

## Chapter

# 1

# How Children Learn to Read

## Learner Objectives for Chapter 1

- Consider evidence that learning to read is difficult for many children.
- Know where the research consensus on reading can be found.
- Understand that biological and environmental factors influence reading mastery.
- Describe key characteristics of good and poor readers.
- Name the five essential components of instruction.
- Explore the “ingredients” of language and how they are manifested in children’s classroom behavior.
- Identify the major brain processing systems involved in reading.
- Review the progression of reading development and the terminology that scientists use for phases of early reading and spelling development.

## Warm-Up Questions

How would you answer these questions?

1. How long ago did humans develop spoken language?
2. When was the first alphabet invented?
3. What proportion of the world’s languages has invented a writing system?
4. When did our society start to expect that everyone would read?
5. What proportion of adults in the United States is functionally illiterate?
6. What proportion of children score “below basic” on the National Assessment of Educational Progress (NAEP) (National Center for Education Statistics [NCES], 2005)?
7. What proportion of children referred to special education has learning disabilities involving reading?
8. How early can we identify potential reading problems?
9. What are the most critical skills necessary to be a good reader?
10. What are the critical components and characteristics of an effective reading program?

## **Learning to Read Can Be Difficult**

### **Reading Is Not Natural or Easy for Many Children**

A once prevalent “reading myth” is that learning to read, like learning to speak and to understand spoken language, is natural. Throughout educational history, some educators have argued that children will learn to read if they are read to, surrounded by books, and have a purpose for reading. Known most recently as “whole language,” this approach argued that children could figure out how to read the words if they needed to and asserted that meaning-making should be the central focus of instruction. Some children do, in fact, learn to read easily and well and seem to need very little instruction to identify and make sense of written words. But how many children have that innate ability?

Common sense, human history, and reading research contradict the idea that most children learn to read as naturally as they learn to talk. Although reading is quite effortless for some children, many others struggle to read words on a page and/or to comprehend them. The human brain has evolved over hundreds of thousands of years to support the development of spoken language, and humans have been communicating with spoken language for at least 100,000 years. Written language, on the other hand, has been in existence for only 12,000 to 15,000 years—not enough time for the human brain to evolve the functional adaptations and pathways required for reading.

The first writing systems, developed independently in several cultures, did not use alphabetic symbols like the ones in our American English writing system. They used pictograms, hieroglyphics, and other symbols, which did not represent separate speech sounds in words. Approximately only 10 percent of the world’s 6,000 spoken languages have ever developed any form of written language, and only some of those languages use alphabets—written symbols that represent the separate sounds in speech. The first alphabetic writing was discovered merely 5,500 years ago on the trade routes used by Semitic tribes in Egypt. Thereafter, the Phoenicians developed a complete alphabetic writing system that evolved into the Greek and Roman alphabets. Modern American English spelling, and even the use of some letters, was not settled until Webster’s dictionary was published in the mid-1800s. So, the writing system we use today has been standard for fewer than 200 years!

Keep in mind, therefore, that the human brain has not had sufficient time to evolve structures and pathways that are adapted specifically for written language processing. It should not be surprising that some of us struggle to master reading and writing—an exceedingly “unnatural” challenge for which some of us are much less suited biologically than others.

### **Sizing Up Reading Problems in the United States**

Only recently has American society become conscious of the number of people who have trouble reading and writing and the social consequences of not learning to read well. Universal literacy—the expectation that all children should go to school and learn to read—is a very modern educational goal embraced only in the last half-century. Before that, disadvantaged children, children in minority groups, and children with learning difficulties were often

encouraged to drop out of school. Expectations for the “tough to teach” were minimal. Not until the NAEP was administered for the first time in the late 1970s did policymakers begin to recognize the scope and nature of reading problems in American society. National concern about reading problems has escalated as higher levels of literacy are expected from the general workforce and as research shows how vital the ability to read is for economic and social well-being. Simply put, if students don’t read well, they are less likely to succeed in life.

Did universal public education (required in the United States by the 1920s) enable all students to learn to read? Unfortunately, no. In the year 2003, approximately 22 percent of all adults in the United States were functionally illiterate (NCES, 2007)—meaning that they had trouble reading a medicine label, a technical manual, or a newspaper. According to research on dyslexia (Fletcher, Lyon, Fuchs, & Barnes, 2007), approximately 17–20 percent of the student population are at risk for serious reading problems if they do not receive effective intervention. If a student is not at the 40th percentile<sup>1</sup> or above on a reading test in the primary grades, the student is at risk for failing high-stakes, end-of-year achievement tests now given by most states. The NAEP (NCES, 2005) consistently finds that approximately 36–38 percent of all fourth-graders in the United States are “below basic” in reading skill. And the rate of reading failure in high-poverty, minority populations is much higher—in some populations, more than 70 percent.

Inability to read is the major reason why students are referred to special education for learning disabilities. Approximately 80–85 percent of all students classified as “learning disabled” have a primary problem with language-related reading skill. Approximately half of all exceptional children whose services are funded by special education are there for reading disabilities.

For most students, reading is acquired through effective instruction and a lot of practice reading. However, individual differences in reading skill are the norm in any classroom. Some children learn easily, but many require sustained and effective teaching over several years before they can read at adequate levels. The good news is that reading is one of the best-researched areas of education, and we know that most reading problems can be addressed through instruction.

## Research Informs Instruction

It is often said that teaching is as much an art as a science. Educators tend to view research with skepticism and prefer to learn from their own experiences. Yet such a large body of research about reading has accumulated in the past three decades that we can turn to scientific evidence for answers to some critical questions:

- How do children learn to read?
- Which skills are most important, and at what phases of reading development?

