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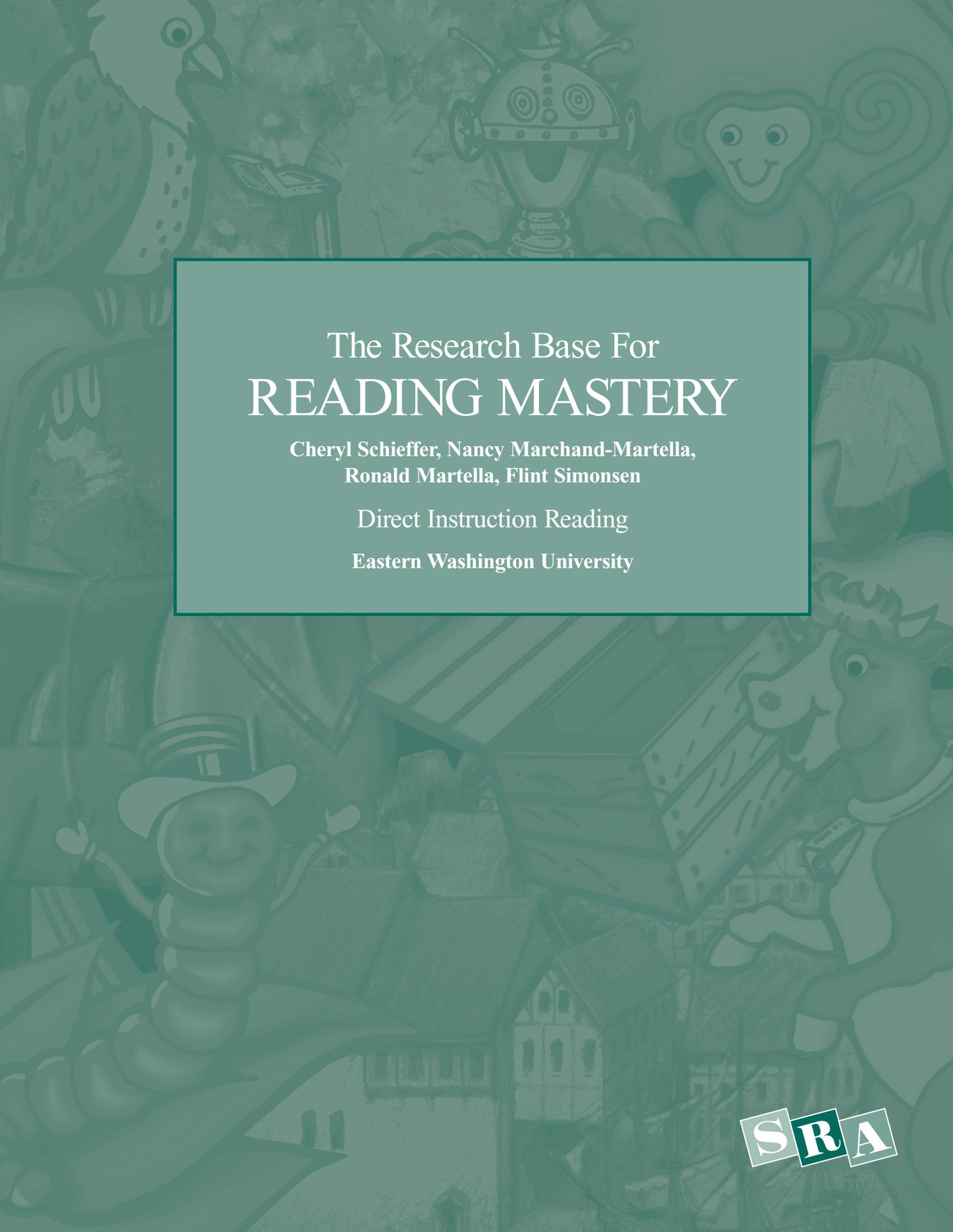
The Research Base For
READING MASTERY

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CONTENTS

I. Introduction

A National Literacy Crisis

Learning to read in the elementary years is an essential stepping stone toward successful educational performance and advancement in our society. Yet the 2001 National Assessment of Educational Progress reported that 37% of Grade 4 students cannot read at even a basic level, and only 32% read at or above a proficient level, which is defined by the National Assessment Governing Board as the level that all students should reach.

Further, the National Institute of Child Health and Human Development (NICHD) noted in 1996 that 40% of the overall school population has reading problems severe enough to hinder their reading enjoyment. According to the NICHD, the inability to decode single words is the most reliable indicator of a reading disorder. In addition, the NICHD noted that "phonological awareness appears to be the most prevalent linguistic deficit in disabled readers" (p. 36).

Children who are classified as poor readers are characterized by their lack of phonemic awareness at the beginning of Grade 1 (Juel, 1988). These same children have an 88% chance of being poor readers by the end of Grade 4. "The decline in reading scores and the increase in the number of children having difficulty reading go hand-in-hand with a change in how reading is being taught in our schools" (Hall & Moats, 1999).

Studying the Problem

Over the last decade, educators have seen a steady shift in ideas about how best to teach reading. At the beginning of the 1990s, the whole language approach was widely adopted in schools as the dominant model for reading instruction. Reading scores were declining, and by the mid-1990s the whole language approach gave way to the more "balanced" practice of providing phonics instruction within a literature-based curriculum (Carnine, Silbert, & Kameenui, 1997).

In 1997, Congress asked the NICHD to form a panel of respected professors, researchers, and educators in an effort to assess the research on reading instruction and to formulate recommendations for the most effective way to teach reading. This National Reading Panel (NRP), which consisted of 14 individuals, drew upon approximately 15,000 scientific studies conducted before 1966 and another 100,000 conducted between 1966 and 1998.

What Makes Reading Instruction Effective?

The panel finalized its report in February of 1999. The report stated that, in order to be effective, reading instruction must:
- Teach phonemic awareness explicitly
- Provide systematically sequenced phonics instruction

- Teach synthetic phonics, where letters are converted into phonemes and then blended to form whole words
- Use guided oral reading with appropriate error correction techniques and feedback strategies to facilitate reading fluency
- Develop vocabulary and use systematic instruction to promote reading comprehension

A research-validated, comprehensive reading program is necessary if all students are to achieve the goal of reading acquisition.

What is Reading Mastery?

SRA/McGraw-Hill's *Reading Mastery* series exhibits these important characteristics. The *Reading Mastery* programs are distinguished from many other reading programs by a large body of research. They are considered to be among the most successful and effective commercial reading programs available today (American Federation of Teachers, 1998; Briggs & Clark, 1997).

This research addresses and applies to the entire family of *Reading Mastery* programs. Within this document, specific references will be made to the *Classic* and *Plus* editions.

The *Reading Mastery* programs are basal reading programs that develop reading skills and strategies through systematic, small steps that make it possible for all children to learn and learn in a timely manner.

Reading Mastery Classic develops beginning decoding and basic comprehension skills for students in Grades K–2. The *Classic* edition consists of Levels I and II, and Fast Cycle, an accelerated program that condenses the content of Levels I and II into a single year. After completing *Reading Mastery Classic*, students go on to *Reading Mastery Plus*.

Reading Mastery Plus is a reading/language arts program for students in Grades K–6. *Reading Mastery Plus* supports reading instruction with oral language instruction and provides expanded opportunities for writing and the practice of related language arts skills.

Scope and Content

In the following pages, you will learn about the design features of the *Reading Mastery* programs and how these features are congruent with those of a superior reading program. Specifically, this document will discuss findings on oral language, decoding, and comprehension.

For comparative purposes, there is a summary of a research meta-analysis featuring *Reading Mastery* and an evaluation of 24 popular whole-school reform models. The overview concludes with a discussion of comparative research involving *Reading Mastery* and other reading programs.

II. Oral Language: A Prerequisite for Reading

Language Development is Linked to Success

Oral language skills are critical prerequisites for successful reading. In fact, Polloway, Patton, and Serna (2001) noted that language development is linked to success in and out of school and is a key area of intervention in homes, schools, and communities. Oral language can be divided into two components: receptive and expressive. Receptive language refers to words that are recognized or understood. This type of language is often measured by orally presenting a word and asking the student to identify the corresponding object (e.g., "Touch your nose"). Expressive language refers to the words that are produced by students. To measure oral expressive language students are commonly asked to state the appropriate word for presented objects (e.g., point to a picture of a dog and ask, "What is this?"). Thus, "these oral language skills, both receptive and expressive, play a vital role in student's progress through school" (Meese, 2001, p. 256).

The Relationship Between Oral Language and Reading

Good readers have been shown to differ from poor readers in the speed and accuracy with which they can orally identify (both receptively and expressively) colors, numbers, and objects as well as letters (Catts, 1991; Olofsson & Niedersoe, 1999; Scarborough, 1991; Walker, Greenwood, Hart, & Carta, 1994). Further, Meese (2001) noted that expressive vocabulary, naming skills, and letter identification were associated with a child's future reading ability. This research suggests that oral language skills are important to the development of reading. Interestingly, Meese (2001) and Snyder and Downey (1997) noted a relationship between language development and reading disabilities. They speculated that, although the nature of the relationship was unclear, difficulty with such oral language components as syntax (word order), phonology (sounds), and semantics (vocabulary for labeling objects and concepts) may hinder the reading abilities of students.

Research has shown that early reading ability is based largely on good oral language skills (Snow, Burns, & Griffin, 1998). Recognizing that oral language skills are a necessary prerequisite to learning to read, the early levels of **Reading Mastery Plus** teach the oral language skills necessary to understand what is spoken, written, and read in the classroom. (In implementing **Reading Mastery Classic**, it is recommended that reading instruction be supported with language instruction as found in *Language for Learning*.)

Technical Note:
Oral Language Skills

High oral language skills are important for early and fluent reading development. Progress in learning to read requires successful integration of oral language comprehension with specific literacy skills so that students can incorporate new words into their knowledge base. For students who are mature readers, oral language comprehension is the strongest predictor of written language comprehension (Dale & Crain-Thoreson, 1999).

"Children with general oral language weakness require extra instruction in a broader range of knowledge and skills than those who come to school impaired only in phonological ability. What is well established at this point, though, is that both kinds of children will require special support in the growth of early word reading skills if they are to make adequate progress in learning to read" (Torgeson, 1998).

Snow et al. (1998) summarized several language skills studies that found high correlations between language ability in early Pre-K and reading ability three to five years later.

Senechal (1997) found that repeated readings of a story (a receptive language activity) were associated with greater gains in oral language for Pre-K children.

Hart and Risley (1995) examined the language skills of children between 1 and 2 years of age from 42 high, middle, and low SES families for a period of 2.5 years. They found striking differences in later vocabulary growth rate, vocabulary use, and IQ test scores, with higher vocabulary rates and IQ scores noted for children who came from higher SES backgrounds. These skills were observed to be critical measures of an individual's ability to succeed at school and in the workplace.

Kuder (1991) found that students with better language skills, such as word discrimination and sentence imitation, consistently demonstrated better reading gains than their peers with poorer language skills.

The oral language content found in Levels K–2 is based on analysis of what children need to understand the content of textbooks and other instructional material. Language lessons provide the direct teaching of important background information, vocabulary, and thinking skills that children need to achieve high levels of reading comprehension.

In this example from **Reading Mastery Plus** Level K, the objective is to help children listen to and discriminate between questions that start with *who, what, where,* and *when*. The exercise also incorporates concepts of *before* and *after* that children have already learned. Children who can accurately answer questions about pictures, spoken sentences, and stories read by the teacher will be better able to deal with questions when they are asked about the stories they read.

EXERCISE 5   Where, Who, When, What

1. These pictures tell a story about what an owl did.
   a. (Point to the ladder in picture a.)
      This ladder is next to the tree. Where is this ladder? (Touch.) *Next to the tree.*
      (Point to a.)
      First the owl climbed the ladder. Who climbed the ladder? (Touch.) *The owl.*
   b. (Point to b.)
      What is the owl doing in this picture? (Touch.) *Eating an apple.*
      (Repeat part 1 until all children's responses are firm.)

2. Now I'm not going to touch the pictures.
   a. Everybody, what did the owl do first? (Signal.) *Climbed the ladder.*
      Yes.
   b. My turn. When did it climb the ladder? Before it ate the apple.
      Your turn. When did it climb the ladder? (Signal.) *Before it ate the apple.*
   c. (Repeat part 2 until all children's responses are firm.)

3. Now answer these questions.
   a. What did the owl eat? (Signal.) *An apple.*
   b. Where was the ladder? (Signal.) *Next to the tree.*
   c. Who climbed the ladder? (Signal.) *The owl.*
   d. (Repeat part 3 until all children's responses are firm.)

4. Let's do those questions again.
   a. Who climbed the ladder? (Signal.) *The owl.*
   b. Where is the ladder? (Signal.) *Next to the tree.*
   c. When did the owl climb the ladder? (Signal.) *Before it ate the apple.*
   d. (Repeat part 4 until all children's responses are firm.)

5. (Repeat parts 1 through 4 until all children's responses are firm.)

Individual Turns
(Repeat the exercise, calling on different children for each step.)

Reading Mastery Plus, Level K,
Language Presentation Book C, Lesson 116

III. Decoding: Learning to Read

Perspectives on Beginning Reading

Decoding, the act of translating language from printed text, is best taught using a program that teaches phonemic awareness, phonics, and blending explicitly (NICHD, 1996; NRP, 2000; Snow et al., 1998). This is referred to as a code-emphasis approach.

By contrast, a meaning-emphasis approach, (e.g., whole language) relies on contextual cues such as pictures and story themes, and structural cues such as word types (including nouns or verbs) as a means of teaching reading. Research continues to demonstrate the superiority of a code-emphasis program in the acquisition of beginning reading skills (Carnine et al., 1997; Foorman, 1995; Salerno, 1992).

What Young Children Need to Know

When students are learning how to read, three essential components should be taught in an explicit manner:

First, students should be taught that words comprise a sequence of isolated sounds, or phonemes. This step is commonly referred to as the acquisition of phonemic awareness.

Second, students must learn the sounds that correspond to individual letters and combinations of letters (phonics).

The third and final step in beginning reading acquisition is the blending of these individual sounds to form meaningful whole words that are spoken quickly so they form real words (e.g., mmmaaannn = man).

Explicit Instruction

In explicit instruction, teachers provide clear modeling and guided practice to students, thereby demonstrating exactly what students must know. In implicit instruction, teachers do not directly state the relationships between what is being taught and what students should know. Rather, they assume the students will naturally arrive at the desired outcomes based on their own unique interactions with the reading immersion process. Many commercial reading programs make the claim that they include instruction containing each of these steps (i.e., they use a "phonics approach"). However, the programs may not teach these skills in a systematic, explicit, or carefully sequenced manner.

Technical Note:
The Superiority of Explicit Instruction in Phonics

Students should decode words by attending to their letter-sound relationships. Context and picture cues should only be used as a secondary tool in word recognition (Snow et al., 1998).

