategy that helped develop fluent readers was accurate. They also found that N. I. M. had a positive effect on students' affect including their attitude and motivation toward reading. Flood, Lapp and Fisher believed that N. I. M. should be brought back to the classroom because of its overall benefits for student reading ability (2005).

Sight Words

In *Sounds of Reading*, a supplemental text used in *Rx for Discovery Reading*®, a list of sight words has been included for the educational therapists' use with their students. For students that struggle to read fluently, attempting to read irregularly spelled words or sight words can continue to inhibit fluency. For these students, it may be possible that they have developed no strategy to aid in knowing sight words automatically. Being able to read sight words is a significant reading skill. Many techniques have been studied to help students acquire adequate sight word vocabularies. According to Gillingham and Stillman (1997), the English language is essentially a phonetic language with twelve to fifteen percent of the words truly non-phonetic, or irregularly spelled. At the same time, a beginning reader must move from being a

decoder to becoming a sight word reader to be a skilled reader (Aaron, Joshi, Mahboobeh, Ellsberry, Henderson, & Lindsey, 1999).

Skilled readers develop a large volume of sight words. Acquiring those requires the familiarity of the word and the frequency with which it is read. The underlying foundation for sight word acquisition is efficiently developed decoding skills. As students develop the ability to access phonological information already stored, they become more proficient at reading sight words. By developing the phonemic awareness and letter-sound associations and by receiving direct instruction, students make significant gains in sight word reading (Aaron, et al., 1999).

Studies have indicated that continual exposure to sight words helps in fluent reading of those words. Reading the words from hierarchically developed lists, moving from easy to more difficult with feedback daily or multiple times weekly, gives the student the opportunity to remember the words when reading from other texts. By using flash cards, a student can frequently practice the words individually (Butler, 1999). The student can be encouraged to segment and manipulate the rime unit to help in pronunciation (Snow, et al., 1998) The goal is mastery of the list with feedback and individualized help as necessary (Bryant, Fayne, Gettinger, 2002).

In a study completed by Scarlato and Huentelman, gains were established when teaching sight words by the direct instruction approach. The sight words were presented as “funny words” because they did not consistently follow phonic pronunciation. The instructor would pronounce the word, then have the students repeat. They then read the word in a list of four other known irregular words. The next step was to have the small group of students read the word simultaneously, then read a sentence containing the

word. If students mispronounced the word, the instructor would pronounce the word, have the students repeat and then re-read the sentence. Acquisition of the word was checked frequently by the students rereading the word in other lists or sentences over a course of time. The instruction focused on one new word daily, which helped students stay engaged and not feel overwhelmed learning the list of words. The students in the study acquired and maintained fourteen irregular sight words over four weeks; with instructors teaching the words directly with immediate feedback, the students exhibited quicker acquisition and better retention (2004).

Small Group Instruction

Rx for Discovery Reading® uses the small group structure to implement the intervention. According to Snow, et al., even though students receive excellent reading instruction in the elementary grades, some do not make satisfactory progress in reading. These students require supplementary services from a highly trained specialist in reading who provides individual or small-group intensive instruction that complements the reading instruction in the classroom (1998). Reading instruction, when delivered in a small-group format, can help students learn the essential elements of reading more quickly. Small-group instruction has been shown to be as effective as one-on-one when teachers are highly trained to provide the intervention with sufficient intensity, duration, support and skill (Lyon & Chhabra, 2004). Meta-analyses have consistently shown positive effects of grouping practices that increase reading instructional intensity. For students with reading deficits, using small groups of three to four students at a time afford the greatest gains (Foorman & Torgesen, 2001).

Conclusion

As the previous sections have shown, theoretical and empirical research substantiates the parts of the *Rx for Discovery Reading*® program. By using a small-group configuration, reading instruction can be more intense and corrective, especially when one is aware of the fact that the NILD educational therapist is a highly trained specialist in the field of reading instruction. Following the conclusions found from historical research by the National Reading Panel, the program uses a phonics-based program to establish phonological and phonemic skills. Developing fluency, as shown in the literature review, is what helps a student read for meaning, the ultimate reason for reading. Using the research-based techniques of repeated oral reading, neurological impress method, and sight-word acquisition, *Rx for Discovery Reading*® provides sound, evidenced intervention for students with reading deficits.

The following chapter will delineate the methods used to field test *Rx for Discovery Reading*® in a variety of school situations. It is hypothesized that the students participating in fifty-45 minute sessions during a school year will have made significant gains in reading decoding and fluency standard scores on a battery of normed assessments. A description of the results follows.

Chapter 3

Methodology

The General Perspective

This chapter explains the methodology used in this quantitative study using experimental research, which is a study of the impact of one variable (independent variable) on another variable (dependent variable) (Ary, et al., 2006). The independent variable in this research is the students' participation in the *Rx for Discovery Reading*® program, and the dependent variable is the subjects' reading scores. Scores were collected before the implementation of the intervention and at the conclusion of the fifty sessions prescribed. The areas of phonological processing, decoding and fluency were statistically compared to determine the strength of the correlation of the variables to ascertain the impact the intervention had on the reading abilities for the subjects in the study.

The Research Context

The target population in this study was students enrolled in private parochial schools who were below level in reading according to scores on the reading subtests from their most recent annual achievement tests. The sample consisted of students from second, third, fourth, and fifth grades from eight different schools in the United States and Canada. Students from Maryland, New Hampshire, Florida (2), South Carolina, Alabama, Ohio and Ontario, Canada, participated in the study, which took place over a ten-month period, from August, 2006 through June, 2007.

Locations

The one rural area was located in New Hampshire, a small town with a population of 17,500. The major industry in the area was tourism. The socioeconomic level of the community was lower middle class, with over 7% of the population below poverty level. The private parochial school had a total school population of eighty-five students. Leadership in the school included a board of elders from the church and a principal as the only administrator hired specifically to work full-time in the school. The school was located in four buildings on almost 200 acres of land in the midst of the lakes region in the area. The program was implemented in one of the rooms located in the Discovery Center building on campus, which was structured appropriately.

Suburban schools were represented in Maryland, Florida, Ohio and South Carolina. These localities had populations ranging from 50,000 to 75,000. Industry in the areas included service industries and tourism. Each municipality was considered a bedroom community for the adjacent metropolitan areas. The communities were predominantly middle class. The private parochial schools ranged in population totals from one hundred to six hundred students. Organizationally, each school had an administrator, principals for the elementary and/or secondary levels, as well as other support staff. The program was implemented in each school in a small room that was equipped with the necessary accoutrements.