<sup>1</sup> Percentile rank should not be confused with percentage. *Percentile rank* refers to a student’s place on a distribution of ability. For example, imagine 100 students lined up in rank order on their timed running speed of a quarter-mile. If a student is at the 40th percentile, 40 students run as fast or slower than he, but 60 students are faster. The 50th percentile is average—the midpoint of any distribution.

- What causes reading difficulty in most children? At what ages?
- What practices, programs, and methods work best for: (1) most students; and (2) students with specific weaknesses?

Consensus means that so much evidence has been garnered about certain truths that almost all experts agree on them. Consensus-building takes a lot of time. Many, many studies in a field as controversial as teaching reading must be done before scientific consensus is reached. Science progresses slowly, but eventually the process leads to the building of reliable conclusions. Some of the recently published books and reports that explain this scientific consensus include:

- *Report of the National Reading Panel* (National Institute of Child Health & Human Development [NICHD], 2000)
- *Preventing Reading Difficulties in Young Children* (Snow, Burns, & Griffin, 1998)
- *The Voice of Evidence in Reading Research* (McCardle & Chhabra, 2004)
- *Psychological Science in the Public Interest* (Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001)
- *Handbook of Language and Literacy* (Stone, Silliman, Ehren, & Apel, 2004)

The scientific work referred to here is not the work of any one individual or agency. It represents several thousand studies, book chapters, books, and technical reports from research funded by the National Institutes of Health, the U.S. Department of Education, private foundations, universities, and other agencies. Hundreds of investigators from many fields have been involved. Some of the studies have been conducted in other countries. Thousands of subjects have been studied overall; more than half of those have been normally progressing students. Once we understand how a good reader reads, we can then understand reading failure and how to prevent it.

A study is scientific if it investigates a well-thought-out hypothesis that builds on prior knowledge. It is conducted in such a way that another scientist could reproduce, or replicate, the results. The design of the study and the subjects of the study are carefully described so that others will know to whom the results may apply. Research methods are appropriate for the

questions that are being asked in the study. The reported findings of the study are subjected to peer review—that is, they are critiqued by other experts before they are published and accepted as part of the consensus-building process.

### Examples of Journals With Scientific Reading Research

- *Scientific Studies of Reading*
- *Journal of Learning Disabilities*
- *Reading and Writing*
- *Reading Research Quarterly*
- *Journal of Educational Psychology*
- *Annals of Dyslexia*
- *Contemporary Educational Psychology*
- *Developmental Psychology*

### Nature and Nurture at Work

One way to approach some of the research findings about learning to read is to contemplate another acquired skill—musicianship. This exercise will help us raise and answer some critical questions about reading.



## Exercise 1.1 Acquired Skill and Natural Ability

- Imagine a continuum that represents musical ability, drawn on one wall of the room you are in. At one end of the continuum of musical ability is tone deafness, inability to imitate a melody, or total lack of musical talent. At the other end is virtuosity in musical performance and/or perfect pitch.
- Judge where you fall on that continuum, and place yourself on the imaginary line. (It is quite likely that there will be a "bunch" in the middle and fewer numbers on the far ends of the continuum.)

**Briefly discuss these questions with the whole group:**

Do you think that you were born with your level of musical ability?

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What roles do instruction and/or practice play in musical achievement?

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Would it be reasonable to expect all students to be accomplished musicians?

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Do reading and musical attainment have anything in common?

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If a music instruction program were successful, would all students be at the same level?

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If a reading program were successful, would all students be at the same reading level? Why or why not?

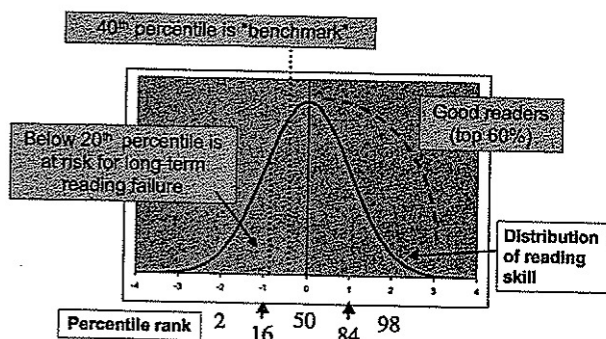
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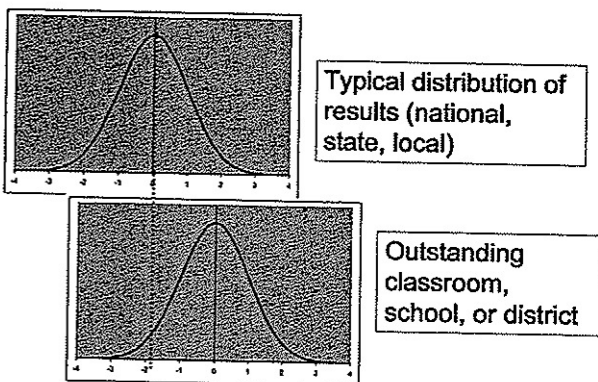
## Some Critical Points about Reading—and Musicianship

Scientific research on reading growth, reading differences, and reading instruction has enabled most reading scientists to agree on the following points:

### Reading Is Distributed on the “Bell Curve”



### “Defying the Odds”



- Reading skill—like height, weight, and musicianship—is distributed on the normal, or bell, curve. Some of us seem to be born readers (or musicians), and others of us struggle. Some of that variation is due to genetics and some is due to experience, including instruction.
- If a whole-class or whole-school program is successful, the entire classroom distribution should move upward in relation to a national standard. Good readers will get better, poor readers will get better, and the class average will improve.
- Children at risk for reading failure fall behind very early in the process of learning to read. Therefore, they can be identified in kindergarten or even earlier.
- Poor readers do not catch up unless we intervene with intensive instruction. Children tend to stay where they are in the distribution of reading skill unless we give them excellent instruction. “Johnny the late bloomer” is a myth when it comes to reading ability.
- Strong early-intervention programs minimize the number of children who are going to fall behind. Success begins with early identification of children at risk. Preventive programs include excellent regular classroom instruction, small-group supplemental teaching for some students, and intensive intervention for a few students.
- Variability will still be with us if we do a good job, so flexible reading groups, peer-assisted learning strategies, multiple opportunities to practice, and well-designed centers will be needed to meet the needs of all children.