Students who received direct instruction in the alphabetic principle increased their word-reading skills at a significantly faster rate than students who were taught the alphabetic principle indirectly through exposure to literature (Foorman, Francis, Fletcher, Schatschneider, & Mehta, 1998).

Years of research have consistently found that good readers do not rely on context and prediction for word recognition. Further, students need explicit instruction in alphabetic coding, as some students in whole language classrooms do not acquire the alphabetic principle through immersion in print and writing activities (Stanovich, 1994).

Juel and Minden-Cupp (2000) analyzed word recognition instruction in four Grade 1 classrooms. Classroom 1 had virtually no phonics or phonemic awareness instruction. Word recognition in this classroom consisted of a "word wall" exercise where new words were introduced in front of the entire class at the onset of language arts instruction. Blending and sounding-out were never modeled.

Classroom 2 made use of little books containing poems to teach word recognition. The class was divided into three groups, each of which received some (20%–38% of the time) phonics instruction.

Classroom 3 used numerous books, poetry, writing, and discussion of texts. There was little systematic phonics instruction; however, the teacher capitalized on an opportunity to teach phonics when a new word was presented in a book or poem. Peer coaching techniques were used for word recognition in reading groups.

Classroom 4 used a systematic phonics approach. The class was divided into three groups. The lowest group received more phonics and phonemic awareness training, while the highest group spent a greater percentage of time reading texts. Toward the end of the year, there was an increased focus on vocabulary and text discussion.

Reading results at the end of the year demonstrated that the phonics approach was superior. Students in Classroom 4 were reading at a late Grade 2 level; students in Classroom 3 were reading at a mid-Grade 2 level; students in Classroom 2 were reading at an end-of-Grade 1 level; and students in Classroom 1 were reading at the primer level.

Acquisition of Phonemic Awareness

Numerous researchers have shown a consistent link between phonemic awareness skills and reading acquisition (Cunningham, 1990; Foorman et al., 1998; McGuinness, McGuinness, & Donohue, 1995; Smith et al., 2001; Torgesen, Morgan, & Davis, 1992; Troia, 1999; Vandervelden & Siegel, 1997). Phonemic awareness skills include perceiving words as a sequence of various sounds, isolating and segmenting individual phonemes, blending phonemes into whole words, and rhyming.

Snow et al. (1998) concluded that good phonemic awareness skills are the most successful predictor of future superior reading performance. These skills are not natural for most students; therefore, they must be taught in an explicit manner. The importance of these skills is recognized through the early emphasis on phonemic awareness training found in *Reading Mastery*.

Phonemic awareness begins by presenting children with activities that they are likely to be able to do, such as saying drawn-out words fast. *Reading Mastery* starts by presenting long words broken into two parts:

Teacher: "Listen. **Ham** (pause) **burger**. Say it fast."
Hamburger

Later, the task becomes more focused on blending phonemes.

Teacher: "Listen. **Sss-lll-aaa-mmm**. Say it fast." *Slam*

This oral practice of blending is supported by verbal activities involving rhyming. The children are either told or shown a beginning sound. They are also told the ending sound (or the "word" they are to rhyme with). The children then combine the sounds to create a word that they say fast.

Lesson 112

SAY IT FAST—RHYMING
These are oral exercises.

EXERCISE 9
Children say word parts slowly

a. My turn to say a word slowly. First I'll say (pause) **mmm.** Then I'll say (pause) **at.**
    Listen again. First I'll say (pause) **mmm.** Then I'll say (pause) **at.**
    Here I go. (Hold up one finger.) **mmm.** (Hold up second finger.) **(mmm)at.**
b. Do it with me. (Hold up one finger.) First you'll say (pause) **mmm.** (Hold up second finger.) Then you'll say (pause) **at.**
    Get ready. (Say *mmmat* with the children as you hold up a finger for each part.)
c. Again. (Hold up one finger.) First you'll say (pause) **mmm.** (Hold up second finger.) Then you'll say (pause) **at.**
    Get ready. (Say *mmmat* with the children as you hold up a finger for each part.)
d. (Repeat *c* until firm.)
e. All by yourself. (Hold up one finger.) First you'll say (pause) **mmm.** (Hold up second finger.) Then you'll say (pause) **at.** Get ready. (Hold up one finger, then second finger as the children say *mmmat*.)
f. Again. (Repeat *e* until firm.)

Reading Mastery Plus, Level K,
Reading Presentation Book, Lesson 112

Lesson 105

⭐ **SAY THE SOUNDS**

This is an oral exercise.

EXERCISE 11

Children say the words slowly

a. I'm going to say some words slowly, without stopping. Then you'll say them with me. First I'll say (pause) **me** slowly. Listen. (Hold up a finger for each sound. Do not stop between sounds.) **Mmmēēē.**
Now I'll say (pause) **ran** slowly. Listen. (Hold up a finger for each sound.) **Rrraaannn.**
Now I'll say (pause) **no** slowly. Listen. (Hold up a finger for each sound.) **Nnnōōō.**

b. Now it's your turn to say the words slowly with me. Take a deep breath and we'll say (pause) **mmmēēē.** Get ready. (Hold up a finger for each sound. Do not stop between the sounds. Say **mmmēēē** with the children.) *Mmmēēē.*

To correct
(If a child stops between the sounds, says the wrong sounds, or says the word fast:)
1. Listen. (Hold up a finger for each sound. Do not stop between the sounds.) **Mmmēēē.**
2. Listen again. (Hold up a finger for each sound.) **Mmmēēē.**
3. Say it with me. Get ready. (Hold up a finger for each sound. Say **mmmēēē** with the children.) *Mmmēēē.*
4. All by yourselves. Get ready. (Hold up a finger for each sound.) *Mmmēēē.*
5. (Repeat *4* until firm.)
6. (Repeat *b.*)

Now we'll say (pause) **rrraaannn.** Get ready. (Hold up a finger for each sound. Say **rrraaannn** with the children.) *Rrraaannn.*
Now we'll say (pause) **nnnōōō.** Get ready (Hold up a finger for each sound. Say **nnnōōō** with the children.) *Nnnōōō.*

c. Your turn to say the words slowly by yourselves. Say (pause) **mmmēēē.** Get ready. (Hold up a finger for each sound.) *Mmmēēē.*

d. Again. Get ready. (Hold up a finger for each sound.) *Mmmēēē.*

e. (Repeat *d* until firm.)

f. Say (pause) **rrraaannn.** Get ready. (Hold up a finger for each sound.) *Rrraaannn.*

g. Again. Get ready. (Hold up a finger for each sound.) *Rrraaannn.*

h. (Repeat *g* until firm.)

i. Say (pause) **nnnōōō.** Get ready. (Hold up a finger for each sound.) *Nnnōōō.*

j. Again. Get ready. (Hold up a finger for each sound.) *Nnnōōō.*

k. (Repeat *j* until firm.)

l. (Repeat *c* through *k* until firm.)

m. (Call on different children. Each child does one word from *c, f,* or *i.*)

n. Good saying the words slowly.

Reading Mastery Plus, Level K,
Reading Presentation Book, Lesson 105

The final phonemic awareness skill taught in *Reading Mastery* is segmenting words into phonemes. When children sound out words, they first say the parts slowly, then say them fast. As seen in this example, the program teaches them to say each sound in a word slowly, without pausing.

The initial oral practice of blending, rhyming, and segmenting individual sounds in *Reading Mastery* allows students to concentrate on listening to sounds without interference from written symbols.

Compelling evidence shows that explicit training in phonemic awareness is invaluable in achieving the goal of efficient and effective reading instruction. Further, the key to the acquisition of phonemic awareness involves explicit instruction rather than age or natural development (Adams, 1990; Snow et al., 1998).

"First grade instruction should be designed to provide explicit instruction and practice with sound structures that lead to phonemic awareness" (Snow et al., 1998, p. 194).

According to the National Reading Panel Report (2000), the research to date strongly supports the concept that explicitly and systematically teaching children to manipulate phonemes significantly improves children's reading and spelling abilities. One study by Davidson and Jenkins (1994) found that students who were taught both segmenting and blending skills showed significant transfer to word-reading and spelling tasks. Similarly, Lenchner, Gerber, and Routh (1990) concluded that decoding requires both the ability to segment and blend phonemes and some ability to manipulate phonemes.

Several instructional design features recommended for phonemic awareness interventions were: giving explicit instruction in blending and segmenting as auditory tasks, particularly at the phoneme level; systematically sequencing tasks; increasing opportunities to produce sounds at the phoneme level; and providing explicit instruction to increase the conspicuousness of strategies that allow children to perceive phonemes. These features are accomplished directly by having teachers model specific sounds and having students produce specific sounds and form mental manipulations of sounds given a concrete representation (Smith et al., 2001).

In a study involving 84 Grade K–1 children, Cunningham (1990) found that explicit instruction in phonemic awareness was superior to implicit instruction in helping children apply the components of phonemic awareness to the actual act of reading.

Children who were taught explicit manipulation of sounds demonstrated significantly higher phonemic awareness skills than children who were not taught sound manipulation (Wise, Ring, & Olson, 1999).

Children who do not demonstrate phonemic awareness are unable to decode words with accuracy and fluency. These are the distinguishing characteristics of persons with reading difficulties. Further, phonemic awareness skills should be taught explicitly at an early age (NICHD, 1996).

Phonics Instruction

In *Reading Mastery*, students are initially taught to decode words by sounding them out. Sound identification activities appear in every reading lesson of *Reading Mastery Plus* Levels K–2 and *Reading Mastery Classic* Levels I and II. Focusing on letter-sound correspondence has been shown to facilitate blending, thereby accelerating reading acquisition. This emphasis on letter-sound correspondence results in more efficient reading instruction (NICHD, 1996).

In *Reading Mastery*, explicit instruction in teaching letter-sound correspondence looks like this:

Reading Mastery Plus, Level K,
Reading Presentation Book, Lesson 109

By contrast, implicit instruction is ambiguous and requires students to draw their own conclusions.

A typical lesson in other programs might look like this:

> Display the picture of a monkey. Ask children to identify the picture and the letters shown on the card. (monkey, Mm) Say the word monkey. Have children repeat the word with you. Ask them to name the letter that stands for the sound they hear at the beginning of the word. (m) Point to the letters Mm and tell children that the letters Mm stand for the sound they hear at the beginning of monkey. Tell children you will say some words. Ask them to listen carefully for words that begin with the same sound as monkey. When they hear a word that begins with the same sound as monkey, children should point to their mouths. When they hear a word that does not, they should sit quietly. Use the following words: moon, rock, mitten, mailbox, table, money, and pig (Pearson et al., 1989, p. 8).

In **Reading Mastery**, the introduction of letter-sounds (e.g., c = /k/, s = /sss/) and letter-sound combinations (e.g., qu = /koo/, er = /er/) is carefully sequenced to reduce confusion and to provide adequate practice. Only the most common sounds for each letter or letter combination are taught initially. High-frequency sounds are introduced early to allow children to read meaningful words and stories as soon as possible.

Letters that look and/or sound similar to each other are taught several days apart to decrease confusion (e.g., the letters b and d are separated by 94 lessons). The following chart shows the sequence and lesson number in which the various letters and letter combinations are introduced.

Sound/Letter Recognition Sequence of Introduction

a	1, 12	n	44	k	92	x	139
m	4, 11	c	48	ō	98	oo	142
s	9, 16	o	51	v	102		
ē	19	ā	58	p	108	J	145
r	23	h	61	ch	113	ȳ	149
d	27	u	64	e	118	wh	152
f	31	g	68	b	121	qu	154
i	34	l	72	ing	124	z	156
th	38	w	76	ī	127	ū	158
		sh	80	y	131		
ī	41	I	88	er	135		

Reprinted from *Reading Mastery Classic*, Teacher Guide

A Special Orthography

Reading Mastery incorporates the use of specialized orthography in Grades K and 1. Some letters are connected (e.g., sh, wh, qu, th) to help children identify these combinations and distinguish between the sound of the letter combination and the sound of the individual component letters. Macrons (long lines over vowels) differentiate long vowels from short vowels. Some letters have been altered to reduce the confusion children typically have between pairs of letters that appear very much alike in traditional orthography. Letters that are present in words but are not heard are printed in a smaller font (e.g., the e on CVCe words). Only lower-case letters are incorporated in reading materials, so that children will not have to learn two symbols for each sound.

c̄ōa̱t

sitting

h̄ōme

they

The orthography used in **Reading Mastery** has been questioned by some because these prompts do not appear in everyday texts or reading materials. However, research has shown that this orthography reduces confusion of hard-to-discriminate letters and sounds for beginning readers (Englemann, 2000). The **Reading Mastery** orthography reduces the number of letter-sound correspondences that students must learn initially, thus allowing them to read interesting stories more quickly. In the Level II programs, this orthography is faded; all letters are printed in traditional orthography, and capital letters are used.

Blending

Once phonemic awareness skills and two letter-sound correspondences have been taught, students move on to the final component in beginning reading acquisition: sounding-out, or blending. Decoding unfamiliar words requires the blending of letter-sound correspondences into meaningful whole words. Readers approximate the word by sounding out its phonemes, then match that approximation to a real word from their oral vocabulary that fits the context of the passage.

Many programs teach letter-sound correspondence and then expect students to acquire the skill of blending naturally. However, for most students this skill must be explicitly taught. Research has shown that success in early reading is a result of direct, systematic instruction in blending (Perfetti, Beck, Bell, & Hughes, 1987; Taylor, Harris, Pearson, & Garcia, 1995). Students who do not acquire this skill will not have effective or efficient strategies to attack unfamiliar words. Instead, they will have to rely on contextual cues and the laborious memorization of sight words. The NICHD (1996) suggests teaching beginning readers to blend sounds together by moving left to right, saying the sounds for each letter. This practice should include words composed solely of the letter-sound relationships students have already learned.

Reading Mastery provides a series of activities to teach sounding-out. These tasks consolidate the skills of reading sounds, saying words slowly, and saying words fast. Teachers model the blending skills. Then students repeat the process. Letters are blended together without stopping between the sounds, a technique referred to as the "Engelmann Blending Strategy" (Hastings, Tangel, Bader, & Billups, 1995). The blending strategy is initiated once students have learned the first two sounds presented in the program.

The first time students are asked to read words, all that is required is a simple extension of the skills that have been taught in oral blending and sound-out exercises. The children say the sounds, sound out the word, and say-it-fast.

