Foundations

LETRS®

An **Introduction** to Language and Literacy

Deborah Glaser
Louisa C. Moats

Sopris West®

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An Overview

Foundations: A Stepping Stone to LETRS®

LETRS *Foundations* is a professional development module for teachers of reading who are beginning to implement the components and principles of scientifically based reading instruction (SBRI). The module can be delivered in three days of face-to-face training or in six 3-hour sessions. *Foundations* consists of a participant manual that includes a DVD of demonstration videos from *Teaching Reading Essentials* (Moats & Farrell, 2007) and a presenter kit with PowerPoint® slides, presenter notes, *Teaching Reading Essentials* demonstration videos, and additional copies of important handouts.

Foundations is intended to be a stepping stone into the deeper, more comprehensive, and more challenging content of the 12 regular LETRS modules (Moats, 2004a–k; Moats & Sedita, 2004). (Refer to the back cover of this book for the module titles.) The LETRS modules treat in detail the topics of phonology, the structure of the English spelling system, vocabulary and comprehension instruction, and assessment. After learning with *Foundations,* teachers are more likely to enjoy and benefit from the regular LETRS modules.

Through a combination of lecture, whole- and small-group activities, video demonstrations, review sessions, and linkages to core reading program components, the following content is introduced in *Foundations*:

Chapter 1 **How Children Learn to Read**
- Sizing up the reading problem in the United States
- Learning from reading research
- Characteristics of good readers
- Characteristics of poor readers
- Five essential components of literacy instruction
- Language "ingredients" and reading success
- Four major brain-processing systems needed to read words
- The predictable progression of reading development

Chapter 2 **Oral Language, Vocabulary, and Comprehension**
- The many skills that contribute to comprehension
- Stimulating oral language in the classroom
- Teaching vocabulary
- Teaching comprehension

Chapter 3 **Phoneme Awareness**
- Understanding phoneme awareness
- The purpose of phoneme awareness training
- Teaching phoneme awareness

Chapter 4 **Phonics**
- Good readers use phonics
- A brief history of phonics instruction
- Contrasting phonics instructional approaches
- Who needs phonics, and how do we know?
- Phonics terminology
- Phonics content
- Teaching phoneme-grapheme correspondence and word recognition

Chapter 5 **Reading Fluency**
- Defining and understanding reading fluency
- Measuring reading fluency
- Improving reading fluency in the classroom
- Monitoring student progress

Chapter 6 **LETRS** *Foundations in the Classroom*
- Language ingredients and teaching "recipes"
- Three keys to effective teaching
- Teacher self-evaluation

The LETRS *Foundations* module incorporates six to eight video demonstrations of small-group instruction excerpted from the *Teaching Reading Essentials* (TRE; Moats & Farrell, 2007) video demonstration series. These video demonstrations can be found on the included DVD and are used both for modeling specific activities and for demonstrating explicit teaching. The complete TRE video series includes 58 demonstrations of instruction in essential components of beginning reading.

Many active-learning exercises engage *Foundations* participants in role play, hands-on practice with concepts, and opportunities to learn from—and with—peers. In addition, several exercises explicitly link *Foundations* content to the implementation of core, comprehensive reading programs that are currently in use in many classrooms.

The aim of *Foundations* is to help teachers construct a basic understanding of SBRI purposes, content, and methods. Teachers who understand why their programs incorporate specific components and activities are more likely to implement those programs with insight and enthusiasm. In addition, they are more likely to use assessment data wisely during instructional problem-solving and to differentiate children's educational needs. We have learned, however, that professional development should be continuous, long-term, coherent, and multilayered. Foundations should be followed by regular LETRS modules (Moats, 2004a–k; Moats & Sedita, 2004) on various topics, in-class coaching, training in specific programs and assessments, and data-based problem solving sessions among grade-level teams.

Foundations professional development should be led by veterans of LETRS content delivery.

What are the 12 core LETRS modules?

Language Essentials for Teachers of Reading and Spelling (LETRS) (Moats, 2004a–k; Moats & Sedita, 2004) is a series of 12 professional development modules for teachers of reading, spelling, and writing, including general and special educators. The modules consist of printed manuals, interactive CD-ROMs, Presenter Kits, and closely related supporting products. LETRS modules are designed for delivery in day-long institutes, one day or more per module. LETRS is *not* a reading instruction program. Rather, LETRS modules prepare teachers to learn and use any well-designed reading program, and should be implemented with program-specific training. LETRS modules aim to:

- Teach in depth the theory and practice of instruction based on scientifically based reading research (SBRR).
- Foster insight into *why* specific assessment and instruction practices are effective as well as *how* to implement them.
- Engage educators in a rewarding, informative learning experience.

What content is covered in the 12 core LETRS modules?