There were two schools from locations considered to be metropolitan. One school was in the state of Alabama. The population of the city was over 240,000 with a high socioeconomic standard of living. The industry providing a living for the majority of the population was iron works. The community boasted their support of the arts, the

symphony, art museums and a number of libraries. The private parochial school represented in this city was populated by one thousand students in grades K-12. Administration consisted of four levels of principals along with an educational consultant on staff. Supported by a church, the school had two campuses, with the elementary campus serving as the location for the intervention. The educational therapist was provided with a small room, which was adequate for the students' needs.

The other metropolitan school was in Florida, with a population of 1.5 million. The city was predominantly middle class, with a variety of ethnicities represented. The main industry was tourism. The school was a church-based program, having a 30 year old building separate from the church facility. The administrative structure was provided through an administrator, elementary principal, dean of students, athletic director and NILD (National Institute for Learning Development) director. The program was implemented in a small room that was well equipped.

Internationally, a city of over 77,000, located in Ontario, was the sight of the sample in this study. Boasting a middle to upper middle class socioeconomic level, the city based its income on a General Motors factory as the major industry. The school was provided leadership through a structure of parental input with elected board members. The program was completed in a small room in the 50-year old building, which had been renovated within the last decade to improve the educational environment.

Subjects

The specific information on the subjects participating in the study is shown in the following table:

Number of Subjects	29	100%
Chronological Age		
7 years	3	10%
8 years	9	31%
9 years	10	34%
10 years	6	21%
11 years	1	3%
Academic Level		
Second Grade	5	17%
Third Grade	12	41%
Fourth Grade	10	34%
Fifth Grade	2	7%
Ethnicity		
Caucasian	24	83%
Black	4	14%
Native American	0	0%
Hispanic	1	3%
Asian	0	0%
Gender		
Male	18	62%
Female	11	38%
Eligible for Free/Reduced Lunch	0	0%

The subjects participating in the field test were chosen from their particular school population based on their reading score from the previous year's classroom annual achievement testing as well as recommendations from school personnel including administrators and/or classroom teachers. Three of the twenty-nine students had previously had a year of reading tutoring. The remaining twenty-six had participated in no prior intervention. The small group assignments were homogeneous according to the student's individual reading level. Each of the twenty-nine students had no prior participation in any of the specific curriculum used as part of the intervention. Each of the students was new to the intervention, the NILD Educational therapist and the instruments used in the assessment process.

Instruments Used in Data Collection

The instruments used for pre- and post-testing included the *Kaufman Test of Educational Achievement - Second Edition, Comprehensive Form (KTEA-II)*. The educational therapists were provided with a copy of the test booklets along with the protocols necessary to complete the pre- and post-testing. Involving a prescribed list of subtests from the assessment, the pre- and post-testing was completed individually using either form A or form B respectively.

The reading subtests in the *KTEA-II* has an association with the highest stability (.93 - .97). According to traditional psychometric standards by age and grade, the internal coefficients are impressive. The subtests for the *KTEA-II* have been shown to be highly correlated with other achievement and cognitive assessments offering information on individual assessment validity (Buros, 2006; Kaufman & Kaufman, 2004).

For the completion of both periods of assessment, the reading-related subtests were completed. These included the sound-symbol composites using *Phonological Awareness* and *Nonsense Word Decoding*. To assess decoding ability, *Letter-Word Recognition* and *Nonsense Word Decoding* were used. *Word Recognition Fluency* and *Decoding Fluency* were the subtests that tabulated the reading fluency level. The educational therapist completed a chart at the end of the study period to indicate each student's standard, percentile, and grade equivalency scores (See Appendix 2).

The Gray Oral Reading Tests, Fourth Edition (GORT-4) was used to assess reading rate, accuracy and fluency during the pre- and post-testing sessions. The average coefficients for the *GORT-4* were shown to range from .91 to .97, indicating reliability for all subgroups receiving the assessment. There was a high correlation to other

measures of reading based on the criterion-prediction validity of the test (Buros, 2006; Wiederholt & Bryant, 2001).

The *GORT-4* was administered individually before the first session of the program and following the fiftieth session. Using the guidelines provided in the testing manual, the educational therapist completed one reading, ascertaining the levels, then moving to the next reading until the student's independent reading level was indicated. Percentiles, standard scores and grade equivalency scores were then indicated on a graph, completed by the educational therapist (See Appendix 2).

The *Dynamic Indicators of Basic Early Literacy Skills (DIBELS)* was used prior to the first session, following the twentieth session, and upon completion of the fiftieth session. The *DIBELS*, developed and maintained by the University of Oregon, is a curriculum-based measure of fluency that uses the median score acquired through three one-minute readings. Using the website <http://DIBELS.uoregon.edu>, scores of the individually administered readings were imported. The website offered the ability to construct graphical representations of the assessment results. These will be shown in chapter five of this dissertation, which will also include results from the entire battery of assessments that were completed.

Procedures Used

The implementation of the *Rx for Discovery Reading*® was based on Vygotsky's theory of the *zone of proximal development (ZPD)*. By determining students' mental age from the completed assessments, the educational therapists realized that these were the students' actual developmental levels. These levels indicated the establishment of the students' mental functions as a result of developmental cycles that had already been

completed. The educational therapists then determined the potential level of development for each student, moving him through the process (Vygotsky, 1978).

Vygotsky defined the *zone of proximal development* as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (1978, p. 86).

In conjunction with Vygotsky’s theory, use of human mediation was the determining factor to move students through ZPD. Through the application of Dr. Reuven Feuerstein’s theory of cognitive modifiability (Ben-Hur, 1994), each educational therapist established rapport with the small group of students to be able to have continual reciprocity in each session. Through intentional planning, the mediators moved the students through the process systematically, providing meaningful interaction while connecting the learning experience to the students’ educational needs. Feuerstein’s *Mediated Learning* process unlocked the propensity for learning through human mediation, remediating cognitive dysfunctions (Skuy, 1996).

NILD Educational Therapists

Of the eight NILD educational therapists implementing the program, five had completed a master’s degree, and three were at the bachelor’s level of academic achievement. The years of experience in implementing NILD Educational Therapy® ranged from three years to fifteen years. Six of the educational therapists had previously been certified in educational therapy by NILD.

To become an NILD educational therapist, an individual must have at least a bachelor’s degree in education or a related field. There are three levels of training, each

being a four-hour graduate level course, completed over a total of three to five years. During that time period, experience is gained implementing NILD Educational Therapy® with a minimum of 100 student contact hours annually. The educational therapist must also participate in an on-site visit by an NILD consultant, who observes follow-through of NILD Educational Therapy®, ascertaining the accurate implementation of the program based on specific parameters outlined by NILD. The initial certification, referred to as *standard*, is for a period of five years with the *professional* certification following that time period for a total of seven more years.