SOUND OUT

EXERCISE 6

Children say the sounds without stopping

a. (Touch the first ball of the arrow for **ma.**) My turn. I'll show you how to say these sounds without stopping between the sounds.
   (Move under each sound. Hold. Say **mmmaaa**.)
b. (Return to the first ball of the arrow for **ma.**) Your turn. Say the sounds as I touch under the letters. Don't stop between the sounds.
   Get ready. (Move under each sound. Hold.) *Mmmaaa.*
   (Return to the first ball of the arrow.) Again. Get ready. (Move under each sound. Hold.) *Mmmaaa.*
   Good saying **mmmaaa.**
c. (Touch the first ball of the arrow for **am.**) My turn. I'll show you how to say these sounds without stopping between the sounds.
   (Move under each sound. Hold. Say **aaammm**.)
d. (Return to the first ball of the arrow for **am.**) Your turn. Say the sounds as I touch under the letters. Don't stop between the sounds.
   Get ready. (Move under each sound. Hold.) *Aaammm.*
   (Return to the first ball of the arrow.) Again. Get ready. (Move under each sound. Hold.) *Aaammm.*
   Good saying **aaammm.**
e. (Call on different children to do *b* or *d.*)

Reading Mastery Plus, Level K,
Reading Presentation Book, Lesson 114

READING VOCABULARY

EXERCISE 6

Children say the sounds, then sound out the word

a. (Point to the first ball of the arrow for **am.**) This is the word (pause) **am.** What word? (Touch the first ball.) *Am.*
   Yes, **am.**
b. (Point to the ball for **a.**) When you sound out (pause) **am,** what sound do you say first? (Touch the ball for **a.**) *aaa.* Yes, **aaa.**
   (Point to the ball for **m.**) What sound do you say next? (Touch the ball for **m.**) *mmm.*
   Yes, **mmm.**
c. (Repeat *b* until firm.)
d. (Return to the first ball.) You're going to sound it out, then say it fast. Everybody, sound it out. Get ready. (Move under each sound. Hold under each sound for two seconds.) *Aaammm.*
e. (Return to the first ball.) Again. Sound it out. Get ready. (Move under each sound. Hold under each sound for two seconds.) *Aaammm.*
f. (Repeat *e* until firm.)
g. (Return to the first ball.) Say it fast. (Slash to the end of the arrow.) *Am.*
   Yes, **am.** You read the word (pause) **am.** I (pause) **am** (pause) happy.
h. (Call on different children to do *e* and *g.*)

Reading Mastery Plus, Level K,
Reading Presentation Book, Lesson 124

Decodable Text

Reading Mastery coordinates what the students read with the letter-sound correspondences taught in previous lessons. New letter sounds or letter combinations are introduced in Levels 1 and 2 approximately every three to five lessons. Students practice the new sounds in isolation. Then, they read words in lists that contain the new sound.

Within two to three lessons after words with the new sound are introduced, students read these words in stories. Throughout the progression from sound to word to story, all the words the children read are composed with sounds that have been pre-taught.

Decodable text provides students with an avenue to practice their new knowledge of letter-sound relationships in the context of real reading. For example, by Lesson 91 of **Reading Mastery Classic**, students are reading a series of meaningful sentences that contain words with both long and short vowels.
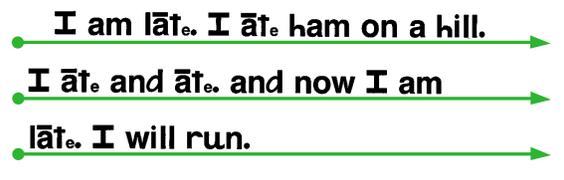
I am lāte. I āte ham on a hill.
I āte and āte. and now I am
lāte. I will run.

Reading Mastery Classic, Level I,
Storybook 1, Story 91

Less decodable text requires students to guess, predict, or use contextual cues to figure out words. These strategies have been shown to be ineffective and inefficient (NICHD, 1996). Thus, with **Reading Mastery**, students are successful in reading from the onset.

A Wealth of Additional Design Features

Many other pertinent features are incorporated in *Reading Mastery* to ensure that students acquire efficient and effective reading skills.

The following sections will discuss three of these features: accuracy and fluency instruction, specific and immediate feedback and error corrections, and an appropriate placement within the program. Accuracy and fluency instruction develops proficient readers who can focus their attention on the comprehension of text. Specific feedback and error corrections help promote accuracy in decoding during oral reading. Providing students with an appropriate placement within the series enables them to be challenged and successful with their reading curriculum.

Build accuracy and fluency. Accuracy is the ability to identify sounds and words correctly while reading. Fluency is the ability to read text with ease, efficiency, and expression. Students must become accurate decoders before fluency can become the focus of instruction. As readers become more fluent, decoding becomes more automatic, with less time and effort required for word recognition (Carnine et al., 1997; Levy, Nicholls, & Kohen, 1993).

Comprehension is associated with faster reading rates (Lane & Mercer, 1999; Mastropieri, Leinart, & Scruggs, 1999; Reutzel & Hollingsworth, 1993; Slocum, Street, & Gilberts, 1995). With automaticity in decoding, readers are able to attend more to the meaning of text. Recent recommendations from the NRP (2000) and Snow et al. (1998) emphasize the importance of development and achievement of fluency. Despite these recommendations, a survey of Grade 1 basal reading programs showed only 40% of the programs provided activities at high levels specifically labeled as opportunities to build reading fluency (Snow et al.).

Reading Mastery builds accuracy and fluency through the use of daily practice in oral reading, repeated readings, and partner reading. Students begin each lesson by orally reading lists of words they will encounter in the reading selection for that lesson. Then, individual students take turns reading all or part of the selection aloud. If students make a decoding error, they are asked to return to the beginning of the sentence and read it again. Every selection has an error limit. If the group exceeds the error limit, the students are to reread the story, allowing extra practice toward the goal of accurate and fluent decoding through repeated readings. Finally, students receive further fluency practice by reading part of the selection aloud to a partner.

Individual reading checkouts allow teachers to monitor students' progress in reading fluency. The expectation for reading rate increases as students progress through *Reading Mastery*. Guidelines at the end of the Level II programs specify rate-and-accuracy criteria of 90 words per minute with no more than four errors. The criteria for *Reading Mastery* Level V are 150 words per minute with no more than two errors.

Technical Note:
Focus on Accuracy and Fluency

Neely (1995) compared the effects of whole language, precision teaching, and *Reading Mastery* on the fluency achievement of Grade 1 students over three years. Grade 1 students in years one and two were taught via the whole language approach of the Silver Burdett-Ginn *World of Reading* series. The Grade 1 students in year three were taught using a combination of precision teaching and *Reading Mastery*. This latter group demonstrated a fluency rate of 1.8 and 2.0 times faster than the year one and two students, respectively. Neely concluded that a combination of precision teaching and *Reading Mastery* was superior to whole language in facilitating reading fluency.

"If fluency building is not emphasized, students may remain disfluent readers indefinitely" (Carnine et al., 1997, p. 226). Carnine et al. cited two studies (Sindelar, Monda, & O'Shea, 1990; Weinstein & Cooke, 1992) demonstrating the positive effects of repeated readings on student reading fluency. Those findings suggest that multiple readings of story passages would benefit all types of students in the classroom. In addition, Mastropieri et al. (1999) found that repeated readings of text enhanced fluency.

Fluency is one of several critical factors necessary for the comprehension of text. If decoding is laborious and inefficient, it will be difficult for students to remember what they are reading. In general, reading practice is recognized as a contributing factor to fluency acquisition. The National Reading Panel (2000) concluded that oral reading with systematic and explicit guidance from the teacher had a significant and positive impact on word recognition, fluency, and comprehension across a range of grade levels. However, no research evidence is available currently to confirm that instructional time spent on silent, independent reading with minimal guidance and feedback improves reading fluency or overall reading achievement.

Aside from repeated readings, timed readings can also enhance reading rate. Short (100–300 word) passages should be read and timed, with a graph marking the results and progress in words per minute. These passages should not be above a student's instructional level (i.e., the highest level at which a student can read with few errors and satisfactory comprehension), so that decoding is not a struggle (Taylor et al., 1995).

Provide specific and immediate feedback on oral reading errors. Many programs promote and emphasize the use of silent reading. Research, however, has not yet confirmed whether independent, silent reading with minimal guidance and feedback improves overall reading achievement (NRP, 2000). "Given the graphophonemic unruliness of English, reading aloud provides valuable opportunities to reconcile irregularly spelled words with their phonological translations" (Adams, 1990, p. 184).

Reading Mastery incorporates the use of silent reading throughout all levels during independent student activities, but the primary focus remains on guided oral reading. Carnine et al. (1997) noted that when students are learning new, complex material, immediate feedback is preferred. Student oral reading allows educators to identify errors effectively and efficiently, and to provide appropriate feedback or correction procedures. Providing specific and immediate feedback to students during guided oral reading enables them to read more accurately and consequently facilitates the comprehension of text (NRP, 2000).

In *Reading Mastery*, every error is corrected. These corrections are directed to all students, even if only one student makes the error. Error correction procedures in *Reading Mastery* are specific to the error.

For example, the following is the correction procedure for a word identification error in *Reading Mastery Plus* Level 1, when students are learning to sound out words as a decoding strategy:

---

1. Identify the word. That word is. . . .

2. Direct the group to sound out and identify the word. Everybody, sound it out . . . Get ready . . . What word?

3. Direct the group to return to the first word in the column. Starting over . . . or Back to the first word in the column . . .

4. Return to the ball for the first word on the page; pause several seconds; then ask What word? for each word on the page.

If the mistake occurs on an individual test in which a child is reading only one word, correct with steps 1 to 4 above. Present additional individual turns. Then return to the child who missed the word and have that child sound out and identify the word.

Reading Mastery Plus, Level 1, Teacher Guide

In *Reading Mastery Plus* Level 2, the following correction procedure is used when students make mistakes reading word lists that contain words with final-e:

bit ⟶

hat ⟶

hate ⟶

bite ⟶
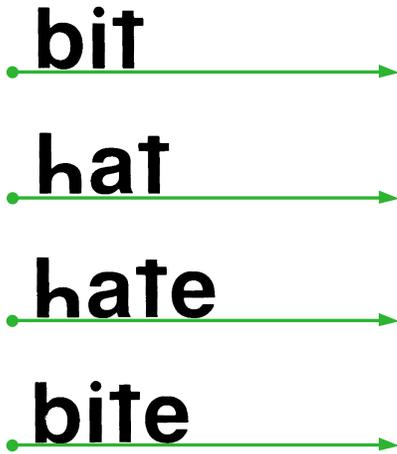
1. (Touch the ball for the word the children missed.) **Is there an ē on the end of this word?** (Signal.) *The children respond.*
2. (Point to the first vowel in the word.) **So tell me what you say for this letter.** (Signal.) *The children respond.*
3. (Touch the ball for the word.) **Sound it out. Get ready.** (Touch all sounds except the final **e,** if there is one, as the children sound out the word.)
4. **What word?** (Signal.) *The children respond.*
5. (Return to the first word in the column. Present all the words in order until firm.)

Reading Mastery Plus, Level 2,
Teacher Guide

Heubusch and Lloyd (1998) analyzed 24 studies of error correction procedures completed from 1979–1994. Their analysis yielded a strong recommendation for the use of correction procedures during oral reading, although none of the correction procedures were found to be particularly superior. They offered the following guidelines:

1. The appropriate technique depends on the reading goal. If fluent, accurate reading is the goal, word supply (i.e., teacher provides the correct word) should be used. If letter-sound correspondences are being learned, or if time for practice exists, a phonetic emphasis correction (i.e., sounding it out) should be used.
2. The timing of corrective feedback should be immediate and direct.
3. Correction procedures should require an active, correct response by the student.
4. Interruptions during the reading process do not hinder comprehension.

Pany and McCoy (1988) studied the effects of providing feedback on every oral reading error, providing feedback only on errors that changed the meaning of the text, and not providing feedback on any errors. They found that, when corrective feedback was given after every oral error, students made significantly fewer overall errors, fewer errors that changed the meaning of passage reading, fewer errors in word lists, and fewer errors on comprehension questions. In addition, only when corrective feedback was given after every oral error did students demonstrate a further reduction of errors on delayed tests.

In *Reading Mastery* 3 through 6, the following procedure is used to correct decoding errors during passage reading:

1. Stop the reader as soon as you hear the error.

2. Indicate whether the reader skipped a line, reread a word, omitted a word, or misread a word. For misread words, say the word and ask the student to repeat it: That word is _____. What word?

3. Direct the student to read the sentence from the beginning: Go back to the beginning of that sentence and read it again.

Reading Mastery Plus, Level 4, Teacher Guide

The last step of every correction procedure is a "test," which is particularly important. The only way to know whether the correction was effectively communicated is for the student to correctly read the wordlist or sentence in which the mistake occurred.

Provide appropriate placement and regular assessment of progress. Appropriate placement within a reading program is imperative to student success. In general, students should be placed in the *Reading Mastery* level that corresponds to their grade level (*Reading Mastery Plus* Level 1 for Grade 1, *Reading Mastery Plus* Level 2 for Grade 2, etc.). However, some students may be reading at a more advanced level and therefore might not be challenged by a lower placement. Others may be lower performers who become frustrated or unsuccessful due to an inappropriately high placement. To ensure appropriate placement in the program, *Reading Mastery* contains a placement test for every level that should be given to all students at the beginning of each school year. These placement tests provide guidelines for grouping students as well as information about the appropriate level and lesson where each student should begin.

Reading Mastery is designed so that students are continually tested to ensure they are making acceptable progress. Mastery tests within the program are generally administered after every five to ten lessons. Items on the mastery tests correspond with specific skills and content taught in *Reading Mastery*. In addition, *Reading Mastery* monitors students' progress in reading fluency through rate-and-accuracy checkouts. In these checkouts, students are timed as they read a specific passage. To pass the checkout, students must read the passage in a specified amount of time and make no more than a specified number of errors. Remedial exercises are provided for students who do not perform well on either the rate-and-accuracy checkouts or the mastery tests.

Technical Note:
Placement and Assessment of Progress

Recommendations from Snow et al. (1998) for Grades 1–3 state: "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" (p. 323).

Students should be tested to find their instructional level for reading. An independent level is deemed too easy and a frustration level too hard. A student should be reading with 95% decoding and 75% comprehension accuracy to be placed at an instructional level (Taylor et al., 1995).

Moody, Vaughn, Hughes, and Fischer (2000) state that the idea of providing material at the instructional level of the student is fundamental to the basic understanding about teaching and learning.

Carnine et al. (1997) suggest testing at the beginning of each year using criterion-referenced tests that evaluate either specific skills taught in the program being used or those skills that are deemed important in general. Further, they recommend using the results of this type of testing to determine placement for students within the program.

IV. Comprehension: Reading to Learn

Understanding Text

Comprehension, or the ability to gain meaning from text, is the ultimate goal of learning to read. As students become accurate and fluent decoders, reading comprehension becomes the major focus of instruction (i.e., reading to learn).

Reading to learn means that students can move beyond the task of decoding to making sense of written text, particularly in expository materials such as content area textbooks and reference books designed to convey factual information (Carnine et al., 1997). Comprehension is taught most effectively through systematic and explicit instruction (NRP, 2000). Consistent with the recommendations of the NRP, *Reading Mastery* places a strong emphasis on comprehension through a variety of explicit teaching strategies beginning in the early levels of instruction.