## Take 2 Review

- Complete this two-column organizer.
- The first column lists restatements of main ideas. Work with the group or your partner to complete the second column by listing a few details that elaborate the main ideas or that state the relevance of those ideas to your school or classroom.

Knowledge/Main Ideas	Application/Details
1. Reading is an acquired skill.	
2. Students who are performing below the 40 <sup>th</sup> percentile on primary reading tests are likely to experience long-term academic difficulty.	
3. Scientific research answers questions and provides a basis for developing effective reading instruction.	

## Reading Depends on Many Abilities

### Warm-Up Activity

(*Teaching Reading Essentials* [Moats & Farrell, 2007], Part 3, Demonstration 20. See the segment from approximately 7:00 to 12:15.)

- View a video of a child or children struggling to read with accuracy, fluency, and comprehension.
- After you watch the video, list three to five main reasons why a child might be a poor reader.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

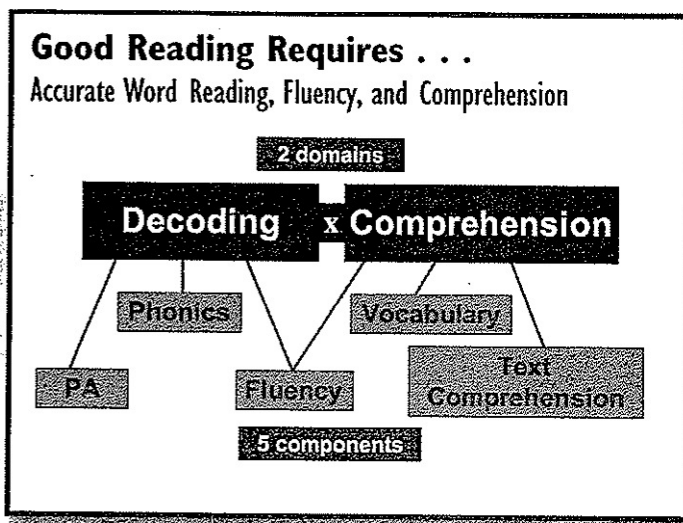
### Good Reading Requires Accurate Word Reading, Fluency, and Comprehension

What makes a good reader? Good reading depends on accurate deciphering of printed words, sufficient reading speed, and comprehension of the meaning of words, sentences, paragraphs, and longer passages.

Accurate word reading depends first on the ability to **decode** unknown words by recognizing the sounds the letters represent, and then on fast or **fluent** recognition of words that have been accurately decoded. **Decoding** is somewhat easier when words are read in the context of a passage, but a good reader can read words out of context and in lists as well as

in context. A good reader typically uses **phonics** readily to sound out new words when they are encountered. Decoding skill is closely related to **phoneme awareness**, or the ability to identify the separate sounds that an alphabetic writing system represents.

**Fluency** is the ability to read words, sentences, and passages with sufficient speed to support understanding. Fluency is achieved when decoding or word-recognition skills are **automatic**, or carried out without conscious attention. Fluent reading entails comprehension. A good reader sounds as if he knows what he is reading about, because he supplies phrasing and emphasis, or



**prosody.** Those who read fluently usually do better on reading comprehension tests and usually like to read more than students who are dysfluent or slow readers.

**Comprehension** is the ability to interpret the text in a way that is close to the author's intent and then to mentally integrate that information with what one already knows or has read about. Comprehension depends on vocabulary, reasoning ability, language ability, background knowledge, self-monitoring, and many subskills within these areas.

**Poor reader subgroups.** There are three primary causes of poor reading that have been identified by a strong research consensus (Fletcher, Lyon, Fuchs, & Barnes, 2007). Three distinguishable subgroups exist within the poor reader population, although the majority of children's reading problems represent a combination of these characteristics, and all reading problems exist on a continuum of severity.

*First, the most common problem of English speakers learning in English is unremediated difficulty with phonic decoding and accurate word recognition.* Those problems often originate with a specific weakness in phoneme awareness, or awareness of the sounds in speech. In contrast to good readers, poor readers are often inaccurate as they try to decipher new words because they have not learned to recognize letter-sound correspondences and/or larger chunks of words such as syllables and meaningful parts.

*Second, poor reading can be caused by insufficient reading fluency.* Many poor readers read too slowly. Their attention is taken up by the effort of decoding new words and they have not learned to recognize familiar words automatically. Most of the time, their knowledge of phonics and word structure is underdeveloped, and they recognize too few words by sight. In addition, weaknesses in vocabulary and overall language skill can inhibit the development of reading fluency.

*Third, poor reading can occur because of poor language comprehension and limited understanding of the topic.* Vocabulary knowledge and background knowledge are very important components of comprehension. A small subgroup of poor readers is able to read words accurately but not understand the meaning of passages. Most children, however, experience reading difficulties that are rooted in a combination of decoding, fluency, and comprehension issues.