In order to participate in the study, NILD contacted all NILD educational therapists that had at least two years of experience implementing NILD Educational Therapy®. Fifteen spaces were being provided for a three-day training at the international office in July, 2007. Each candidate chosen was instructed to have already identified a group of students for the study. The fifteen were chosen on a first-come, first-served basis, with the NILD instructors carefully ascertaining that each individual met the parameters of experience established.

The fifteen gathered at the international offices of NILD in Norfolk, Virginia, to attend the intense training. Because the educational therapists already had experience using the *Blue Book* and the added components of the curriculum, the training focused on the specific components of the program (See Appendix 1) with special emphasis on phonemic awareness, phonics and fluency. The participants were divided into small groups on the final day of the training to demonstrate an aspect of the program with a group of “students” and were given feedback from the two instructors, especially on small-group dynamics. The final session included training on using the assessments

required for pre- and post-testing. Each participant was assigned a school number to be used as the beginning piece of anonymity necessary for the study. Following the training, upon returning to school, seven of the participants were unable to coagulate a small group for the study, leaving eight NILD educational therapists participating for the ten-month period.

Specific Procedures

Once all the educational therapists had received the training to implement *Rx for Discovery Reading*®, they began with the initial assessment of each individual student that had been identified to be a part of the intervention. Time was spent during the first two weeks of the school year completing the assessments and scoring the tests to ascertain the base level of phonological processing, decoding ability and fluency level for each student in the group. Once the scores had been calculated and recorded on the provided forms, the implementation of the program began in earnest.

The students were provided the small group intervention twice weekly for forty-five minutes per session. Fifty sessions were completed by the end of the ten-month period. During each of the forty-five minute sessions, the educational therapist followed the written procedure (See Appendix 1) provided by NILD during the training. Using the *Blue Book* and its accompanying texts, the educational therapist would model the new page for the students, demonstrating how each page would be said by memory the following session. Preplanned activities in *Sounds of Speech* would then be completed. These particular activities would be in conjunction with the *Blue Book* pages, helping to solidify the phonological connections. Discussion would follow of the strategies that would be helpful in learning the *Blue Book* page. These strategies could include

mnemonic devices, the identification of spelling patterns, and visual imagery of the page. Selected readings from *Sounds of Reading* that relate to the current *Blue Book* page would be orally presented by the students. Words were then dictated to be written in the *Phonic Spelling Workbook*. During the *Blue Book* section of the session, the educational therapist used guided questioning, mediated learning, immediate feedback and small group dynamics techniques to help the students attach meaning to what was being accomplished.

Following the *Blue Book* activities, new vocabulary words were introduced. These words were chosen from the reading text that the students were completing during the course of the intervention. The decision for the text was the responsibility of each educational therapist. The words were written on the board or put on a transparency, and the students alternately decoded the words. The educational therapist aided in the decoding by keying sounds, using *Blue Book* words that had been previously learned and relying on information the students knew about the six types of syllables. The group then ascertained the definitions of the words, parts of speech, synonyms and/or antonyms. An oral sentence was developed by students in turn for each of the words. The educational therapist encouraged the use of a strategy for sentence completion, such as asking *who*, *what*, *when*, *where*, *why* and *how*. The educational therapist also had the option of using the words in different ways, depending on the needs of the students in the group. Finally, one or two words were chosen for the students to complete the *Blue Book* analysis of the sounds on the board. The students wrote the word horizontally, then wrote each letter in a column. Using the key words learned in *Blue Book*, each student identified the sound represented by the letter or letter combinations and wrote the key word to the side.

The final section of the forty-five minute session had the students read a passage orally in round-robin fashion. Prior to the oral reading, the students scanned the passage, paying attention to headings or pictures to guide the comprehension of the text. During the oral reading, the educational therapist intervened when necessary with decoding aids and the use of repeated oral reading and/or N. I. M. At the conclusion of the reading period, one of many comprehension strategies was utilized. The educational therapist could choose from reciprocal teaching, questioning using Bloom's Taxonomy or the Socratic method, methods of developing questions for aiding in students' comprehension and higher levels of thinking, graphic organizers or advance organizers. Using gist summaries or *Store the Story*, the students developed a summary of the selection read. The mediator used guided questioning and provided wait time for the students' ability to think through each question while the educational therapist gave immediate feedback. Based on the performance of the students in the session, the educational therapist determined the specifics of each succeeding session.

Data Analysis

The NILD educational therapists participating in the field study were responsible for completing the required assessments (*KTEA-II and GORT-4*) along with recording the results on the provided forms. Although they were also responsible for completing the three different fluency assessments using the *DIBELS*, the scores were input into the website by the researcher. With the goal of the study the determination of the existence of a correlation between reading ability and the *Rx for Discovery Reading*® program intervention, scores were gathered as percentiles, standard scores, and grade equivalency. The standard scores became the scores of choice for the statistical comparison.

The data received on the students in each grade level for the *DIBELS* were organized on charts generated from the website. The reports showed the growth in reading fluency from the initial assessments to the final assessment at the end of the intervention. A histogram was used to graph the distribution of scores per grade level for oral reading fluency.

To determine a statistical relationship between the *KTEA-II* pre- and post-test scores and a relationship between the *GORT-4* pre- and post-test scores, a statistical analysis was used. The *t* test for dependent samples was used to determine the statistical relationship between the dependent and independent variables. A series of tables was generated to display the information.