Further, comprehension should be taught in the same systematic and carefully sequenced manner as decoding (Carnine et al.). An effective comprehension program should include:

- Systematic introduction of vocabulary, taught prior to encountering the words in passage reading
- Information needed to make inferences and comprehend the passage taught prior to the passage reading in which the information is required
- Systematic, structured presentation of strategies for comprehension with examples/non-examples and opportunities for extended practice and review
- Specific comprehension skills integrated into passage reading so that the teacher may guide the students in the acquisition of the overall meaning of the text (Carnine et al.)

Several strategies for reading comprehension have been validated by research studies in the areas of vocabulary development, text comprehension, teacher preparation, and comprehension strategy instruction (e.g., question answering and summarization) (NRP, 2000). From beginning lessons, *Reading Mastery* incorporates a wide variety of these comprehension strategies and presents them systematically in four important areas: vocabulary, literal comprehension, interpretive comprehension, and reasoning (Osborn, 1995).

Further, *Reading Mastery* specifically prepares students for future academic success by providing instruction in the comprehension of expository text used in academic content areas (e.g., social studies and science). Several important comprehension components taught in *Reading Mastery* will be reviewed in this summary. These include:

1. Vocabulary instruction
2. Literal comprehension
3. Interpretive comprehension strategies
4. Reasoning skills

Vocabulary Instruction

The NRP (2000) concluded that it is beneficial for vocabulary development to be directly taught first in isolation, then later within the context of reading passages as the words are encountered. The NRP also emphasized the use of multiple strategies (e.g., computer-assisted instruction, encountering words in a variety of contexts, and indirect learning of new vocabulary in the context of stories) with numerous repetitions and frequent exposures, rather than one single method of vocabulary instruction.

Reading Mastery uses a variety of strategies to teach vocabulary. Words that are not easily explained or understood (e.g., shapes) are introduced through examples: when teaching oval, present ovals in various sizes and contexts versus circles, squares, etc. When an easier, equivalent word exists within a student's vocabulary, words can be taught using synonyms (e.g., ancient: old). Definitions are used to teach more complex words that require a lengthy explanation of the word (e.g., intervene: to come between two things).

The teacher script provides definitions and explanations of words that students may not know before the words appear in a reading selection. To ensure that students understand the meaning that will be used in the story, *Reading Mastery* frequently illustrates the meaning in sentence context.

> **Word 3**
> 1 Word 3 is **dwelled.**
> • When you live in a place, you **dwell** in that place.
> 2. Everybody, what's another way of saying **She lived in the city**? (Signal.) *She dwelled in the city.*
> 3. Everybody, what's another way of saying **Oz lived in a palace**? (Signal.) *Oz dwelled in a palace.*

Reading Mastery Plus, Level 5,
Teacher Presentation Book A, Lesson 18

After vocabulary words are taught in isolation, these same words are practiced and reviewed in different kinds of activities.

Reading Mastery Plus Levels 3 and 4 also use model sentences to expand students' vocabulary. Each model sentence goes through an eight-step cycle. In the first step, the sentence is introduced. The teacher explains the key words (two to four words that are in the sentence). Then, students answer questions about the key words.

VOCABULARY

a. **Find page 397 in your textbook.** ✓
  • Touch sentence 13. ✓
  • This is a new vocabulary sentence. It says: The smoke swirled in enormous billows. Everybody, read that sentence. Get ready. (Signal.) *The smoke swirled in enormous billows.*
  • Close your eyes and say the sentence. Get ready. (Signal.) *The smoke swirled in enormous billows.*
  • Again. Say the sentence. Get ready. (Signal.) *The smoke swirled in enormous billows.*
  • (Repeat until firm.)
b. When smoke **swirls,** it spins around as it drifts. If you mix chocolate syrup in milk, you'll see swirls of brown and white. What's a word that means **spun around?** (Signal.) *Swirled.*
c. Things that are **enormous** are very, very large. What's another way of saying **The building was very, very large?** (Signal.) *The building was enormous.*
d. **Billows** are large clouds or waves that are swelling up.
e. Listen to the sentence again: The smoke swirled in enormous billows.
  • Everybody, say that sentence. Get ready. (Signal.) *The smoke swirled in enormous billows.*
  • (Repeat until firm.)
f. What word means that the smoke spun around and around? (Signal.) *Swirled.*
  • What word means **very, very large?** (Signal.) *Enormous.*
  • What word tells you that the clouds were swelling up? (Signal.) *Billows.*
  • (Repeat step f until firm.)

Reading Mastery Plus, Level 3,
Teacher Presentation Book B, Lesson 52

In the next lesson, students review the model sentence. In the third lesson of the cycle, students review the last three model sentences that have been introduced. Later in the lesson, students do written exercises in which they write answers to questions about the key words. In the next lesson, students review the model sentence by completing the sentence, first in oral activities and later when they write the two most recent sentences. Finally, a test in every tenth lesson assesses the students' knowledge of vocabulary words presented in model sentences.

In addition, *Reading Mastery* incorporates instruction on deriving meaning from context through the use of systematic instruction and practice. The ability to derive meaning from context is important, as all new vocabulary could not possibly be taught in isolation.

1. Look at your worksheet for lesson 57. ✔
  • You're going to figure out what words probably mean from its context. I'll read passage 1.

  > Jenny said, "Your problem is that you do not **adapt** to new situations."
  > George said, "I do too **adapt.** The first time I gave a speech in class, I had a lot of trouble, but now I can do it with no problem at all."
  > "No," Jenny said, "I don't mean **adapt** to schoolwork. You don't **adapt** well in getting along with other people."

  > "I do too **adapt** well. When I forgot my lunch, I **adapted** and ate Tina's lunch."
  > "That's not **adapting well,**" Jenny said. "You want everyone to adjust to **your** needs. You don't adjust to what other people need or feel. You are especially weak at **adapting** when people criticize you."
  > George started to jump up and down. He shouted, "That's not true! Everybody knows I can adjust to any situation, especially taking criticism."

2. There are two questions for passage 1. Write answers to those questions. Raise your hand when you're finished. (Observe students and give feedback.)
3. I'll read each question.
  • Question A: **What part of speech is adapt?** (Signal.) *Verb.*
  • Question B: **What does adapt probably mean?** (Ideas: *Adjust; change to fit; change behavior appropriately; change the way one acts.*)
4. It's your turn: Look up **adapt** in your dictionary and write what it means. Try to write **one word** that tells what it means in the passage. Raise your hand when you're finished. (Observe students and give feedback.)

Reading Mastery Plus, Level 5,
Language Arts Guide, Lesson 57

As general knowledge of vocabulary grows, stories in *Reading Mastery* become increasingly complex and interesting. Thus, initial focus in reading is on controlled vocabulary and content which fades to high-interest stories as gains are made in reading vocabulary (Carnine et al., 1997).

Knowledge of word meanings is an important aspect of comprehension. Vocabulary knowledge is correlated with comprehension skill and likewise, comprehension is diminished by lack of word knowledge. The greatest gains in vocabulary were noted when passages contained explicitly taught words. In addition, methods providing both word definitions and examples of word usage in a variety of contexts produced the greatest gains in both vocabulary and reading comprehension (Adams, 1990; Snow et al., 1998).

Grade 4 students given instruction on target words while hearing a story had significantly greater vocabulary gains than students who did not receive instruction on the target words. These gains were still present six weeks later in delayed testing as well (Brett, Rothlein, & Hurley, 1996).

Students were taught new vocabulary words by two approaches: instruction in isolated word meanings with low, medium, and high levels of practice, and instruction in deriving word meanings from context. All levels of practice in isolated meaning instruction demonstrated more gains in vocabulary growth with high levels of practice being the most significant. Instruction in deriving meaning from context was more successful in the skill of learning other unfamiliar words independently. However, this skill was dependent on a student's existing vocabulary (Jenkins, Matlock, & Slocum, 1989).

A number of studies have investigated the hypothesis that readers learn vocabulary incidentally by deriving word meaning from context during everyday reading. The results of one such study showed that incidental learning of new words is a very slow process that shows appreciable gains only after numerous years of reading (Fukkink & deGlopper, 1998).

Both average and high skilled students benefited from instruction of text-specific vocabulary prior to reading expository texts. These students were able to make causal connections within the text after vocabulary instruction (Medo & Ryder, 1993). Further, acquisition and retention of content text material was shown to be significantly increased when students were pre-taught vocabulary in a study by Carney, Anderson, Blackburn, and Blessing (1984).

Literal Comprehension

Literal comprehension is the simplest, most direct form of comprehension (Carnine et al., 1997). This type of comprehension involves literal questions or statements directly expressed in passages. Although many students master this skill naturally, others must receive guidance to understand the literal meaning of text. In early levels of *Reading Mastery*, students are provided frequent opportunities to practice strategies at the literal level (e.g., answering who, when, where questions). Teachers model the strategy, and students then repeat it. As students become independent with each task, the amount of teacher assistance is reduced.

Students learn the following literal comprehension strategies in *Reading Mastery* through explicit and systematic instruction: following written directions, answering literal questions about text, identifying literal cause and effect, memorizing facts and rules, recalling details and events, and sequencing narrative events (Osborn, 1995).

The answers to literal questions are directly stated in the passage. Questions are often presented before the passage, while other questions are asked at the end of passage reading (see sample lesson below). In early levels of *Reading Mastery*, interspersed questions are used (i.e., students read sentences followed by questions about what was read). This placement of questions demonstrates to students how good readers think about what they are reading as they read. Specific questions and placement of such questions are provided in each Teacher Presentation Book.

The Prince and the Tramp[1]
There once was a prince. The prince always dressed in fine clothes. He had a gold crown and a long robe and red shoes.[2] When the prince walked down the streets of the city, everybody would say, "We love the prince. He is so handsome."

When the prince was hungry, people would bring food to him. Then the prince would say to himself, "Everybody loves me."

When the prince was tired of walking, people would give him a horse to ride.[3]

One day the prince met a tramp.[4] This tramp did not have a gold crown or a long robe or red shoes. This tramp did not have any shoes. He had an old shirt with holes in it.[5] But that tramp looked just like the prince.

The tramp said, "How strange. You look just like me."[6]

The prince said, "Let us have some fun.⑤

I will dress like you, and you will dress like ★ me."

So the prince put on the tramp's clothes, and the tramp put on the gold crown and the long robe and the red shoes. The tramp looked just like the prince.[7] The tramp left the prince and walked down the street. And what do you think happened?

All the people looked at the tramp and said, "We love the prince."

A man came up to the tramp and said, "If you are tired of walking, you may have my horse."

A lady came up to the tramp and said, "You must be hungry. Come to my house and I will give you a big meal."[8]

But the real prince did not have a good time. When he walked on the streets of the city, people said, "Get out of here, you tramp."

[1] Who will this story be about? (Signal.) *The prince and the tramp.*
[2] Tell me some of the fine things the prince wore. *The children respond.*
[3] Name some reasons why the prince thought everybody loved him. *The children respond.*
[4] Who did the prince meet? (Signal.) *A tramp.* Let's read and see if the tramp had fine clothes too.
[5] Did the tramp have fine clothes? (Signal.) *No.* Tell me about his clothes. *The children respond.*

[6] Who is talking? (Signal.) *The tramp.* Who is he talking to? (Signal.) *The prince.* Yes, they look alike.
[7] How did he get the prince's fine clothes? *The children respond.* So whose clothes was the prince wearing now? (Signal.) *The tramp's.*
[8] Why are people being so nice to the tramp? *The children respond.* Yes, they think he is the prince because he's wearing the prince's clothing.

Reading Mastery Plus, Level 2, Teacher Presentation Book B, Lesson 80

Reasoning Skills

Although adequate opportunities for students to master literal comprehension are provided, ***Reading Mastery*** quickly moves into more challenging passages where students are required to make inferences from what is being read.

Picture deductions, in which students are given a rule to apply to a picture, are introduced first.

Reading Mastery Plus, Level 2,
Teacher Presentation Book A,
Lesson 30 and Worksheet 30

These are followed by written deductions in which children work from a written description of the examples, not from pictures.

Reading Mastery Plus, Level 2,
Workbook B, Worksheet 90, Side 1

The work with deductions is important because it teaches students to learn a "rule" and then apply it to different examples, a skill that is required in a variety of advanced comprehension activities.

Interpretive Comprehension Strategies

Stories in later levels of *Reading Mastery* rely on the background knowledge that requires students to move beyond simple literal comprehension strategies. Interpretive comprehension in *Reading Mastery* includes: outlining, predicting outcomes, inferring details and events, making comparisons, inferring cause and effect, inferring morals, inferring main ideas, and summarizing (Osborn, 1995). Strategies for these components are explicitly taught.

Main Idea

For example, when students first learn to infer the main idea from a passage, the teacher asks a series of questions that make the thinking process clear.

MAIN IDEA

1. Everybody, find part B. ✓
   • You're going to figure out the main idea of these passages.
2. To figure out the main idea, you do the same thing you do with pictures.
   • First you tell who or what is doing something. Then you tell the main thing they're doing.

Passage 1

   1. Wild deer live in the jungle.
      Wild tigers live in the jungle.
      Wild apes live in the jungle.

1. I'll read passage 1.
   • Wild deer live in the jungle. Wild tigers live in the jungle. Wild apes live in the jungle.
2. The passage names three different things that do something.
   • What three things does the passage name? (Response: *Wild deer, wild tigers, and wild apes.*)
   • What's a class name for wild deer, wild tigers, and wild apes? (Idea: *Wild animals.*)
3. Now tell me what the wild animals do. (Idea: *They live in the jungle.*) Yes, they live in the jungle.
   • Everybody, say the whole main-idea sentence. (Signal.) *Wild animals live in the jungle.*

Passage 2

   2. Vanessa dug a hole.
      Then Vanessa picked up a tree.
      Vanessa put the tree into the hole.

1. (Call on a student to read passage 2.)
   • Who does the action in that passage? (Response: *Vanessa.*)
2. Vanessa did several different things, but she did only one main thing. What was that? (Idea: *She planted a tree.*) Yes, she planted a tree.
   • Everybody, say the whole main-idea sentence. (Signal.) *Vanessa planted a tree.*
3. Later you will write main-idea sentences in your workbook.

Reading Mastery Plus, Level 5,
Teacher Presentation Book A, Lesson 54

Next, when students are asked to infer the main idea of a similar passage, the teacher models an example:

Figure out a complete main-idea sentence for the following paragraph.
   • Name the main character.
   • Tell the main thing that character did.
   • Tell when and where the character did that main thing.
   In August, Clara went to the department store. She looked at clothing. She looked at sporting equipment. Then she recalled that she needed to fix her bike. So, she found a bike-repair kit and paid for it. Then she left the store.