## Language and Literacy

Language proficiency and reading achievement are highly correlated. If students have limited language skills, they are at risk for reading problems by virtue of a developmental language disorder or by virtue of limited exposure to standard English language patterns.

Visual perception, visual-motor skills and visual-spatial reasoning are much less predictive of reading and writing skill. People who are very good at art, mechanics, dance, acting, or navigation may not be good at reading, spelling, writing, or using language. When individuals have nonverbal talents in the arts, spatial/mechanical reasoning, or athletics, those strengths may enable them to cope with reading or language difficulties, but they will still require explicit teaching of reading and language skills in order to become literate.

Many studies have reported results similar to the ones in the study summarized in the following abstract:

## Summary Abstract of a Study of Language and Literacy\*

[Paraphrase of original abstract]

This study examined the extent to which word reading, spelling, and comprehension are related to one another and general language competence. It also examined how teacher effectiveness and students' beginning skill levels predicted growth in reading achievement over time. The study used data from 1,342 students in 127 classrooms in grades 1 to 4 in 17 high-poverty schools. Results showed that literacy and language levels are very closely correlated in classrooms. Word-reading accuracy and fluency are very important factors in reading comprehension in the early grades. Phonological awareness predicted reading and spelling better in the early grades than in later grades. Children's language competence, including vocabulary level, perfectly predicted classroom reading achievement. Reading, spelling, and writing are very dependent on overall language proficiency.

\* Mehta, P. D., Foorman, B. R., Branum-Martin, L., & Taylor, W. P. (2005). Literacy as a unidimensional, multilevel construct: Validation, sources of influence, and implications in a longitudinal study in grades 1 to 4. *Scientific Studies of Reading*, 9(2), 85–116.

## Five Essential Components of Literacy Instruction

Since the publication of the Report of the National Reading Panel (NICHD, 2000), most policy documents, assessment frameworks, reading programs, and teacher licensing rules have subscribed to the idea that there are “five essential components” in reading instruction programs most likely to foster success across the range of student abilities. These are based squarely on scientific studies that show a relative advantage for comprehensive programs that teach all components systematically and well. Those five essential components in instruction are:

1. **Phoneme awareness:** The ability to distinguish, produce, remember, and manipulate the individual sounds (phonemes) in spoken words.
2. **Phonics:** Knowledge of the predictable correspondences between phonemes and graphemes (i.e., the letters and letter combinations that represent phonemes) and larger chunks including syllables and meaningful parts.
3. **Reading fluency:** Reading text with sufficient speed and accuracy to support comprehension.
4. **Vocabulary:** Knowledge of the individual word meanings in a text and the concepts that those words convey.
5. **Reading comprehension:** Comprehension skills and strategies, background knowledge, and verbal reasoning are all employed by good readers to understand, remember, and communicate what has been read.

In order for reading programs to be adopted in many states and districts, thorough and informed instruction in each of these components is required, and student progress must be measured across the five components. We, the authors, believe that naming these five

components was a step forward in the year 2000, and we have respected this framework in the design of our book. However, we also believe that the links between oral language and written language have been overlooked, and that more emphasis should be placed on the ways that language, reading, and writing are linked. Therefore, we move next to an exploration of language systems that are the common denominators for understanding reading and writing.

## The Ingredients of Language

Language is made up of sounds, words, sentence structures, and connections among sentences. Language is heard and comprehended; formulated and spoken; read and written. When educators understand and are intimate with the many facets of oral and written language, they are better able to interpret research and to analyze and apprehend with insight the difficulties students may have. They are also more capable of understanding how children learn to read.

### Exercise 1.2 Language in Cartoons

- Identify which of the following “ingredients” of language are the main source of humor in each cartoon, and list your ingredient choices on the lines provided. Because each cartoon shows language used in a social setting, they all illustrate pragmatics, syntax, and discourse. Which additional ingredients apply?

**semantics:** the system of word meanings

**pragmatics:** social rules about language use

**orthography:** the writing system

**syntax:** the system of permissible word order and sentence structures in a language

**phonology:** the speech-sound system

**etymology:** the origin and history of a word

**morphology:** the system of meaningful parts from which words may be created

**discourse:** how we combine sentences to communicate ideas

- Discuss your choices with the class or group.

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“No, Daddy. I still hab it.”

(continued)

# Exercise 1.2 (continued)

THE FAMILY CIRCUS

By Bil Keane



★  
12-8  
© 1987 Bil Keane  
Circus Syndicate, Inc.

"Mommy's spelling things on the phone 'cause Barfy's listening."

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THE FAMILY CIRCUS

By Bil Keane



12-7  
© 1987 Bil Keane  
Circus Syndicate, Inc.

"Oooh! I learned that word in school! We better tell the police!"

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THE FAMILY CIRCUS

By Bil Keane



11-24  
© 1987 Bil Keane  
Circus Syndicate, Inc.

"Why do I have to keep writin' in these K's when they don't make any noise anyway?"

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THE FAMILY CIRCUS

By Bil Keane



12-2  
© 1987 Bil Keane  
Circus Syndicate, Inc.

"Can Jason stay over? His mother works."

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## Exercise 1.3 Explore the “Ingredients” of Language

The goal of this exercise is to explore various parts of any language system and to become more familiar with terminology used throughout LETRS.

- **Get ready:** Make these five letter tiles and three suffix tiles on sticky notes to use in this exercise.

h	p	e	o	c	ing	ful	less
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- In the first column of the table below, write your answers on the lines after the questions.
- In the second column, write the name of the language system that applies to each question and answer. (Use these language system definitions for reference.)