Chapter 4

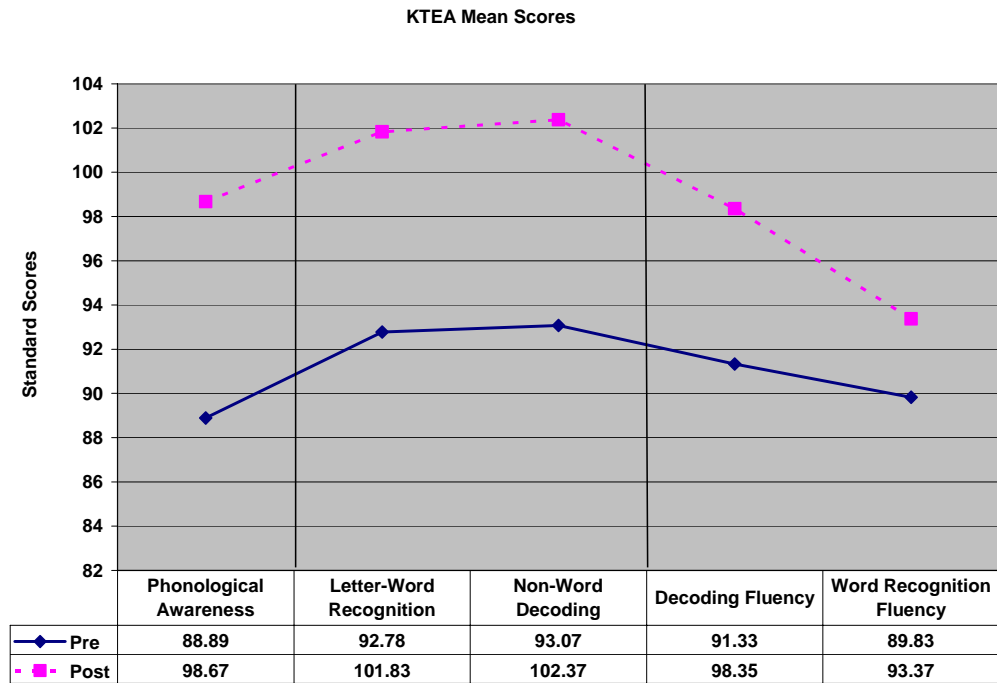
The Results of the Study

The purpose of the study, as stated in Chapter One, was to ascertain the effects of the reading program, *Rx for Discovery Reading*®, on the reading abilities of students in second, third, fourth and fifth grades that were below level in reading enrolled in private parochial schools in eight different locations of the United States and Canada. The specific areas of reading ability assessed included decoding ability, fluency growth, and phonological processing. For each hypothesis delineated in this chapter, the relationships of the pre- and post-test standard scores from the *KTEA-II* and the *GORT* were explored using measures of deviation from normality and paired samples t-tests. Fluency growth from *DIBELS* will be demonstrated using a histogram for each grade level.

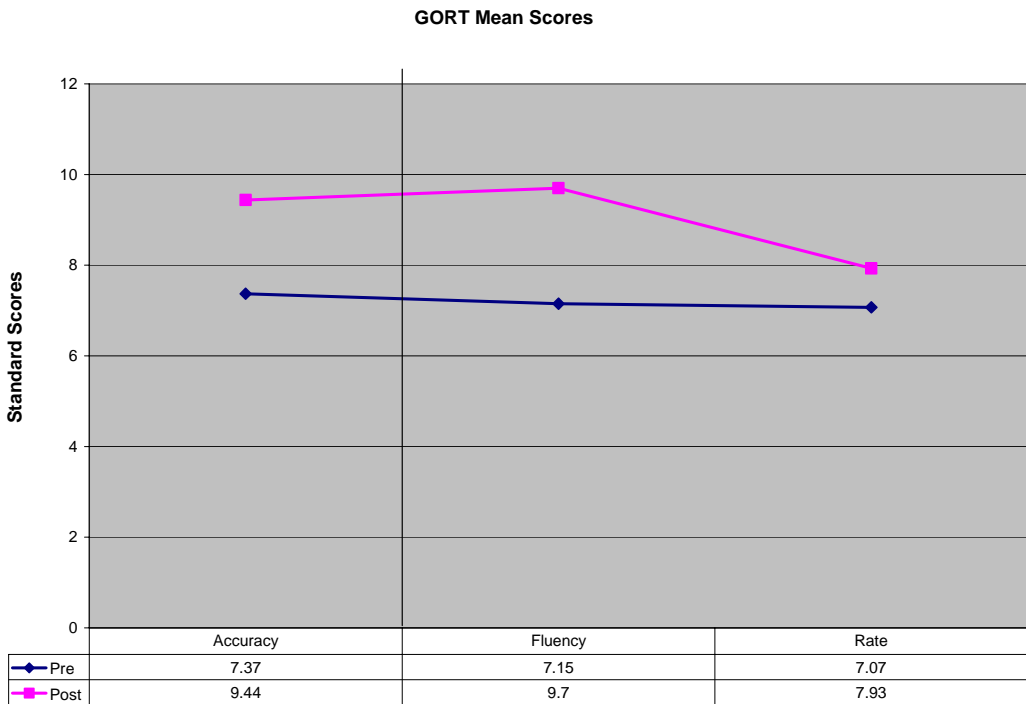
Mean Standard Scores Comparison

The following graphs show the comparison on the mean pre- and post-test scores on the *KTEA-II* (Graph 1) and the *GORT* (Graph 2). The graphs have been divided into the specific subtests assessing the delineated areas of phonological processing, decoding (phonics) and fluency. The line graphs show the growth that the sample had in the three areas of reading according to the mean scores.

Graph 1: *KTEA-II* Pre- and post-test Mean Standard Scores



Graph 2: *GORT* Pre- and post-test Mean Standard Scores



Hypothesis #1: There is no difference between the mean pre- and post-test standard scores in phonological processing for students in grades two through five who participated in the Rx for Discovery Reading® program field test.

Normal Distribution

The phonological awareness subtest from the *KTEA-II* was explored to ascertain a normal distribution for the pre-test and post-test scores. A normal distribution is assumed if the skewness and kurtosis divided by their respective standard errors are between -2 and 2. The closer the normalized values of the skewness and kurtosis are to zero, the more normal the distribution (Ponton, 2006). According to the scores on the phonological awareness subtest, an assumption can be made that the pre-test and post-test values suggest a normal distribution (See Appendix 3).

*Paired Samples *t* Tests*

Use of the paired samples *t* tests will determine if the means of the two sample distributions will differ significantly from one another. The two-tailed test examines whether the mean of one distribution has a significant difference from the mean of the other distribution, regardless of the direction of the difference (positive or negative) (George & Mallery, 2006). To determine the correlation of the means, $p < .001$ and $\alpha = .05$.

In determining the correlation between the means of the pre- and post-testing standard scores of the *KTEA-II* and *GORT* subtests, the formula $p < .001 < \alpha$, which would indicate a statistically significant difference between the means, was used to determine whether the null hypothesis was rejected.

In the area of phonological processing, the *t* tests indicate a significance value of .000 (see Appendix 3). When comparing that value with the formula, there is a statistically significant difference between the pre-test standard scores and the post-test standard scores, thus rejecting the null hypothesis.

Hypothesis #2: There is no difference between the mean pre- and post-test standard scores in decoding abilities for students in grades two through five who participated in the Rx for Discovery Reading® program field test.

Normal Distribution

The Letter-Word Recognition and Non-Word Decoding subtests from the KTEA-II and the Accuracy subtest from the GORT were explored to ascertain a normal distribution for the pre-test and post-test scores. Although the majority of the scores from the KTEA-II provided data to indicate a normal distribution, the skewness on the post-test scores for Letter-Word Recognition indicated a slightly negative skewness with a value of 2.22 (See Appendix 3). From the scores on the Accuracy subtest from the GORT, both the pre-test and post-test values suggest a normal distribution (See Appendix 3).