2. Read the instructions and the paragraph to yourselves. Then we'll work together to write a complete main-idea sentence.
3. (After all students have finished reading:)
   • Who is the main character in the paragraph? (Response: *Clara.*)
   • So, I will write "Clara" as the first part of the main-idea sentence. (Write **Clara** on the chalkboard, leaving space to the left and right.)
4. Now tell me the main thing that Clara did. Don't tell where or when. Just tell what she did. (Idea: *Bought a bike-repair kit.*)
   • So for the next part of the main-idea sentence, I will write "bought a bike-repair kit." (After the word **Clara** on the chalkboard, write **bought a bike-repair kit.**)
5. That's a good main-idea sentence, but we can add more information.
   • When did Clara buy the kit? (Idea: *In August.*)
   • I will write that information at the beginning of the sentence, followed by a comma. (Write **In August,** at the beginning of the sentence.)
6. Where did Clara buy the kit? (Idea: *In the department store.*)
   • I will write that information at the end of the sentence, followed by a period. (At the end of the sentence, write **in the department store.**)
7. Now I'll read the complete main-idea sentence: **In August, Clara bought a bike-repair kit in the department store.**
   • That sentence tells the main thing the main character did. It also tells when and where she did it.
8. You will write a complete main-idea sentence in your workbook later in the lesson.

Reading Mastery Plus, Level 5,
Teacher Presentation Book B, Lesson 72

The "scaffolded" instruction shown in the teaching is critical for children at risk of reading failure. The finely-tuned teacher/student dialogue directly shows the student what kind of processing or thinking needs to be done to complete the task successfully.

Finally, students practice inferring the main idea from passages that become increasingly longer and more difficult.

Many of the paragraphs are drawn directly from the textbook stories. This instructional strategy allows students to apply what they are learning about main ideas to their reading.

C MAIN IDEA

For each paragraph, write the main idea.

Dorothy walked into the clearing and gasped. A tin man was standing under a tree. He had an axe in his hands and a sad look on his face. Each one of his joints was rusted. His jaws were so rusted that he could only groan. Dorothy quickly figured out what the problem was and went to look for an oilcan. She found one in a shack and hurried back to the tin man. She oiled his jaws first. The tin man said, "How can I ever thank you?" Then Dorothy took care of the other joints.

1. *Idea: Dorothy met a rusty tin man in the clearing and oiled his joints.*

Reading Mastery Plus, Level 5, Workbook, Lesson 82

Outlining

Similarly, the systematic guidance for learning to outline is carefully provided. Once students have learned to infer the main idea, they are given an outline from a passage they have read. They extrapolate the main idea and fill in supporting details.

C SUPPORTING DETAILS

Write the main idea and three supporting details for the following passage.

The cat said, "What happens if you praise me once?"

"I never shall," said the woman, "but if I praise you once, you may sit near the mouth of the cave."

"And if you praise me twice?" said the cat.

"I never shall," said the woman, "but if I praise you twice, you may sit near the back of the cave."

"And if you praise me three times?" said the cat.

"I never shall," said the woman, "but if I praise you three times, you may drink the milk."

Then the cat arched his back and said, "I accept your bargain."

1. *Ideas: The woman said the cat may do things if she praises him.*

   a. *The first time he got to sit near the mouth of the cave.*

   b. *The second time he got to sit near the back of the cave.*

   c. *The third time he got to drink the milk.*

Reading Mastery Plus, Level 5, Workbook, Lesson 99

Next, students are given a broad outline of a reading selection with only the main ideas. They must then fill in several supporting details for each main idea.

C   OUTLINING

Complete the following outline of *The Wonderful Wizard of Oz* by writing three supporting details for each main idea.

- For the first main idea, tell which people lived there, what color the land was, and what Dorothy did there.
- For the second main idea, tell which person lived there, what color the city was, and what Dorothy did there.
- For the third main idea, tell which people lived there, what color the land was, and what Dorothy did there.

1. Dorothy visited the Land of the East.

   a. Ideas: The Munchkins lived there.

   b. The land was blue.

   c. Dorothy killed the Witch of the East.

2. Dorothy visited the Emerald City.

   a. Ideas: Oz lived there.

   b. The city was green.

   c. Dorothy had a meeting with Oz.

Reading Mastery Plus, Level 5, Workbook, Lesson 102

Later, students are required to complete an entire outline, initially for single paragraphs, but ultimately, entire stories.

Examples for each component of interpretive comprehension cannot be discussed here. However, within **Reading Mastery**, all components are introduced explicitly with appropriate modeling and guided practice from the teacher so that students learn to think strategically about solving comprehension problems.

Technical Note:
Teach Interpretive Comprehension Strategies Explicitly

"Throughout the early grades, reading curricula should include explicit instruction on strategies such as summarizing the main idea, predicting events and outcomes of upcoming text, drawing inferences, and monitoring for coherence and misunderstandings. This instruction can take place while adults read to students or when students read themselves" (Snow et al., 1998, p. 323).

Among the most promising and effective instruction recommendations from the NRP (2000) in the area of comprehension are: summarizing the main ideas; answering questions directed by the teacher with feedback on the correctness of the answer; asking who, what, where, when, and why questions, which helps map out timelines, characters, and events; using graphic and semantic organizers which graphically represent the meanings and relationships of ideas; and multiple strategy teaching (using several of these listed procedures in coordination with teacher interaction).

An analysis of 16 quantitative research studies investigating reciprocal teaching of cognitive strategies for comprehension was conducted by Rosenshine and Meister (1994). Reciprocal teaching was defined as teaching students specific, concrete comprehension-fostering strategies through guided dialogue between teacher and students. Most of the studies evaluated strategies for summarization, question generation, clarification, and prediction. The study concluded that results were most successful when the strategies were explicitly and directly taught in isolation prior to reciprocal teaching. These results were significant in six of the seven studies that addressed prior explicit teaching of strategies with a median effect size of 0.88 when experimenter-developed comprehension texts were used.

Advanced Reasoning Skills

As students' vocabulary and comprehension abilities grow, more sophisticated concepts are taught. Multiple strategies are introduced in later levels of *Reading Mastery* to further enhance reading comprehension. These concepts emphasize the ability to analyze the underlying logic of text and include: written deductions, drawing conclusions, identification of relevant evidence, rules to predict outcomes, identification of faulty logic and contradictions, irony, and recognition of figurative language (Osborn, 1995).

The ability to make inferences from text is imperative for good reading comprehension skills (Carnine et al., 1997). One type of inference exercise in *Reading Mastery* involves instruction in deductive logic. Early examples are explicitly stated and designed to show students when they have sufficient information to draw a conclusion.

Rule: **Frogs have smooth skin.**
1. The rule tells something about any ▬▬

Rule: **Birds have two feet.**
2. The rule tells something about any ▬▬
3. Is a robin a bird?
4. Does the rule tell about a robin?
5. Does the rule tell about an ape?

EXERCISE 5

WRITTEN ITEMS

Skill Items

a. Find part D in your textbook. ✓
   - The rule for item 1 says: Frogs have smooth skin. That rule tells you something about any frog. It doesn't tell you anything about things that are not frogs.
   - Everybody, does the rule tell about toads? (Signal.) *No.*
   - Does the rule tell about birds? (Signal.) *No.*
   - Does the rule tell about snakes that have smooth skin? (Signal.) *No.*
   - The only thing the rule tells about is frogs.
   - Listen: Frogs have smooth skin. What's the only thing that rule tells about? (Signal.) *Frogs.*

b. Find the rule for item 2. ✓
   - The rule says: **Birds have two feet.**

Reading Mastery Plus, Level 3,
Teacher Presentation Book A, Lesson 15,
and Textbook A

These examples are followed by others that students complete independently.

Here's a rule: **Fish are cold-blooded.**
4. A whale is not a fish. So what does the rule tell you about a whale? nothing
5. A shark is a fish. So what does the rule tell you about a shark? A shark is cold-blooded.
6. A snapper is a fish. So what does the rule tell you about a snapper? A snapper is cold-blooded.

Reading Mastery Plus, Level 3,
Textbook B, Lesson 63

As students master deductive reasoning, the examples are integrated into passages that students read. In this example, students read the passage and then are asked to identify which animals are insects and tell you why or why not.

B Insects

Most bugs are insects. Some bugs are not insects. An ant is an insect. A fly is an insect. A butterfly is an insect. A beetle, a bee, and a grasshopper are insects. Spiders are not insects.

Here are the rules about all insects:
- An insect has six legs.
- The body of an insect has three parts.

An ant has six legs. Its body has three parts. So an ant is an insect.
A fly has six legs. Its body has three parts. So a fly is an insect.
A spider has eight legs. Its body has two parts. So a spider is not an insect.

A
B
C
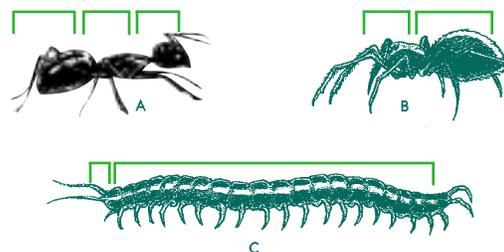
Reading Mastery Plus, Level 3,
Textbook A, Lesson 41

Finally, information taught in comprehension passages is used as a basis from which students can answer story questions that require them to draw a conclusion, predict outcomes, make an inference, or identify relevant evidence.

Contradictions

Students learn to identify contradictions in a similar manner. At first, the skill is taught directly and in isolation.

Assume this statement is true: *Abby swam all morning.* Then this statement is a contradiction: *Abby rode her bike at 10:00 a.m.* Here is why the statement is a contradiction: *If Abby swam all morning, then she could not have ridden her bike at 10:00 a.m.*

- Listen to that explanation again: **If** Abby swam all morning, **then** she could not have ridden her bike at 10:00 a.m.

Assume this statement is true: *Gina loved to eat all fruits.* Then this statement is a contradiction: *Gina hated to eat pears.*
1. Explain why the statement is a contradiction. Start by saying the true statement. Then tell what couldn't also be true. Use this format: *If* ▇▇▇▇*, then* ▇▇▇▇*.*

- Tell me why the statement is a contradiction. (Idea: *If Gina loved to eat all fruits, then she couldn't hate to eat pears.*)

Reading Mastery Plus, Level 6,
Teacher Presentation Book A, Lesson 33

Next, students practice the newly learned skill.

Write the answers to items 1 and 2.
Here's one way to find a contradiction in a passage:
- Assume that what the writer says first is true.
- Read until you find a contradiction.
- Make up an if-then statement that explains the contradiction.

Here's a passage with an underlined statement: <u>*Andrea went to a museum when she was in Egypt*</u>*. The museum was quite large. It had several sculptures and many different kinds of pottery. Andrea has never left the United States.*

Assume the underlined statement is true. If that statement is true, then it can't be true that Andrea has never left the United States. Here's how to explain the contradiction: *If Andrea went to Egypt, then she must have left the United States.*

- Which statement do you assume is true? (Response: *Andrea went to a museum when she was in Egypt.*)
- Which statement is a contradiction? (Response: *Andrea has never left the United States.*)
- How do you explain the contradiction? (Idea: *If Andrea went to Egypt, then she must have left the United States.*)
- You'll write the answers later.

Reading Mastery Plus, Level 6,
Teacher Presentation Book A, Lesson 35

Once students understand the if-then relationship of a contradiction, further examples are presented in passages that do not have underlines which identify the true statement. Finally, students are asked to identify contradictions embedded in stories.

Both narrative and expository text exhibit complex language and ideas that can be difficult to understand. The wide array of strategies that ***Reading Mastery*** encompasses facilitates the comprehension of such texts, thus preparing students for success in their later academic careers.

Decoding and comprehension strategies used in *Reading Mastery* have been validated by several decades of research. *Reading Mastery* is not only successful, but students find it fun and interesting as well. For example, they might be reading about astronomy or physics one day and reading a poem, *Tom Sawyer*, or *The Wizard of Oz* the next. Furthermore, given the wide range of reading material, virtually all students in the classroom will be exposed to subjects that pique their curiosity. From the very beginning lessons, students are asked to write their responses to questions in their workbooks. Through progression of the *Reading Mastery* series, students become proficient in both reading and writing.

V. Direct Instruction Meta-Analysis

Reviewing the Studies

Numerous research studies have compared *Reading Mastery* to other programs. A meta-analysis (review and summarization of a large number of studies) was conducted by Adams (1996), summarizing the research on *Reading Mastery* and other **Direct Instruction** programs.

The author located various articles evaluating **Direct Instruction**, but most articles were not included in the analysis because:

- They lacked a comparison group;
- They lacked pretest scores;
- Pretest scores of the **Direct Instruction** group and the comparison group were significantly different;
- They lacked means, standard deviations, and sample sizes;
- They lasted only one session;
- **Direct Instruction** was combined with an incompatible (i.e., non-**Direct Instruction**) program;
- They used single-subject designs;
- They did not use formal **Direct Instruction** curriculum developed by the author and his associates; or
- They were studies of components of **Direct Instruction**, but not a complete **Direct Instruction** program.

A total of 37 studies with multiple comparisons that involved active interventions of **Direct Instruction** were included. Twenty studies were selected for review by an independent research professor to assess the quality of the studies. A 94% agreement rating was reached between Adams and the independent reviewer.

Forty-four comparisons that met the above selection criteria involved the *Reading Mastery* program (Appfel, Kelleher, Lilly, & Richardson, 1975; Branwhite, 1983; Brent, DiObida, & Gavin, 1986; Darch & Kameenui, 1987; Kaiser, Palumbo, Bialozor, McLaughlin, 1989; Lewis, 1982; Lloyd, Cullinan, Heins, & Epstein, 1980; Richardson, DiBenedetto, Christ, Press, & Winsberg, 1978; Sexton, 1989; Snider, 1990; Stein & Goldman, 1980; Summerell & Brannigan, 1977; Umbach, Darch, & Halpin, 1987).

In a meta-analysis, the result of each comparison is calculated as an effect size. An effect size describes the size of the difference between two groups and is measured in a statistical unit called a standard deviation. When 84% of the students in one group score above or below 50% of the students in the other group, the groups differ by 1 standard deviation. For educational purposes, a difference of at least 0.25 standard deviations is considered educationally significant. Research studies sometimes find differences smaller than 0.25 standard deviations "statistically significant" when a very large sample of subjects is used. Though these differences smaller than 0.25 may be statistically significant, they are not considered educationally significant; that is, they are not worth the expense and effort involved in purchasing and learning to use a new instructional program or procedure. An effect size of 0.50 is considered a medium effect size, while an effect size of 0.75 is considered large and is rare in educational research.

To calculate the effect size for one comparison, the mean score of the comparison group is subtracted from the mean score of the experimental (*Reading Mastery*) group, then divided by the pooled standard deviation of the groups. Differences favoring the comparison group would show a negative number as an effect size. Differences favoring the experimental group would be positive.

The final step of a meta-analysis involves averaging the effect sizes for all the comparisons to determine the overall effect size. Adams' analysis resulted in an effect size of 0.68 for the 44 acceptable comparisons involving *Reading Mastery*. Effect sizes of this magnitude are rarely seen in educational research.

VI. Whole-School Reform Model Research

How the Research was Formulated

The American Institutes of Research (AIR) evaluated 24 popular whole-school reform models (Olson, 1999). The researchers first gathered any studies that reported student outcomes (e.g., journal articles, unpublished case studies, and reports). A total of 130 studies were collected. These studies were then examined for their methodological rigor based on the quality and objectivity of the measurement instruments used, period of time for data collection, use of comparison or control groups, and number of students and schools included. The AIR used only those studies meeting its criteria to rate the effectiveness of a program.