**semantics:** the system of word meanings

**pragmatics:** social rules about language use

**orthography:** the writing system

**syntax:** the system of permissible word order and sentence structures in a language

**phonology:** the speech-sound system

**etymology:** the origin and history of a word

**morphology:** the system of meaningful parts from which words may be created

**discourse:** how we combine sentences to communicate ideas

Refer to your tiles to complete each task.	Name the language system(s) involved.
<p>1. <b>Name the letters on the letter tiles.</b></p> <p>— Of these letters, which two never come after the letter <b>h</b> in English spelling? _____</p> <p>2. <b>Say the speech sound(s) that each letter tile represents.</b></p> <p>— Which of these letters represents more than one sound? _____</p>	

(continued)

## Exercise 1.3 (continued)

Refer to your tiles to complete each task.	Name the language system(s) involved.
<p>3. Arrange the first four letters to spell a real word. _____</p> <ul style="list-style-type: none"> <li>— Explain two ways this word is used.</li> </ul> <p>_____</p> <p>_____</p> <ul style="list-style-type: none"> <li>— Change the first letter to one that spells the sound /k/.</li> <li>— Have you made a new word? _____</li> <li>— How do you know?</li> </ul> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>4. Use tiles to spell the base word <b>hope</b>.</p> <ul style="list-style-type: none"> <li>— Add the ending <b>-ing</b>. Write the new word.</li> </ul> <p>_____</p> <ul style="list-style-type: none"> <li>— Spell the base word again. Add the ending <b>-ful</b> and write the new word.</li> </ul> <p>_____</p> <ul style="list-style-type: none"> <li>— Finally, spell the base word and add the ending <b>-less</b>. Write the new word.</li> </ul> <p>_____</p> <ul style="list-style-type: none"> <li>— How did you change the meaning of the base word <b>hope</b> when you changed the ending?</li> </ul> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	

## Exercise 1.3 (continued)

Refer to your tiles to complete each task.	Name the language system(s) involved.
<p>5. Use one of the words from the previous task in a short but complete sentence.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>6. Imagine you are speaking to a discouraged student who has just experienced a loss.</p> <p>— What tone of voice would you use to speak to the student about hope and/or coping?</p>	
<p>7. Pretend that your class has just read a new vocabulary word, <i>chagrin</i>.</p> <p>— You explain that it is pronounced <i>shə-grin</i> and that <b>ch</b> is pronounced /sh/ because the word comes from French. <b>Chagrin</b> means "distress caused by disappointment or failure."</p>	

# What the Brain Must Do to Read Words

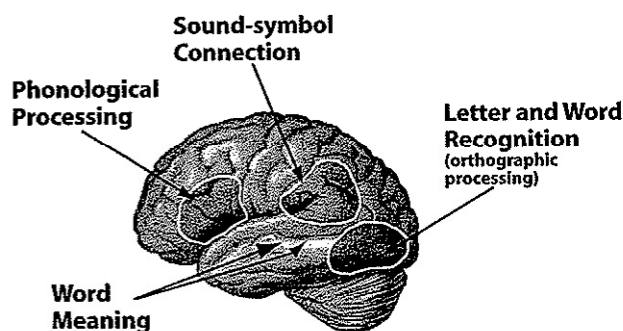
## Brain Networks That Support Reading

If reading, like speaking, were a natural skill, the brain might have evolved a specialized neural network that is employed for reading. There is no special spot in the brain that is responsible for this difficult task. Instead, several major neural systems are recruited to support reading and these must form robust connections with one another.

One system, in the front of the brain, processes the *sounds of speech*. This is the **phonological processing system**. Another system, in the back of the brain, processes the *written symbols* (i.e., printed words). This is the **orthographic processing system**. These two systems connect midway between front and back at a center where sound-symbol connections are formed and words are named.

After a reader names the printed words, they are associated with **meanings**. To connect with meaning, the phonological and orthographic systems must be “wired” into and activated with a “meaning processor” or language comprehension system. Language comprehension is processed mainly in the middle part of the left cerebral hemisphere. To process meaning, the brain must interpret individual words as well as the **context** (i.e., sentences) in which they are spoken.

### Language-Processing Areas of the Brain

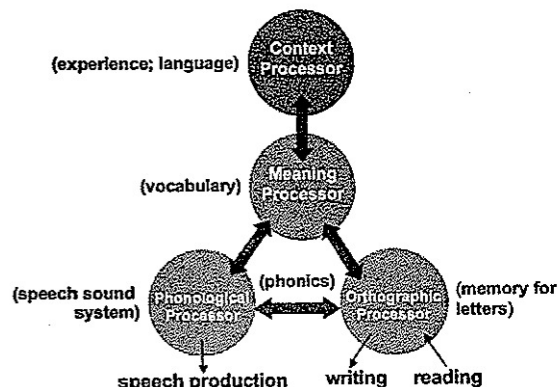


## The Four-Part Processing Model

The schematic diagram of the processing systems that support reading (following) represents research findings from cognitive psychology (Adams, 1990; Rayner et al., 2001; Vellutino,