*Paired Samples *t* Tests*

The subtests on the KTEA-II and the GORT show a significance value of .001 and .000 (see Appendix 3). This shows a statistically significant difference, thus the null hypothesis is rejected.

Hypothesis #3: There is no difference between the mean pre- and post-test standard scores in fluency for students in grades two through five who participated in the Rx for Discovery Reading® program field test.

Normal Distribution

To ascertain the normal distribution in fluency, Decoding Fluency and Word Recognition Fluency subtests from the *KTEA-II* and Fluency and Rate subtests from the *GORT* were investigated. The pre-test standard scores from the Fluency subtest on the *GORT* show a slightly negative kurtosis with a score of 2.80. There is also an indication of a slightly negative skewness on the same pre-test with a score of 2.94. The remaining subtests' values suggest a normal distribution (See Appendix 3).

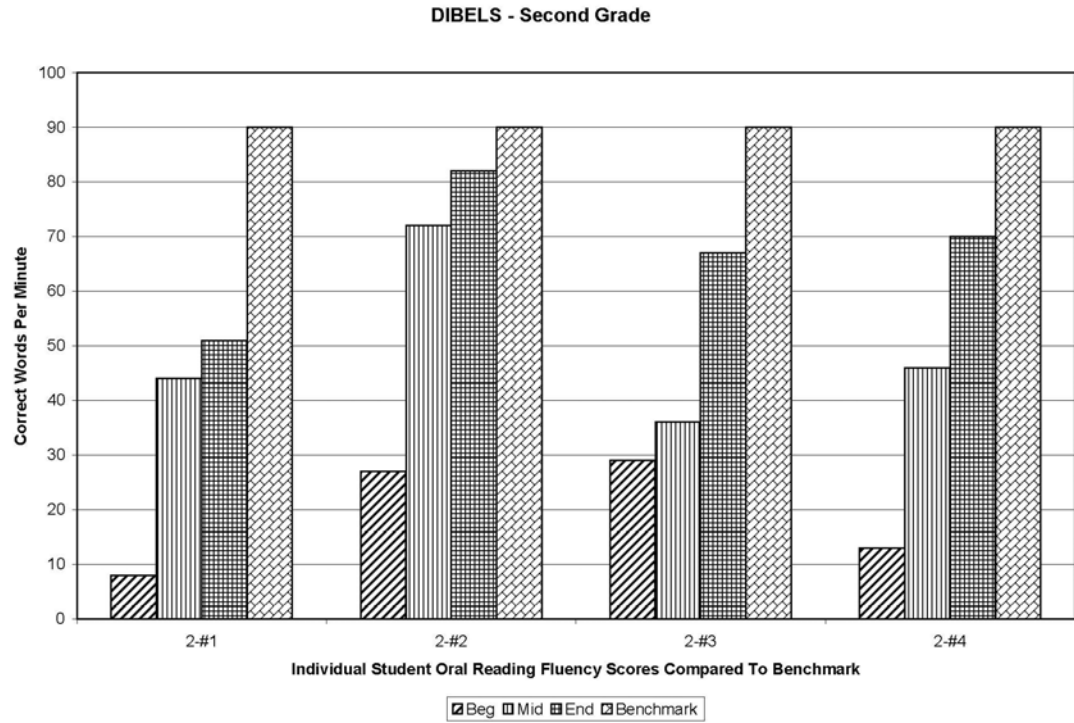
Paired Samples t Test

The subtests on the *KTEA-II* and the *GORT* show a significance value of .000, .003 and .006 (see Appendix 3). This shows a statistically significant difference thus the null hypothesis is rejected in the areas of decoding fluency, word recognition fluency, and fluency scores on the *GORT* (Rate and Accuracy subtests combined) (See Appendix 3). The *GORT* subtest, rate, which is the amount of time a student took to read a story, did not have a statistically significant difference in the values, so the null hypothesis in this area will not be rejected (See Appendix 3).

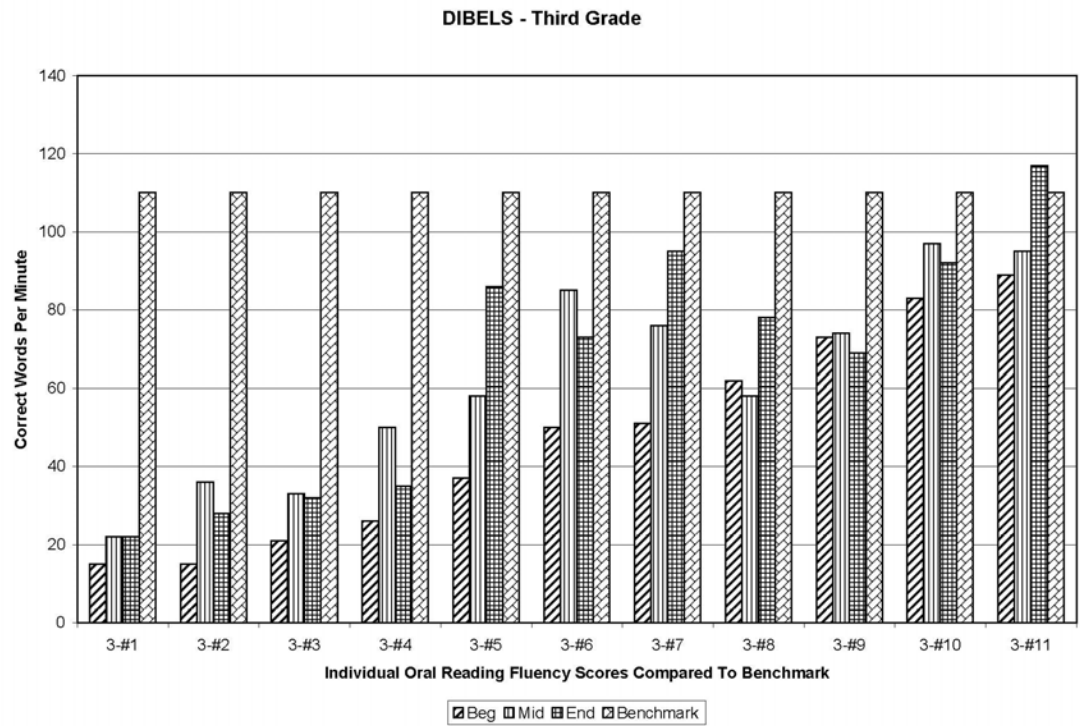
DIBELS

In the following graphs (3-6), the three one-minute timed readings completed during the study show the growth in fluency from the initial reading on the left to the final reading on the right. Each grade level showed growth in fluent reading, but only fourth graders moved up to the baseline established by the University of Oregon for grade level reading.