Programs were rated in the following manner: (a) a "strong" rating was given to programs with the most research backing (i.e., a minimum of four studies that used rigorous methodology and, of those, at least three that demonstrated statistically significant gains in student achievement); (b) a "promising" rating was given to programs with three or more rigorous studies that showed some evidence of success; (c) a "marginal" rating was given to programs that had few rigorous studies with positive findings or a high number of studies with negative or no effects; (d) a "mixed or weak" rating was given to programs with negative or vague findings; and (e) a "no research" rating was given to programs with no rigorous studies.

Direct Instruction was one of only two models targeted for students in Grades K–6 that received a "strong" rating. This research further validates the effectiveness of programs such as *Reading Mastery* in raising student achievement.

VII. Comparative Research

Research Validation

The goal of **Reading Mastery** is to promote proficient reading and success for all students. From the onset of Project Follow Through, **Direct Instruction** programs including **Reading Mastery** (formally called the **Direct Instruction** System for Teaching and Remediation or *DISTAR*) have been among the most research-validated programs available. In the following section you will find studies conducted over the past 25 years that demonstrate the success of **Reading Mastery** (which includes the **Plus** and **Classic** editions) as compared to a variety of other reading programs for both general and special education populations.

General Education Populations

Reading Mastery vs. basal readers. Ashworth (1999) examined the effects of **Reading Mastery** and basal readers on the reading achievement of Grade 2 students. Basal readers are used by the majority of school districts to teach reading skills. They rely on meaning, whole word recognition, and context use as the basis of instruction.

This study was conducted over two years with two consecutive classes of Grade 2 students (N=20 and 16, respectively). The school chosen for this study was located in a small town in northern Georgia and consisted of 95% Caucasian students. Both classes were taught by the same teacher but by different approaches each year. The first class of Grade 2 students served as the control group and was taught with the basal readers. The second class, or experimental group, was taught using **Reading Mastery** in conjunction with consulting from J.P. Associates, Inc.

The Georgia Kindergarten Assessment Program served as a pretest. It assessed students in five areas: communicative capability (specifically addressing reading readiness), physical capability, logical and mathematics capability, personal capability, and social capability. The Iowa Test of Basic Skills (ITBS) served as the posttest. (All special education students were excluded from this study because they were not routinely given the ITBS.) Specifically, scores on vocabulary, comprehension, and spelling language were examined. The language area consisted of the following components: developmental language, shared characters class, spelling in context, capitalization, punctuation, context, and usage and expression. Pretest scores were compared to ensure both groups were equal.

Figure 1: Average scores on the ITBS.
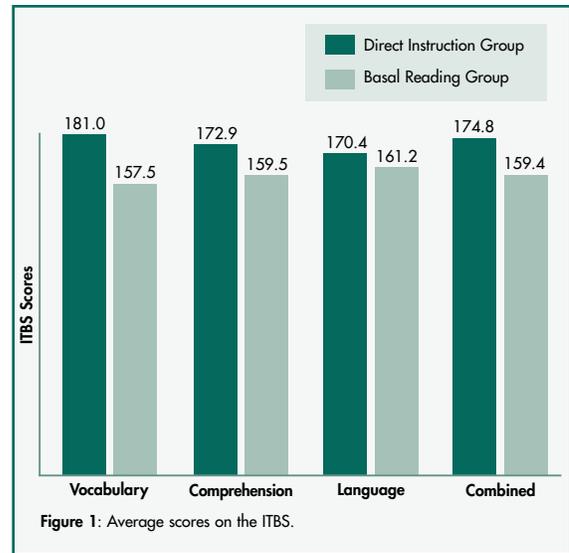
As shown in Figure 1, the **Direct Instruction** group had higher average scores in each of the areas on the ITBS (i.e., vocabulary, comprehension, language). Also, the overall mean score on the ITBS for the **Reading Mastery** group was significantly higher than the basal reader group. Average increases were between 5% and 13% for the **Reading Mastery** group over the previous year's scores from the basal readers.

Reading Mastery vs. Harcourt Brace Jovanovich Basal Reading Program. Sexton (1989) compared **Reading Mastery I Classic** (formerly called *DISTAR Reading I*) to the Harcourt Brace Jovanovich Basal Reading Program (HBJ). Both the experimental group (**Reading Mastery**) and the control group (HBJ) consisted of 40 randomly assigned Grade 1 African-American students from neighboring schools. Both schools were located in the southwestern U.S. and were rated as low socioeconomic status.

The School Language and Listening subtest of the Metropolitan Readiness Test (MRT) was used as a pretest. This subtest consisted of 18 items. Teachers read a passage and then students picked the best of three pictures most representative of the passage. Six months later the Slosson Intelligence Test (SIT) was administered and served as a posttest. The SIT addressed general comprehension, vocabulary and verbal fluency, judgment and reasoning, arithmetic reasoning, memory and concentration, and visual motor ability. Scores on the SIT were adjusted based on the results of the MRT (i.e., the MRT served as a covariant).

The experimental group received 120 minutes of instruction per day while the control group received HBJ along with supplemental language instruction for a total of 125 minutes per day.

Figure 2: Adjusted postlanguage ability mean scores for *Reading Mastery* and HBJ Reading Program groups.
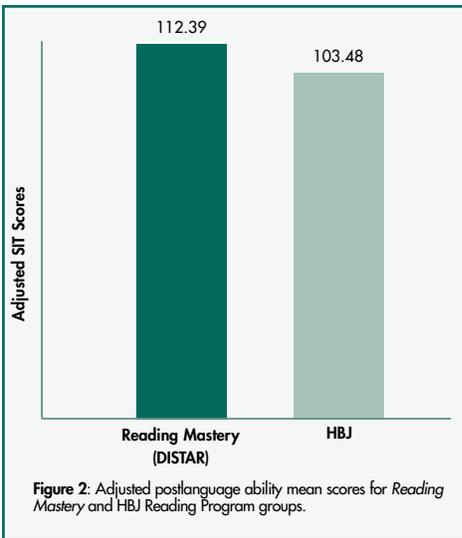
As shown in Figure 2, posttest scores revealed that *Reading Mastery Classic* was significantly more effective in influencing SIT scores than was HBJ. Further, *Reading Mastery Classic* was equally effective for children with low and high initial language abilities.

Reading Mastery and Corrective Reading with low-performing K–3 students. Gunn, Biglan, Smolkowski, and Ary (2000) evaluated the effects of the *Reading Mastery* program and *Corrective Reading* (an SRA program) on the reading skills of 256 Grade K–3 students. The students came from nine schools across three school districts in three small Oregon communities. The sample included all Grade K–3 students who were either aggressive (n=100) or who performed below grade level on literacy skills (n=156). Seventeen students received special education services and 27 received Chapter 1 services. (Note: the number of students assessed across two years fluctuated. For example, complete data was obtained from 198 students after year two and partial data was obtained for six students.)

Students were grouped by ethnicity and grade and matched based on scores on the Walker-McConnell Test of Social Skills and on reading ability. The students were then randomly assigned to either an experimental group (*Reading Mastery* or *Corrective Reading*) or a control group.

The experimental group students received six to seven months of instruction in year one and nine months of instruction in year two. Additionally, 84 students attended summer sessions three days a week for five weeks, receiving reading instruction 30 minutes per day between years one and two.

Students were assessed and placed in *Reading Mastery* if they were beginning readers in Grades 1 or 2. Students in Grades 3 or 4 who had received reading instruction but were still nonreaders or reading below grade level were placed in the appropriate level of the *Corrective Reading* program.

Most students were taught in groups of two to three unless one-on-one instruction had to be provided. Students in both programs typically completed one lesson per day unless the students were English-deficient (i.e., ESL) and needed more time per lesson to have unfamiliar English vocabulary explained to them. The primary assessment used was the Woodcock-Johnson; specifically, the Letter-Word Identification, Word Attack, Reading Vocabulary, and Passage Comprehension subtests were used. Additionally, oral reading fluency was measured via three, one-minute reading samples.

Figure 3: Mean gain scores for reading before year one to after year one for the *Reading Mastery* (RM) and *Corrective Reading* (CR) group and the control group.
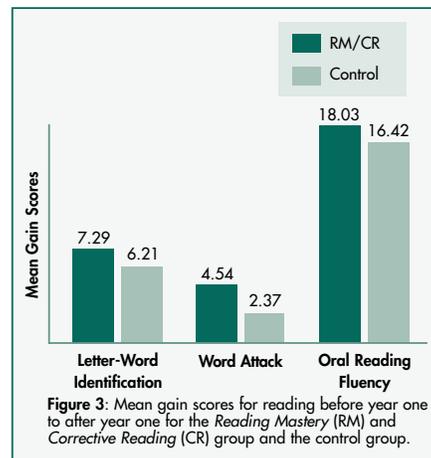
As shown in Figure 3, the gain scores from before year one to after year one show that the students in the *Reading Mastery* and *Corrective Reading* programs outperformed the students in the control group in Letter-Word Identification, Word Attack, and oral reading fluency. The authors reported that the Hispanic students scored significantly lower than non-Hispanic students on oral reading fluency and almost significantly lower on Word Attack.

Figure 4: Mean gain scores for reading before year one to after year three and posttest (after year three) scores for vocabulary and comprehension for the *Reading Mastery* (RM) and *Corrective Reading* (CR) group and the control group.

Figure 5: Gains in reading achievement from ITBS scores.
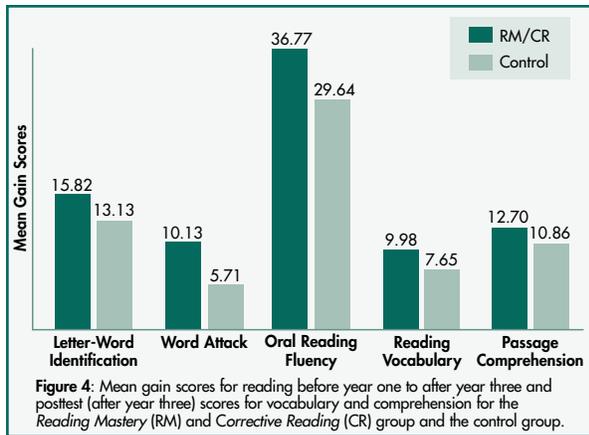
Figure 4 shows that the ***Reading Mastery*** and *Corrective Reading* group outperformed the control group in all assessments at the end of year two. The difference for oral reading fluency was statistically significant. Non-Hispanic students had a significantly greater gain in vocabulary and a near-significant greater gain in oral reading fluency than Hispanic students.

The authors also reported that students who spoke little English initially benefited from the ***Reading Mastery*** and *Corrective Reading* programs as much as other Hispanic students who spoke fluent English. However, these poor English speakers still significantly outperformed students who did not receive the programs. Finally, the authors indicated that the programs were equally effective across all grades and had similar effects for boys and girls.

Reading Mastery with low-performing Grade 6 students. Dowdell (1996) investigated the use of ***Reading Mastery*** (formerly called *DISTAR Reading*) with the 30 lowest-performing Grade 6 students on the Iowa Test of Basic Skills (ITBS). The students were from a primarily low-middle income area of Chicago. These 30 students were the lowest scoring students with stanines of 1, 2, and 3 and were instructed using ***Reading Mastery*** the following year. Other higher performing students (n=30) continued with the traditional school program and served as the control group. (The program used by the control group was not specified in this study.)
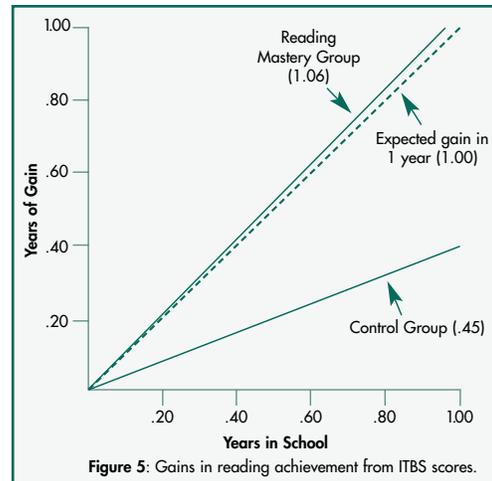
As shown in Figure 5, posttest scores from the 1995 ITBS revealed a gain of 1.06 or approximately one year of growth made by the students who received ***Reading Mastery***. This gain was compared to 0.45, or less than a half-year gain by the students in the control group. By the end of the study, the Grade 6 control group students were at a mean grade equivalent of 6.45. The mean grade equivalent for the ***Reading Mastery*** group was 5.29.

Although the students instructed with ***Reading Mastery*** did not catch up with their peers as the author had hoped, they made significantly more gains in one year's time than the control group. If those students had only made a gain of 0.45 or less, they would have continued to fall further behind their higher-performing peers.

Reading Mastery vs. Houghton-Mifflin Reading Series. Umbach, Darch, and Halpin (1989) compared ***Reading Mastery*** and the Houghton-Mifflin Reading Series (HM) with low-performing Grade 1 students. The participants in this study were 31 Grade 1 students in a rural community identified by their general education classroom teachers as students who were having difficulty in reading and in need of extra help. These students were randomly assigned to experimental ***Reading Mastery*** and comparison (HM) groups.

The Otis Lennon School Abilities Test and the Total Reading Score of the Woodcock Reading Mastery Test (WRMT) were used to compare the two groups prior to the intervention. No statistically significant differences were found between the two groups on either test. Both groups had IQ levels falling within the normal range.

The pretest (WRMT) included subtests in the areas of Letter Identification, Word Identification, Word Attack, Word Comprehension, and Passage Comprehension. Both groups received approximately 50 minutes of instruction every day with the focus on teaching students entry-level decoding and comprehension skills. The alternate form of the WRMT was used as a posttest.

Figure 6: Mean scores on subtests of the Woodcock Reading Mastery Test.
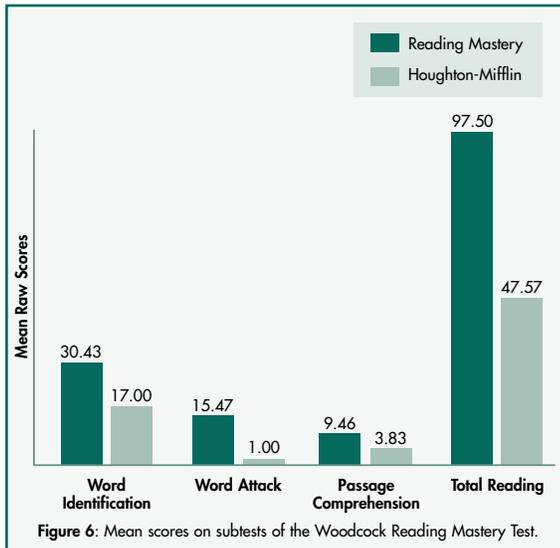
As shown in Figure 6, the students instructed with *Reading Mastery* scored significantly higher on adjusted posttest mean raw scores on Word Identification (M=30.43) than did the HM group (M=17.07). On the Word Attack subtest, posttest mean raw scores were significantly higher for the experimental group (M=15.47) than the comparison group (M=1.00). The *Reading Mastery* group also significantly outperformed the HM group in Passage Comprehension (9.46 vs. 3.83). Finally, the *Reading Mastery* group outperformed the HM group in Total Reading (97.50 vs. 47.57).