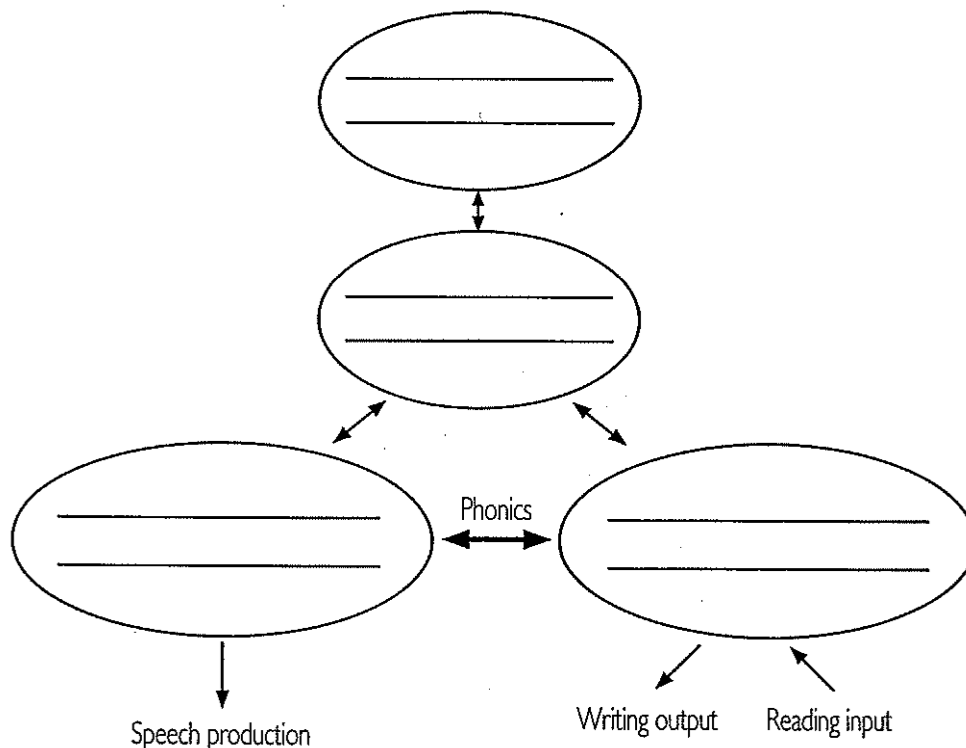
Tunmer, Jaccard, & Chen, 2007). It is consistent with what we have seen in studies of the brain at work (Shaywitz, 2003). The model helps us understand what is involved in the “simple” task of reading words on a page—the various reasons why reading growth might be limited.

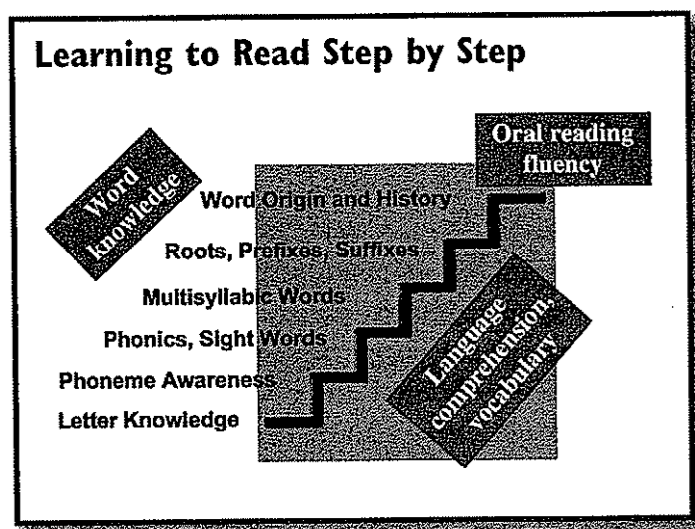
### Four-Part Processing Model



## Exercise 1.4 Labeling the Four-Part Processing System for Word Recognition

- Walk through this exercise with your instructor. Fill in the correct labels for the four neural processors—**phonological**, **orthographic**, **meaning**, and **context**—in the diagram below. Briefly identify a main job of each processing system.
- After labeling each processing system, match these numbered tasks to the processor(s) that are most obviously activated while the task is performed. Place the task number inside each processor that should be activated by the described task.
  - Read the nonsense word **pem**.
  - Say the separate sounds in the *spoken* word **light**.
  - Orally give a definition of the word **unique**.
  - Read a sentence to determine which meaning of **pitch** is intended.
  - Determine whether the spoken words **lighten** and **lighting** end with the same speech sound.
  - Underline all the words in a paragraph that have the suffix **-ed**.
  - Write the dictated sentence "Please give me the keys."
  - Read and comprehend the sentence "The plans for the project never came to fruition."





fluency. In addition, from the beginning of the learning process, language development, background knowledge, and vocabulary play essential roles. As academic language in books and in the classroom becomes more unfamiliar and demanding, those higher-level language skills become more and more important for successful reading and writing. Ultimately, verbal reasoning ability sets an upper limit on how far a person can advance in reading comprehension.

Researchers have named the phases of written-word learning, but the phases are really part of an unbroken continuum. We are deliberately avoiding the word **stage** because stages of development are not discrete. The progression of word recognition and spelling follows a predictable path, however, and has been researched extensively. The model we are following has evolved from the work of Ehri and Snowling (2004).

## About Phases of Reading and Spelling Development

Current terminology used by Ehri and Snowling (2004) to describe the phases of word reading and spelling development is as follows:

- **Prealphabetic reading.** The child does not know that letters are used to represent speech sounds and cannot identify the separate speech sounds.
- **Partial alphabetic reading and spelling.** The child tries to use letter names to figure out the sounds and represents some of the sounds in a word. The child needs better phoneme awareness and more knowledge of conventional spelling.
- **Full alphabetic reading and writing.** The child has good phoneme awareness, knows most basic sound/symbol correspondences, can spell phonetically, and tries to sound words out.
- **Consolidated alphabetic reading.** The child has a substantial sight vocabulary, uses several strategies to recognize unknown words, and tries to spell the meaningful parts of words. The recognition of words is mostly automatic and attention is devoted primarily to comprehension at all levels.