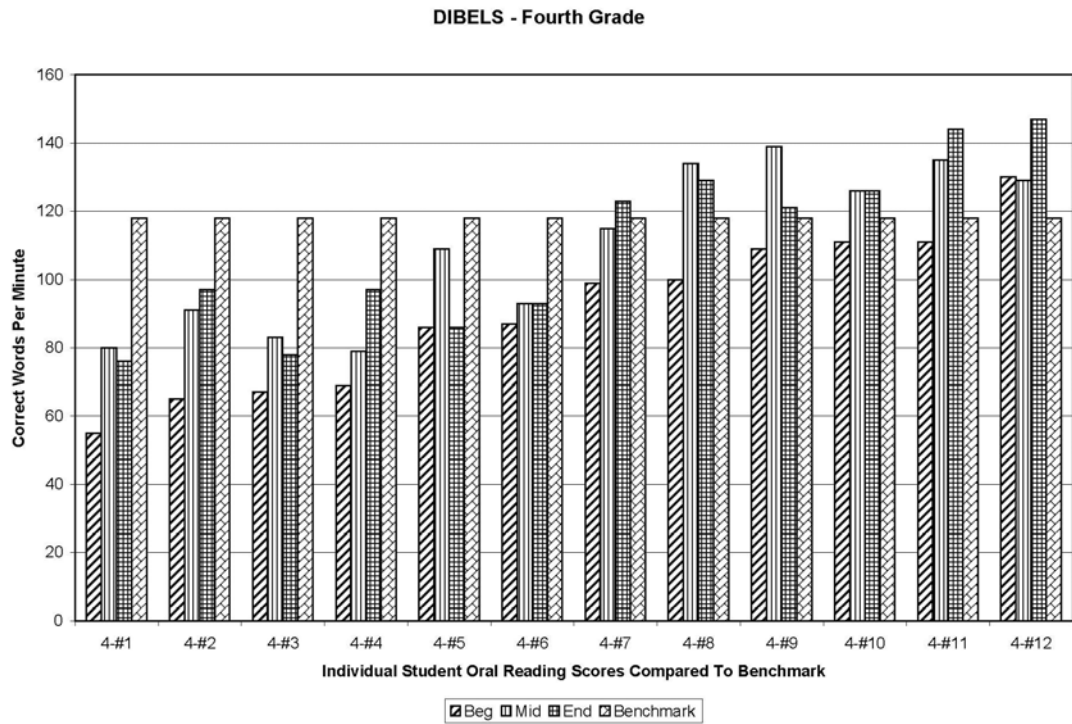
Graph 3: Comparison of Three One-Minute Timed Oral Readings in *DIBELS* with University of Oregon’s Established Graded Benchmarks for End of Year Fluency – Second Grade



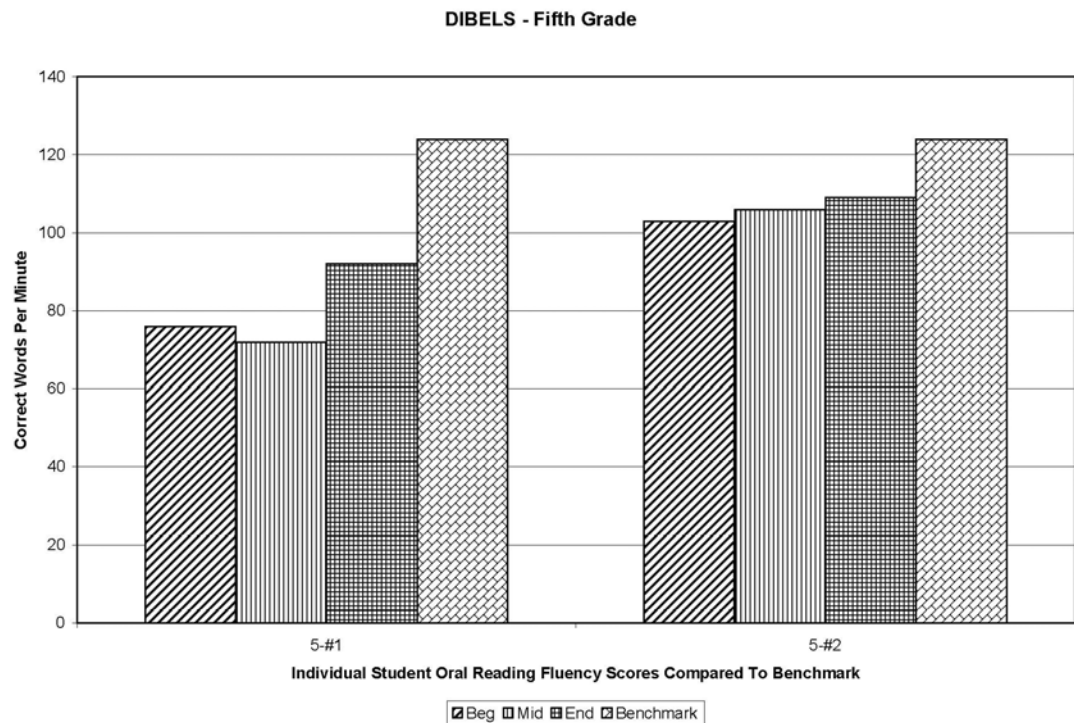
Graph 4: Comparison of Three One-Minute Timed Oral Readings in *DIBELS* with University of Oregon’s Established Graded Benchmarks for End of Year Fluency – Third Grade



Graph 5: Comparison of Three One-Minute Timed Oral Readings in *DIBELS* with University of Oregon’s Established Graded Benchmarks for End of Year Fluency – Fourth Grade



Graph 6: Comparison of Three One-Minute Timed Oral Readings in *DIBELS* with University of Oregon’s Established Graded Benchmarks for End of Year Fluency – Fifth Grade



The results created above and in Appendix 3 indicate that for the three areas of reading ability examined in this school year-long field test, there appeared to be statistically significant differences between the pre- and post-testing mean standard scores for the students participating in the study. A more detailed summary including a discussion of the findings are presented in the next chapter.

Chapter 5

Summary and Discussion

This final chapter of the dissertation restates the problem that was researched as well as reviewing the major methods used in the study. The study was completed to ascertain the impact the components of *Rx for Discovery Reading*® had on the literacy elements of phonological processing, decoding (phonics), and fluency for the subjects participating in the intervention. The major sections in this chapter will delineate and summarize the findings of the study and discuss their implication for future implementation of the *Rx for Discovery Reading*® program.