Figure 7: Grade equivalency scores from the Woodcock Reading Mastery Test.
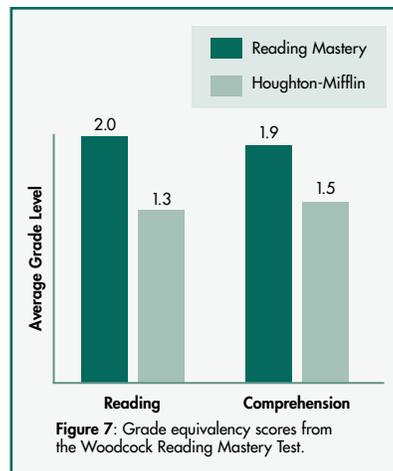
Raw scores were converted into grade equivalency scores on Total Reading at the end of the year. As shown in Figure 7, students instructed through *Reading Mastery* were performing at a 2.0 grade level in reading compared to a 1.3 grade level in reading for the HM group. In comprehension, *Reading Mastery* students performed at a 1.9 grade level while students in HM scored at the 1.5 grade level.

Interestingly, children taught through *Reading Mastery* demonstrated more enthusiasm for reading as seen by frequent requests to take their storybooks home. The comparison group seldom sought extra opportunities to read.

Inexperienced vs. experienced Direct Instruction teachers. Brent, DiObida, and Gavin (1986) investigated the efficacy of using *Reading Mastery* to increase reading abilities in the Camden Direct Instruction Project with Grade 2 students. The two experimental groups consisted of a group of 26 students taught in Grades 1–2 by inexperienced **Direct Instruction** teachers (year one group) and the other group of 32 students taught in Grades 1–2 by experienced **Direct Instruction** teachers who had used **Direct Instruction** for more than one year (year two group). Both control groups (N=33, N=29) were in classrooms with experienced traditional teachers.

Students in Grade 2 were regularly tested in October and April using the Comprehensive Test of Basic Skills (CTBS) Level D, Form U. This test provided four scores: Word Attack, Vocabulary, Comprehension, and Total Reading. The April test scores were analyzed using the October scores as a covariant. Each of the four measures also was analyzed using covariants.

Figure 8: Percentile ranks and means on the CTBS.
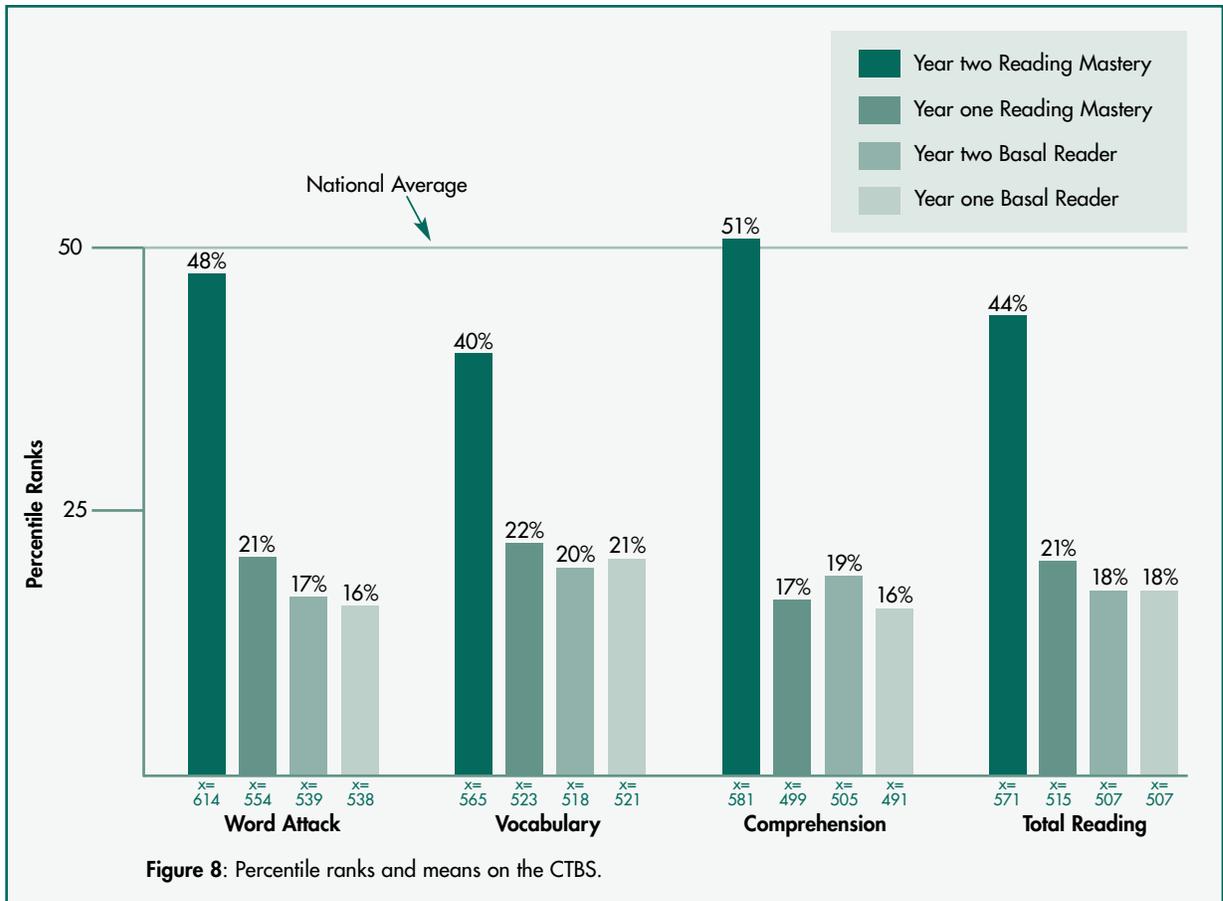
As shown in Figure 8, the experienced *Reading Mastery* group had significantly higher scores than the three other groups. No other statistically significant differences between group means were noted. An analysis of October means, gain means, and unadjusted April means showed that *Reading Mastery* was a more effective program for the experienced second-year group for Word Attack, Vocabulary, and Total Reading. This second-year group's percentile rank also surpassed the national average of 50% on the CTBS.

Reading Mastery vs. diagnostic-prescriptive remediation. Branwhite (1983) compared *Reading Mastery II Classic* (formerly called *DISTAR Reading II*) and another reading intervention technique with 14 students (mean age of eight years, seven months) in an urban middle school. Each of those students had been assigned to a remedial reading group due to delays in reading (range of 20–40 months behind their average peers with a mean delay of 31.92 months delay). IQs for these students ranged from 74 to 108.

Seven of the students were assigned to *Reading Mastery II* while the other seven were taught using diagnostic-prescriptive remediation (DPR). DPR consisted of criterion-referenced assessment of phonic skills, small group teaching of sound and word discrimination, individualized activities based on phonic work cards, and a selection of phonically based published reading materials. Both the *Reading Mastery* group and the DPR group received 35 minutes of instruction per day by the same teacher over 110 school days. No significant differences in IQ or reading age were noted between the two groups at the onset.

The Schonell's Graded Word Reading Test was used as a pretest and posttest. Halfway through the program, at 55 days, both groups were tested.
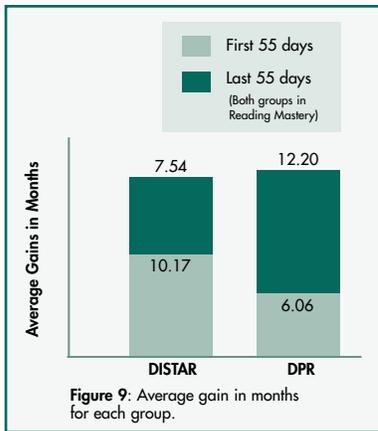
Figure 9: Average gain in months for each group.

As shown in Figure 9, the mean age gain in months was 10.17 months for the **Reading Mastery** group and 6.06 months for the DPR group. No significant differences were noted between students in each group. At this stage, it was clear that **Reading Mastery** provided a more rapid acceleration of reading; thus, all 14 students received **Reading Mastery** in the second 55-day period.

In the second phase, an additional 7.54 month gain was made by the original **Reading Mastery** group. The DPR group, which was switched to **Reading Mastery**, made an average of 12.2 months gain in the second half of the program. (One student was excluded from the study due to infrequent attendance.) Again, no significant differences were found between students in each group.
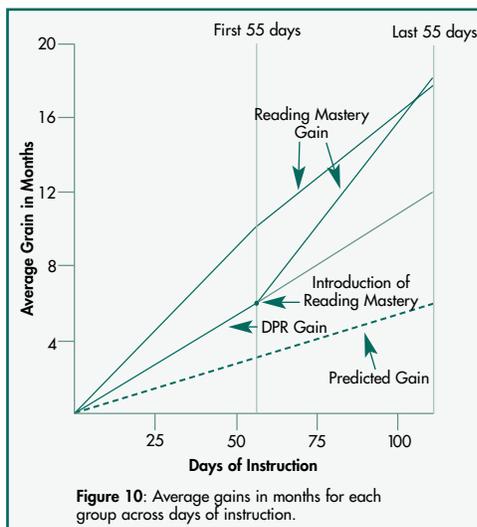

Figure 10: Average gains in months for each group across days of instruction.

Figure 10 shows a comparison of both groups versus an "optimistic rate of 12 months gain," a conventional predicted gain for these students in one school year. The **Reading Mastery** group and the combined DPR (first 55 days) and **Reading Mastery** (last 55 days) group far exceeded the predicted level of gains, allowing them to learn faster than normal and catch up to their peers more easily.

Corrective Reading/DISTAR (now called Reading Mastery) with elementary school "poor" readers.

Richardson, DiBenedetto, Christ, and Press (1978) investigated the effects of two methods of teaching reading to elementary school "poor" readers. One of the programs was *Corrective Reading* (CR)/*DISTAR Reading* (RM).

The CR/RM group contained 36 New York City students in Grades 2–6. These students scored in the lower quartile on the city's standardized reading test and/or had been recommended by their teachers for remedial reading. These students also met the criteria for study involvement by being at least seven months below their chronological age (Grade 2 students) or by being at least one year below their chronological age on one of two subtests of the Peabody Individual Achievement Test (PIAT). The mean age for the students was 10.0 (range 7.0–12.7); the students had average full scale, verbal, and performance IQs of 81 (range 59–110), 81 (range 59–103), and 84 (range 61–117), respectively.

Two teachers were assigned to teach the CR/RM students. Both teachers had at least one year of experience using the programs. The teachers also received a two-day training course from SRA. Daily 45-minute sessions were conducted from mid-January through the third week in May. Thus, students had the opportunity to be exposed to 75 sessions. The students attended 84% (64) of the sessions receiving over 45 hours of total instruction.

The posttest measures used to test the effects of the CR/RM programs alone included the PIAT (Reading Recognition and Comprehension subtests) and the Gilmore Oral Reading Test (Accuracy and Comprehension).
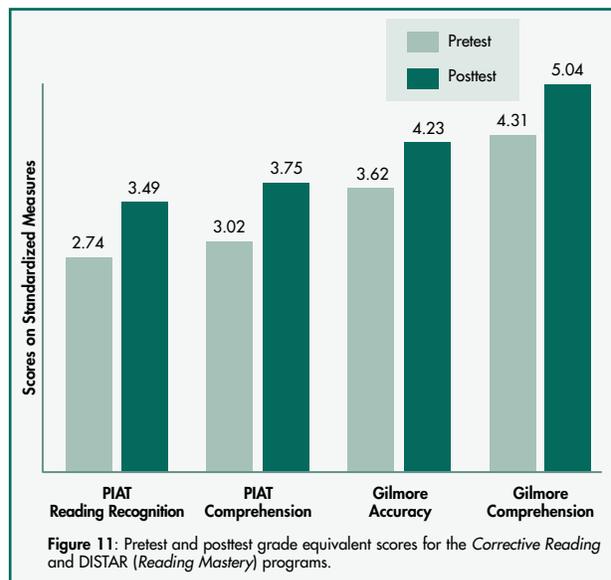
Figure 11: Pretest and posttest grade equivalent scores for the *Corrective Reading* and DISTAR (*Reading Mastery*) programs.

As shown in Figure 11, the CR/RM programs improved student performance in all areas. The gain shown on the PIAT Reading subtest was statistically significant.

DISTAR vs. Johnny Right-to-Read. Summerell and Brannigan (1977) compared *DISTAR Reading* (now called **Reading Mastery**) to *Johnny Right-to-Read* with 12 boys and 12 girls in Grade 2. All students were in the average intelligence range but scored poorly on the Stanford Achievement Test and demonstrated poor school performance the preceding year. The *Johnny Right-to-Read* program stressed the development of sound-symbol relationships in a step-by-step progression and used behavior modification procedures, along with a special alphabet where five synthetic vowel characters were used to promote a consistent one-to-one sound symbol relationship.

Both programs were used for one academic year. *DISTAR* (**Reading Mastery**) was used in isolation for 30 minutes a day while *Johnny Right-to-Read* was used 20 minutes a day in conjunction with regular reading instruction in the classroom for an additional 30 minutes a day. All students were pretested and posttested using two subtests (Word Meaning and Paragraph Meaning) of the Stanford Achievement Test: Primary Battery. The two groups were equated for age, intelligence, initial reading level, and socioeconomic background.

Figure 12: Raw scores from the Stanford Achievement Test.
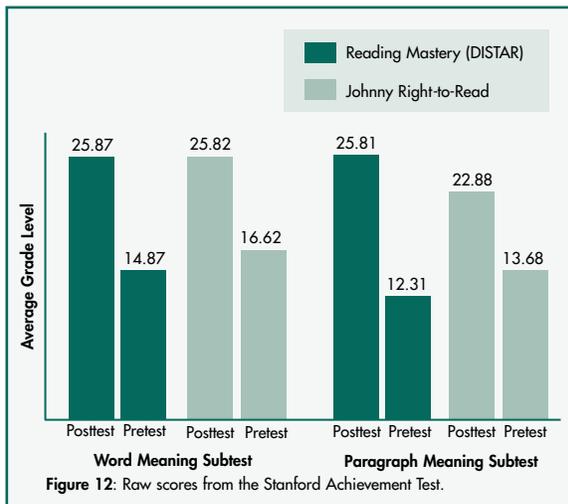
Both groups made significant gains in posttest scores on each subtest. As shown in Figure 12, the *DISTAR* (**Reading Mastery**) group mean gains for Word Meaning were 11.0 (SD = 4.88) and for Paragraph Meaning were 13.5 (SD = 5.87). *Johnny Right-to-Read* mean gains were 9.2 (SD = 6.57) for Word Meaning and 8.6 (SD = 6.88) for Paragraph Meaning. The mean difference in Paragraph Meaning scores was statistically significant.