## Exercise 1.5 Name That Phase!

- Here are a few examples of students' written work that occupy places on a continuum of skill-level development for reading and spelling. Terms that Ehri and Snowling (2004) use to describe reading and spelling phases are listed in the second column of the chart, next to the translated examples.
- Look at writing examples #4 and #5, and decide which phase best characterizes each.
- Ask these questions as you examine the additional writing samples:
  - Is there any indication that the student is using letters to represent sounds?
    - If "no," the student is **prealphabetic**.
    - If "yes," move to the next question.
  - Does the student attempt to represent some of the sounds in words, using alphabetic symbols, but succeeds only with a few of the sounds?
    - If "yes," the student is in a **partial alphabetic** phase and has partial phoneme awareness and partial knowledge of letter-sound correspondence.
  - Does the student represent all or most of the sounds in words with letters? Are some digraphs used and some irregular words spelled more or less correctly?
    - If "yes," the student is in the **full alphabetic** phase.
  - Does the student write most words using standard letter combinations and letter sequences? Are most common irregular words spelled correctly? Are words with common endings (e.g., **-ing**, **-ed**) written correctly?
    - If "yes," the student is in the **consolidated alphabetic** phase.
- Note that phases are independent of a student's grade level.

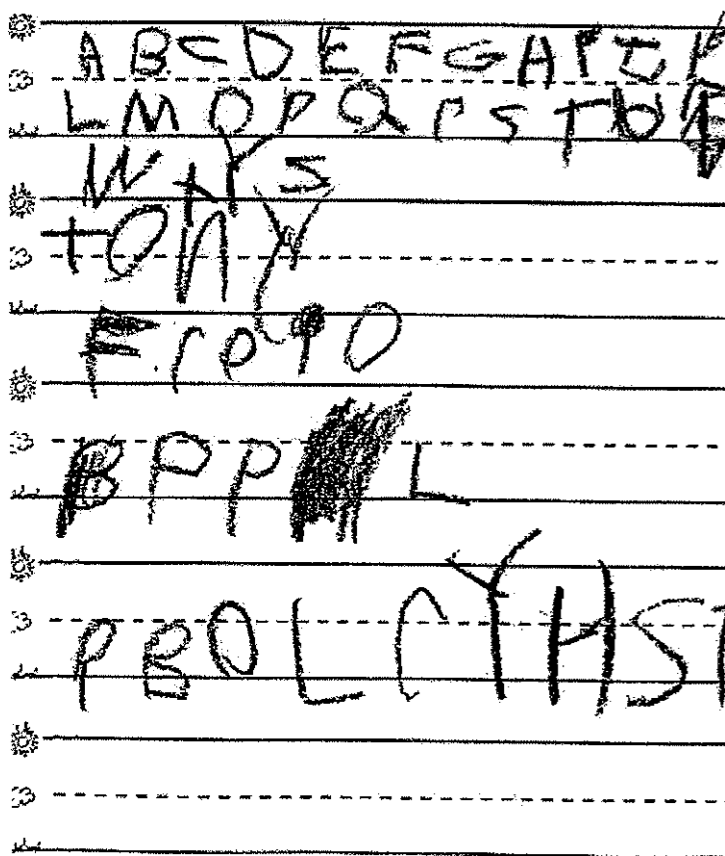
<b>1</b> PBOLRYHST	(My teacher is beautiful.)	<b>Prealphabetic</b>
There was a nit he mat a vogn the vagn floo away fam the nit the nit sed stop I am your frienb	(There was a knight. He met a dragon; the dragon flew away from the knight. The knight said, "Stop, I am your friend!")	<b>Partial alphabetic</b>
<b>2</b> Once upon a time there was a nite and the nite lavde the kings dotr. Aa help me. It was the prinses a dragin kapshrd. The nite went to sav hr and he did and the prinses luvde the nite so they got mared and they livd haplale afr. Riten and ilashtradid bi Mark.		<b>Full alphabetic</b>

(continued)

## Exercise 1.5 (continued)

3	But most animals that do stay awake dering the day mostly stay in the shade. But not all animals. For example, the lizards achaly like the heat. In fact they probely couldn't live with out the heat. This is how the desert animals adapt to the desert's temperatures.	Consolidated alphabetic
4	I love my sistrs wisth ole my hort. I lic to pla jumup rop.	
5	. . . she belliy floped to the beach so she was todly soced so I let her use my coat. But all the ether grils bring extra close but me! So sence it was gust us grils I waked arand with gust my swim soute and swet shrite.	

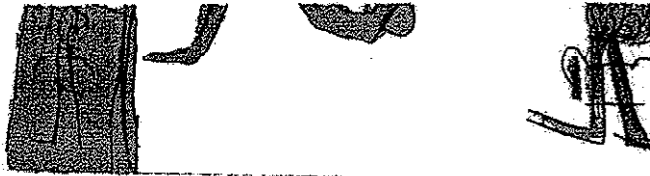
### Example 1





## Exercise 1.5 (continued)

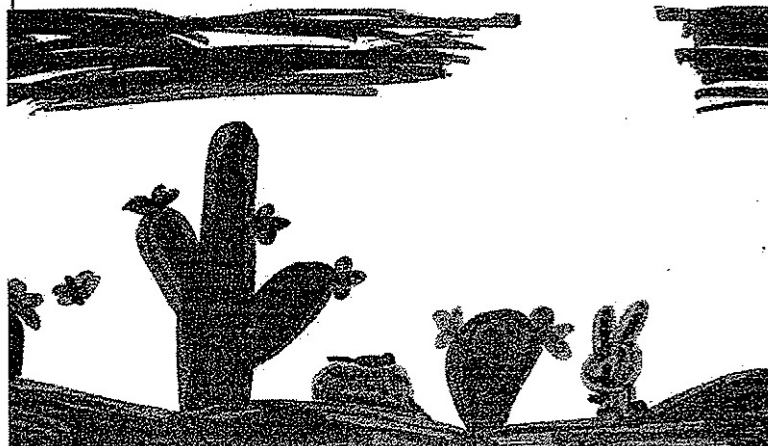
### Example 2



Once upon a time there  
was a nite an the  
nite Larde the kings  
do tr. aa help me it was  
the prinse s a dradin