Review of the Methodology

As explained in chapter one, this study was a ten-month field test of the *Rx for Discovery Reading*® program in eight private parochial schools in the United States and Canada. The problem investigated was to ascertain if the small-group implementation of the intervention would make a significant difference in the reading abilities for students in second, third, fourth and fifth grades that were below grade level in reading. The specific areas assessed included phonological awareness, decoding ability, and fluency. The students worked with their NILD educational therapist throughout the 2006-2007 school year for fifty forty-five minute sessions.

Using a quantitative perspective for the field test, the students underwent a battery of assessments before the intervention began and at the conclusion of the fiftieth session. The instruments used included the reading subtests from the basic battery and extended battery of the *Kaufman Test of Educational Achievement, Second Edition*, the *Gray Oral Reading Tests, Fourth Edition*, as well as three one-minute readings from the *Dynamic*

*Indicators of Basic Early Literacy Skills*TM (*DIBELS*), at the beginning, at the twentieth session and at the fiftieth session. The standard scores from the *KTEA-II* and *GORT* were reported to the researcher. Scores from the *DIBELS* readings were uploaded into the *DIBELS* web-site, maintained by the University of Oregon. The researcher was able to access the scores and download the necessary output from the assessments. All identifying information of the participating students was kept confidential.

Following the intense training in July before the study began, the NILD educational therapists had completed identifying their small group of students and finished the battery of assessments required. As they began implementing the intervention, they had followed the specific implementation guidelines that were delineated at the training to provide consistency for the study. They also maintained a running record of anecdotal information to be included in the results of the field test. At the conclusion of the study, the scores from the pre-testing and post-testing were forwarded to the researcher along with many comments from the anecdotal records. According to the NILD educational therapists, the students remained eager to participate in the intervention, especially enjoying the group dynamics. One aspect that was utilized was competition among the students, using a game-like review system. Although no rewards were given for “winners,” accumulating points became a motivator to study and participate fully. Teachers and parents commented that reading improvement was observed in the students in the study. Also, many students began to develop an increased willingness to participate in independent reading.

Discussion

After a review of the objectives of the study, the problem being studied, the hypotheses, the statistical analyses of the data, the following conclusions may be drawn from this study:

- Students participating in the study made significant gains from their pre- to their post-testing standard scores in the area of phonological processing.

The meta-analysis completed by the National Reading Panel in 2000 indicated that phonological processing can be improved in a relatively short amount of time (NICHD). Yopp and Yopp (2000) indicated that students participating in a program of intense phonemic awareness instruction that is purposeful and deliberate for eleven to fifteen hours may have significant gains in their phonological processing. Research indicates that phonemic instruction is more beneficial when implemented in a small group setting because the students benefit from listening to others in the group and receiving immediate feedback from the instructor (Armbruster, et al., 2001; NICHD, 2000; Mathes, et al., 2005).

- Students participating in the study made significant gains from their pre- to their post-testing standard scores in the area of decoding ability.

Chall, in her revolutionary work, *Learning to Read: The Great Debate*, found that when code emphasis was used, students seemed to develop more proficient word recognition skills and improve in oral reading ability. Receiving systematic phonics instruction while relying on direct teaching of the sound/symbol relationship, students became more successful in reading (1967). Adams indicated in 1999 that connecting systematic code instruction with meaning emphasis, language instruction and connected

reading result in superior reading achievement overall. She also concluded that this holds true for students with low reading-readiness profiles. The evidence supports the previous research findings that explicit instruction in the phonological structure of oral language and the connections of phonemes and spellings help students grasp the alphabetic principle on which reading relies (Snow, et al., 1998).

- Students participating in the study made significant gains from their pre- to their post-testing standard scores in the area of fluent reading.

Fluent reading is the foundation for reading for meaning. Research has shown there is a close relationship between fluency and comprehension (Pinnell, et al., 1995). The National Reading Panel reported that among the most effective methods for developing fluent reading was the use of repeated oral reading and the neurological impress method. According to the Panel, these methods showed a positive and a consistent impact on the student's word recognition skills and fluency abilities, leading to a more developed ability to comprehend the text (2000). *Rx for Discovery Reading*® uses both methods in working with students to develop fluent reading.

Dowhower found that repeated oral reading increased speed and accuracy in unpracticed passages, aided students in segmenting text into more meaningful phrases and developed gains in comprehension (1989). Torgesen, in his research in 2001, found that repeated oral reading provided the kind of repeated exposure to words that would lead to development of new orthographic images and would increase the student's efficiency to access images that had already been formed.

Heckelman developed the neurological impress method (N. I. M.) in 1969 to impact a student's fluent reading ability. He believed that some students with reading

disability become too reliant on decoding without moving to fluent reading. Flood, Lapp and Fisher found that, although the N. I. M. appeared to be a simple method, it had a great effect on a student's ability to read more fluently. They also concluded that it helped develop a more positive attitude and motivation toward reading (2005).

Limitations of the Study

The ethnic demographics of the population in this study may be a limiting factor for generalizing the results to the overall population. Although the percentage representation for Caucasian and African-American ethnicity fell in line with the general population (83% of the study Caucasian with 77% of the total United States' population being Caucasian; 14% of the study African-American with 13% of the total American population being African-American), only 3% of the population for the study was Hispanic compared to 12% of the general population. Also, 5% of the American population is represented by other ethnicity: whereas, the study only had Caucasian, African-American and Hispanic representation. (Ethnic percentage information for the general population was based on census information from 2000) (U. S. Census Bureau, retrieved August 25, 2007).

According to the United States Census Bureau, about 9% of the population is families with children below 18 years of age who are below poverty level. The students participating in the study were from low-middle to upper-middle income families. There was no representation of students who were eligible for free or reduced lunches. Again, this information may make the results of the study difficult to generalize to the greater population.

Although the NILD educational therapists participating in the study were trained to implement the intervention, because of the wide geographical area covered by the eight programs and the fact that the educational therapists' experience is in individually implemented intervention, it was not possible to account for individual differences in program implementation or individual proficiency in working with a small group of students. Also, two of the eight educational therapists did not hold NILD certification, possibly impacting the implementation of the basic components of the intervention because of lack of experience.

The field test for this study utilized the testing data from a group of twenty-nine students participating. The limitation to this type of structure is that there was no control group identified. With the lack of comparison between an experimental group and a control group, there is limited ability to ascertain whether the intervention was what specifically caused the difference in the students' pre- and post-testing standard scores.