Figure 13: Average grade equivalency gains.
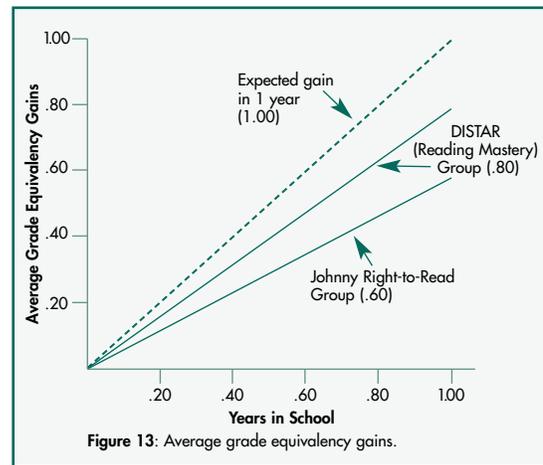
As shown in Figure 13, the *DISTAR* (**Reading Mastery**) group gained 0.8 grade equivalencies compared to 0.6 for *Johnny Right-to-Read*.

Special Education Populations

Reading Mastery vs. Addison Wesley's Meet the Superkids. O'Connor, Jenkins, Cole, and Mills (1993) examined the effects of **Reading Mastery Classic** compared to Addison Wesley's *Meet the Superkids* and the *Superkids' Club* with 81 Grade K students with special needs in transitional classes over a 4-year period. Each year, students were randomly assigned to one of two groups using either **Reading Mastery** (n=43) or *Superkids* (n=38).

All students were tested using the McCarthy Scales of Children's Abilities at the onset of the program, producing verbal, perceptual-performance, and quantitative scores that combined to form a general cognitive index (GCI). The Test of Early Reading (TERA) was also administered as a pretest to all students. The TERA assessed general knowledge of shapes, common symbols, letter names, matching, and word reading. The California Achievement Test (CAT) was introduced in the second year of the study as an additional pretest. This test examined reading readiness and yielded scores for Visual Recognition, Sound Recognition, Vocabulary, Comprehension, and Total Reading. Although only one statistically significant difference in pretest scores was observed (comprehension subtest of the CAT), all of the pretest scores favored *Superkids*; thus, an analysis of covariance was computed to adjust posttest scores.

The *Reading Mastery* group completed between 50 lessons of *Reading Mastery* **I** and 20 lessons of *Reading Mastery* **II**. The *Superkids* completed between the 13 letterbooks of *Meet the Superkids*; the first five letterbooks in the *Superkids' Club*. Reading instruction for each of the two groups lasted 30 minutes per day.

At the end of Grade K, posttest scores on the TERA and CAT did not reveal any statistically significant differences between the two groups. The authors then investigated whether a certain number of lessons in a program were required to demonstrate greater gains. They calculated median progress points for each group (*Reading Mastery I*, lesson 140; *Superkids Letterbook*, 13) and found the "advanced progress" *Reading Mastery* students significantly outperformed the "limited progress" students on CAT Total Reading, Visual Recognition, and Comprehension, and on the TERA posttest. In comparison, the limited and advanced progress students in *Superkids* did not show statistically significant differences on any of the reading measures. The advanced progress *Reading Mastery* and *Superkids* groups were then compared.

As shown in Figure 14 (below), all scores favored *Reading Mastery* with one being statistically significant (CAT Sound Recognition subtest).

Figure 14: Adjusted posttest scores on the California Achievement Subtests (CAT) and Total Reading and on the Test of Early Reading (TERA) for the Direct Instruction (*Reading Mastery*) group and the Superkids group.
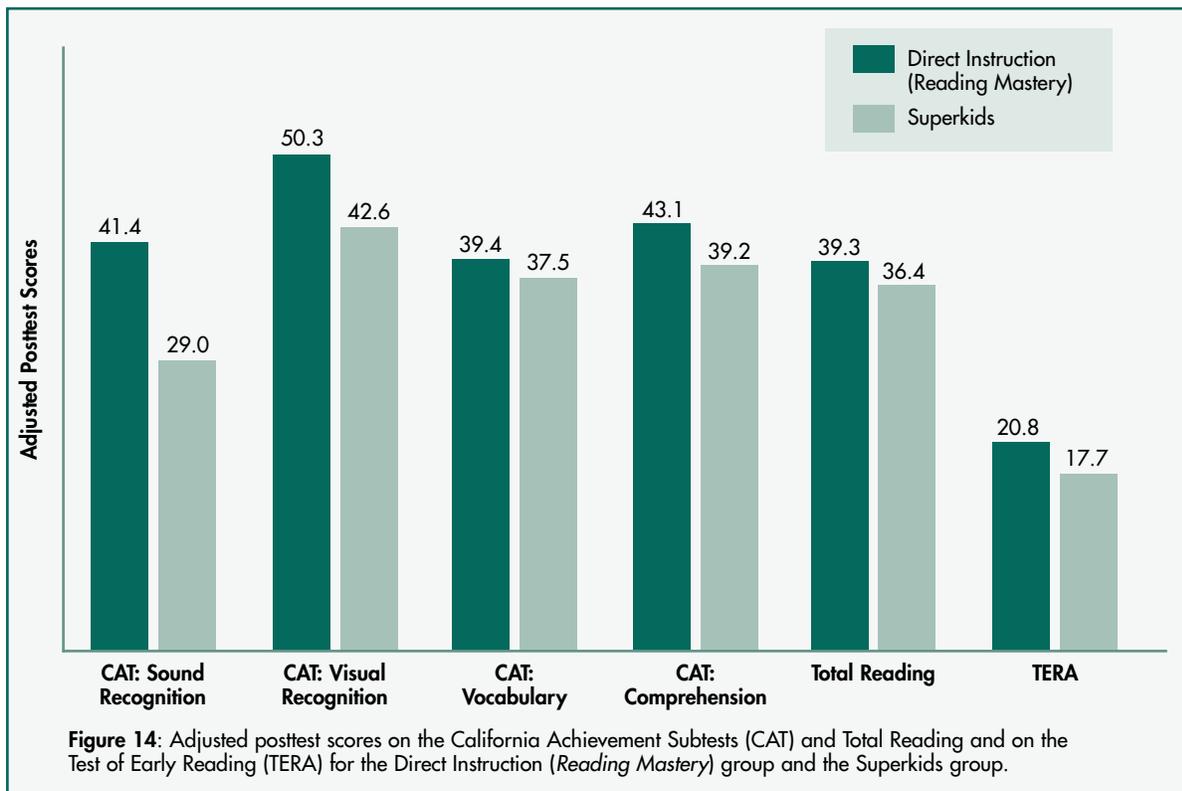
Reading Mastery vs. basal readers with students with learning disabilities. Kuder (1990) compared **Reading Mastery** (formerly called *DISTAR Reading*) to a basal reader group with 48 students with learning disabilities in seven self-contained special education classrooms (mean age = eight years, 10 months). Half of the students were instructed using **Reading Mastery**, while the other half received instruction through a basal reader with supplementation of other outside materials.

Although pre-treatment reading scores were not obtained, all students were tested with the Peabody Picture Vocabulary Test-Revised (PPVT-R). The groups were then equated on the basis of age, sex, race, and PPVT-R scores. Both groups received seven months of instruction and were then posttested using the Woodcock Reading Mastery Test (WRMT). No statistically significant differences were found after seven months of instruction. However, the authors speculated that the **Reading Mastery** group students were significantly poorer readers initially and may have made greater progress overall.

In order to test this possibility, students were again assessed at the end of the second year. After the second year, 34 of the students were located and retested using the WRMT. Eighteen of the students were receiving their second year of **Reading Mastery**, eight continued to receive the basal reader instruction, and the remaining eight had switched to **Reading Mastery**.

Figure 15: Mean reading grade for each group.

Figure 16: Mean reading age for each group.
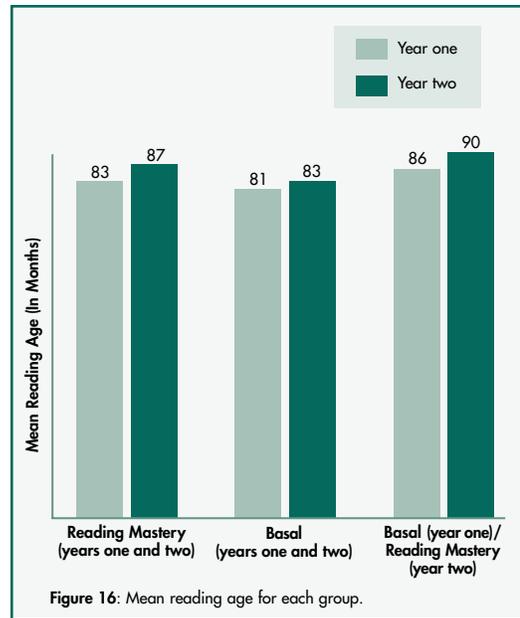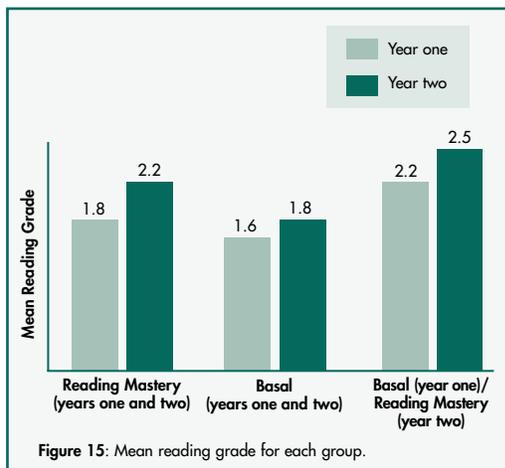
As shown in Figures 15 and 16, greater gains were seen for the **Reading Mastery** groups at year two in reading grade and reading age; however, none of the differences reached statistical significance.

Changes in year one and two reading scores also were examined. The **Reading Mastery** groups made the most progress on Word Identification and Word Attack subtests with the changes in Word Identification being statistically significant.

Longitudinal effects of Direct Instruction reading. Gersten and Maggs (1982) studied the cognitive and academic progress of 12 adolescents whose IQs on entry to the program placed them in the high moderate range of mental retardation. These students were evaluated again after five years of *DISTAR Language* (now called *Language for Learning*) and *DISTAR Reading* (now called **Reading Mastery**) instruction.

The group started *DISTAR Language I* initially and after 18 months began *DISTAR Reading I*. After five years, the group was nearly finished with *DISTAR Language III* and had just started *DISTAR Reading III*.

Figure 17: Mean IQ scores on Stanford-Binet at the beginning of the program and 5 years later.
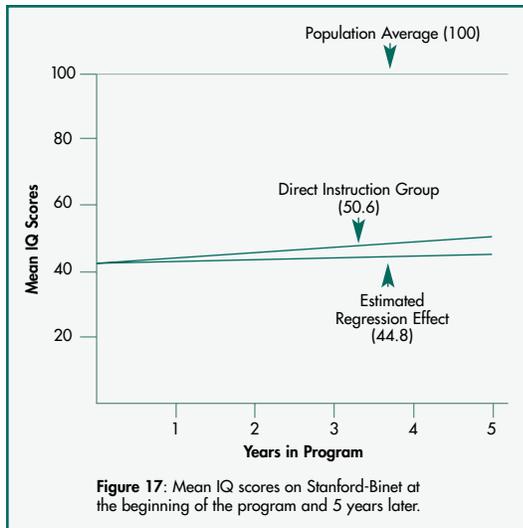
The Stanford-Binet was used to assess pre- and post-program scores. After correction for regression was made, the mean IQ at entry was 41.9 (SD = 2.6). As shown in Figure 17, at the end of five years the mean IQ was 50.6 (SD = 5.4). This is a gain of over a half of a standard deviation. If this effect was due to regression alone, the mean IQ would have been 44.8 on the posttest, still over a third (0.36) of a standard deviation gain.

In addition to IQ gains, these students were also performing at a late Grade 3 level in reading as assessed by Australian standardized tests in reading and language.

DISTAR vs. Palo Alto Reading Program. Stein and Goldman (1980) compared the effects of *DISTAR Reading* (now called ***Reading Mastery***) and the Palo Alto Reading Program on primary students with learning disabilities. Both programs had been shown to be effective for students with average learning abilities. Although the Palo Alto Reading Program was phonics-based and emphasized decoding and comprehension skills, greater flexibility was allowed on the part of the teacher in that program. In addition, less stress was placed on student mastery of each step before moving on to the next skill in the program. *DISTAR Reading* required mastery of all skills by all students before moving on.

Group one (*DISTAR Reading*) consisted of 26 boys and four girls between the ages of six and eight. The mean IQ for this group was 98.7. The average time spent in the *DISTAR Reading* program was 10.9 months. Group two (Palo Alto Reading Program) was made up of 25 boys and 8 girls between the ages of six and eight with an average IQ of 101.4.

The average time spent on Palo Alto Reading was 10.8 months. Both groups spent 60 minutes per day on reading instruction. Students in both groups were average or above average in intelligence but were easily distracted, were overactive, had problems attending, and had difficulty staying on task.

Scores on the Peabody Individual Achievement Test (PIAT) were used as pretests and posttests. After the pretest, the groups were not found to be significantly different in reading recognition or reading comprehension.

Figure 18: Mean gain in raw scores for combined Reading Recognition and Reading Comprehension on the PIAT in months.
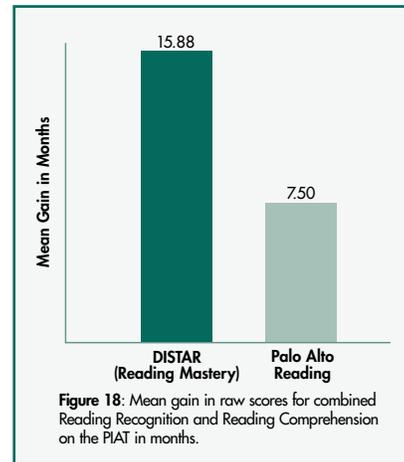
As shown in Figure 18, posttest scores revealed a significant difference between the mean scores of each group, indicating the outcomes for the *DISTAR Reading* group were considerably better. The mean gain in raw scores in combined reading recognition and reading comprehension for *DISTAR* was 15.88 months and 7.50 months for Palo Alto Reading. Therefore, the students in the *DISTAR* group made greater gains than would be expected of students without disabilities. This difference between scores was attributed to the program differences, since other variables that could have accounted for the difference were controlled.

The authors concluded the *DISTAR* (***Reading Mastery***) program's emphasis on skill mastery and the breakdown of specific components of reading may have contributed to the higher degree of success found with the *DISTAR Reading* program.

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