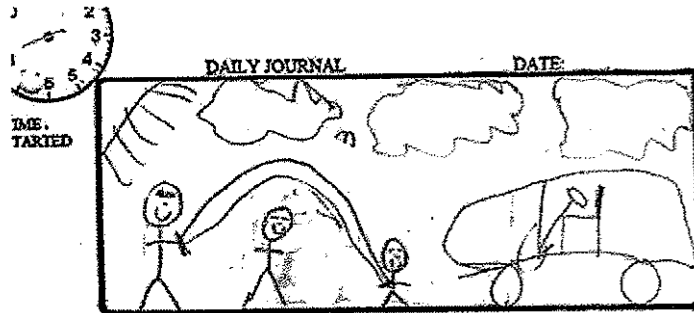
### Example 3

Since it is so hot in the desert  
many animals have to find a way to keep  
cool. So the Jackrabbit uses it's big ears  
help them keep cool. Other animals are  
nocturnal so that they are not in the sun  
so much. But most animals that do stay  
awake dering the day mostly stay  
in the shade. But not all animals.  
For example the lizards achaly like  
the heat. In fact they probely  
couldn't live with out the heat. This  
is how the desert animals adapt to  
the desert's temperatures.



## Exercise 1.5 (continued)

### Example 4



My sister I Love my sisters  
wish ole my hart.  
I Lic to pla Jurnup rap.

### Example 5

her use my coat. But all the ether grils  
 brading extra close but me! So sence it was  
 just us grils I waked grand with just  
 my swim suite and sweet shrite. We got to  
 Carolins grand parents house and the we  
 found a Yweller. I was the only gril  
 how new how to ride one. So I hoped  
 on in the front and Ellie in the back  
 grabbing on to my waist. Aculy holding on  
 for dear life! becaus I new wate I was  
 dowing (kinda) and went around the  
 trak and fling up under my tiers, and  
 wippin around the corners. Then it was  
 some one elses turn samr thing in tell  
 we could move any more cause we wear  
 laffing so much. We went in a hot tub,  
 we went on a beach and named all the  
 little sand bars after our selfs, we went on the  
 Yweller we did a lot of fun thing s on  
 the extravagint adventure so maby just  
 maby if we ever stop lafing and run  
 out of funny storys to tell maybe we  
 will go agen.

## Reflect on the Exercise

In a small group or with a partner, share your answer to this question:

- How might knowledge of the progression of reading and spelling development help you understand or plan for the students you are teaching?

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## Take 2 Review

- Complete this two-column organizer.
- In the first column are restatements of main ideas. Work with your group or a partner to complete the second column. List a few details that elaborate the main ideas or that state the relevance of those ideas for your school or classroom.

Knowledge/Main Ideas	Application/Details
1. Each of the key language ingredients plays a role in written language.	
2. The reading brain uses four distinct processing systems to read.	
3. (Optional) Students pass through developmental phases as they learn how oral language is represented by written language.	

## Chapter Wrap-Up: Self-Evaluation

Select the statements that best identify you, and explain why you chose the statements:

- ☐ I have learned so much new information already!
- ☐ The content in this section has reinforced what I have previously learned.
- ☐ I am overwhelmed! Help!
- ☐ I have an increased curiosity about reading research.
- ☐ I want to know more about how the reading brain works.
- ☐ I did not realize how important language is to reading.
- ☐ I want to learn how to play a musical instrument!
- ☐ I want to learn how this information will help me teach reading more effectively.

With a partner, share the most exciting ideas you have had so far.

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## Postscript for Chapter 1

A few other key research findings your instructor may have time to discuss are:

- Classroom reading and language arts instruction may require up to 2.5 hours *daily* in grades 1–3 to achieve the best results with the greatest number of students.
- The emphasis of instruction will change according to grade level and students' skill levels. The balance is different at each grade level. For example, students at grade 1 may need 30–40 minutes daily of phoneme awareness and phonics, but students in grade 4 may require an average of only 20 minutes of word study per day.
- A multi-tier intervention program that includes flexible, small reading groups is desirable and supported by research. Individual tutoring is preferable and/or necessary for only a few students.
- Decisions about instructional grouping should be made on the basis of valid and reliable screening and progress monitoring assessments.
- The majority of struggling readers can be taught to read if they receive rigorous, well-designed, intensive instruction. Only 2–5 percent should experience severe reading disabilities over the duration of their schooling.

### **What Else Is There to Learn About Reading Ability?**

LETRS *Module 1, The Challenge of Learning to Read* (Moats, 2004a) includes deeper exploration of what reading requires of the brain and how various subskills contribute to the development of skilled reading and spelling. Scientific reading research is explained and referenced. The nature of reading disability, including the definition of dyslexia, is explored. Oral and written language are compared from the standpoint of the unique demands of written, academic language on novice learners. Students' writing samples are used frequently to illustrate the phenomena discussed.