Implications for Practice

Although a single field test does not insure the same results for future implementation, the fact that *Rx for Discovery Reading*® was developed from NILD Educational Therapy™, which has continuous positive research results, suggests that the program would have the same results in other educational environments. By providing intense training in implementing the program, public and private school educators that are in regular and special education classrooms, as well as other educational therapists, could provide the intervention with positive results.

Recommendations for Future Research

This study has shown that the students participating in the intervention had positive effects on the pre- and post-testing standard scores. The results raise some important questions for exploration in the future. Because the ethnic diversity and the economic diversity were limited in this current study, the question is purported if there would be the same positive results if the sample mirrored the ethnicity and/or economic percentages of the United States on a whole.

Another question to be answered is whether the results would remain true for students enrolled in public schools and non-parochial schools. Also, would there be a difference because of the type of reading curriculum used by the particular school in the regular classroom? Would a more phonics-based curriculum have more of a positive impact on the reading abilities of the study's sample population compared to another type of reading curriculum? Would the addition of chorale reading by the entire group during each session impact the fluency scores more powerfully?

The intervention was provided during a forty-five minute session, two days per week. The question is asked whether there would be much more significant results if the students had been provided intervention three days a week or four days a week. Included in this type of proposed study would be comparisons of testing results for one grade level at a time compared to the use in the current study of the four grade levels grouped together.

The components generated by NILD for the *Rx for Discovery Reading*® program for use in this study provided intervention in phonological processing, phonics, and fluency abilities. Other components are being developed for this program to impact

vocabulary through use of morphology as well as more specific comprehension strategies. Future study should be completed that would assess the remaining components for a more complete picture of the impact on every area of reading ability. In all the purposed future studies, it would be beneficial to structure the research using an experimental group as well as a control group.

Conclusions

In today's educational environments, educators are faced with an incredible number of students struggling with the inability to acquire proficient reading abilities. Because of a growing amount of research in the field of reading, there are unprecedented opportunities for educators to be able to help students become better readers. By using research-supported interventions, students can learn to read. *Rx for Discovery Reading*® provides such an intervention. It is hoped that through this study, more educators will become involved in providing this intervention to impact the lives of children.

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Appendix 1

Rx for Discovery Reading®

PURPOSE

1. To provide explicit and systematic small-group reading instruction that includes activities for phonological processing, phonics, fluency, vocabulary, and comprehension development
2. To provide extended instruction in phonetic analysis, syllabication, and spelling-rule application

STUDENT materials

- *Blue Book*
- *Phonic Spelling Workbook*
- *Student Reference Sheets*
- *Sounds of Reading*
- Reading text
- *KEYWO*

TEACHER materials

- *Blue Book*
- *Teacher Reference Sheets*
- *Sounds of Speech*
- Moveable Alphabet
- *Sounds of Reading*
- Reading text
- PowerPoint or Overhead Projector
- *KEYWO*

PROCEDURE

1. Model *Blue Book* page for students, demonstrating how students should recite page for next session.
2. Have students repeat page in unison and/or individually.
3. Complete corresponding *Sounds of Speech: Phonological Processing Activities*.
4. Guide students to develop and verbalize strategies for recall of *Blue Book* page. Discuss mnemonic devices, visual imagery, identification of spelling patterns, transfer of previously learned strategies, etc.
5. Complete corresponding *Sounds of Reading: Decoding and Fluency Activities*.
6. Dictate selected words from *Teacher's Reference Sheets*, first sequentially then in random order, for students to list in *Phonic Spelling Workbook*.
7. List new vocabulary from selected reading passage on PowerPoint or overhead transparency.

- Have students take turns decoding list – cue with *Blue Book* keywords and *Six Kinds of Syllables* applications when necessary.
 - As a group, discuss meaning - asking for synonyms and antonyms when appropriate, and part of speech.
 - Ask students to develop a sentence for each new word. Guide students to implement a strategy such as *who, what, where, when, and why* for sentence development.
 - Choose 2-3 vocabulary words for students to complete *Blue Book* Analysis [at board]. For syllabication practice, list on pages 46-47 of *Phonic Spelling Workbook: Six Kinds of Syllables*.
8. Guide students in scanning reading passage paying particular attention to pictures and text headings. Explore predictions and questions.
- Each student reads a few sentences or paragraph aloud from reading text. It is appropriate for therapist to read occasionally to model prosody.
 - Cue decoding with *Blue Book* key words when necessary. Student should re-read the sentence when decoding error occurs.
 - Implement *Reciprocal Teaching*. Questioning technique should include levels of Bloom's Taxonomy and use of the Socratic Method.
 - To bring closure to reading selection, discuss sequence of events and develop final summary. [Use *STORE the Story* or *5W* strategy]

SUBSEQUENT SESSION

1. Direct students to recall *Blue Book* page using variety and novelty: list words on board, recite round-robin, demonstrate spelling patterns with *Moveable Alphabet*, etc.
2. Continue with steps 1-7 above.

KEYWO

Suggestions

- Play *KEYWO* in dyads.
- Play as entire group with therapist drawing numbers. Students should raise hand to respond with answer (*Rx for Discovery Reading® Instructor's Manual*, 2006).

Appendix 3
Statistical Reports

Subtest		# Students	Skewness		Kurtosis		Mean	Std. Deviation	t-test	Sig. (2-tailed)
			Stat	Std. Error	Stat	Std. Error				
KTEA-II										
Phono. Awareness	Pre	29	-.263	.448	-.659	.872	-9.778	11.277	-4.505	.000
	Post	29	-.246	.448	-.923	.872				
Letter-Word Recognition	Pre	25	.408	.481	-.611	.935	-9.043	10.658	-4.069	.001
	Post	25	1.068	.481	0.186	.935				
Non-Word Decoding	Pre	29	-.697	.448	.383	.872	-9.296	8.484	-5.693	.000
	Post	29	.018	.448	-.444	.872				
Decoding Fluency	Pre	26	-.439	.472	-.302	.918	-6.833	8.019	-4.174	.000
	Post	28	-.047	.456	-.568	.887				
Word Recog. Fluency	Pre	26	-.562	.472	.417	.918	-3.625	5.822	-3.050	.006
	Post	29	-.761	.448	1.349	.872				
GORT-4										
Accuracy	Pre	29	.275	.448	-.061	.872	-2.074	2.895	-3.723	.001
	Post	29	-.656	.448	-.582	.872				
Fluency	Pre	29	1.253	.448	2.561	.872	-2.556	4.022	-3.301	.003
	Post	29	-.042	.448	-.283	.872				
Rate	Pre	29	.290	.448	-.063	.872	-.851	2.597	-1.704	.100
	Post	29	-.320	.448	-.873	.872				