LETRS (Moats, 2004a–k; Moats & Sedita, 2004) emphasizes the links between research and practice and the connections to language, reading, and writing. To reach *all* learners, teachers must understand how students learn to read and write, the reasons why some students fail to learn, and the instructional strategies best supported by research. LETRS provides this information. In addition, LETRS emphasizes familiarity with English language structures that are the basis for reading, spelling, writing, and oral-language instruction. The American Federation of Teachers' *Teaching Reading* Is *Rocket Science* (Moats, 1999), the Learning First Alliance's (2000) *Every Child Reading: A Professional Development Guide*, and the Reading First Leadership Academy (2002) provided blueprints for the content that was incorporated into LETRS.

The 12 LETRS modules (Moats, 2004a–k; Moats & Sedita, 2004) address each essential component of reading instruction—**phoneme awareness**; **phonics, decoding, spelling, and word study**; **oral language development**; **vocabulary**; **reading fluency**; **comprehension**; and **writing**—and the foundational concepts that link these components. The characteristics and needs of English language learners (ELL), dialect speakers, and students with other learning differences are addressed throughout LETRS. A supplementary LETRS module (Arguelles & Baker, in press) focuses solely on principles of teaching ELL students. Instruction in assessment and evaluation of student performance is included, with an emphasis on screening for prevention and early intervention in Modules 8 and 12. The format of instruction in LETRS allows for deep learning and reflection beyond the brief once-over treatment that these literacy components are often given.

Supplementary LETRS Materials

- **LETRS Presenter's Kits** (Tolman & Moats, 2004a–b, 2005a–f, 2006a–d; Tolman, Moats, & Sedita, 2005) are available for each LETRS module. These separate CD-ROM format kits include PowerPoint slides with presenter notes, templates for overhead transparencies, handouts, general advice, presentation tips, and supplementary videos where needed.
- **LETRS Interactive CD-ROM modules** (Moats, 2004b–d and g–h) were developed with a grant from the Small Business Innovation Research (SBIR) program of the National Institute of Child Health & Human Development (NICHD) to provide for independent study and follow-up study of Modules 2, 3, 4, 7, and 8. These CD-ROMs have been proven to help teachers apply best teaching practices when they are used within a structured coaching framework.
- *ParaReading: A Training Guide for Tutors* (Glaser, 2005) is a popular training module that is compatible with LETRS *Foundations* and the 12 LETRS modules. Other recommended LETRS-related products include:
  - *Early Childhood* LETRS (Hart Paulson, in press)
  - *Teaching Reading Essentials* (Moats & Farrell, 2007) video demonstrations of small-group intervention
  - *The Reading Coach* (Hasbrouck & Denton, 2005)
  - *The Reading Coach Presenter's Kit* (Hasbrouck, Denton, & Tolman, in press)
  - *Teaching English Language Learners: A Supplementary* LETRS *Module* (Arguelles & Baker, in press)

Who delivers LETRS?

Dr. Louisa Moats works with a small, select group of experienced national trainers who have been consultants in the development of LETRS modules. Biographical descriptions of these consultants are available on the LETRS Web site (www.LETRS.com; select "Professional Development" link).

Sopris West Educational Services also publishes guidelines for states, districts, or other affiliates that wish to implement LETRS with local and regional trainers. Affiliate sites deliver LETRS with approved trainers and with the support of Sopris West. Contact the LETRS program coordinator at 800-547-6747, ext. 126, for information.

Suggested Pacing Guide for LETRS *Foundations*

We recommend at least three days for the delivery of *Foundations*. Each training day allows for a brief carryover of the previous day's study. This carryover can be used to review information or to complete a chapter before moving on. Instructors are encouraged to post an agenda in the meeting room to help participants understand how the content will be delivered over the course of the three days.

Day 1 (*morning*):　　Chapter 1—How Children Learn to Read

Day 1 (*afternoon*):　　Chapter 2—Oral Language, Vocabulary, and Comprehension

Day 2 (*morning*):　　Finish Chapter 2
　　　　　　　　　　　　Chapter 3—Phoneme Awareness

Day 2 (*afternoon*):　　Chapter 4—Phonics

Day 3 (*morning*):　　Finish Chapter 4
　　　　　　　　　　　　Chapter 5—Reading Fluency

Day 3 (*afternoon*):　　Chapter 6—LETRS *Foundations* in the Classroom

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[1] 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?

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[1] 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?

_____

_____

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

_____

_____

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

_____

_____

Do reading and musical attainment have anything in common?

_____

_____

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

_____

_____

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

_____

_____

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"

40th percentile is "benchmark"

Below 20th percentile is at risk for long-term reading failure

Good readers (top 60%)

Distribution of reading skill

Percentile rank   2   16   50   84   98

"Defying the Odds"

Typical distribution of results (national, state, local)

Outstanding classroom, school, or district
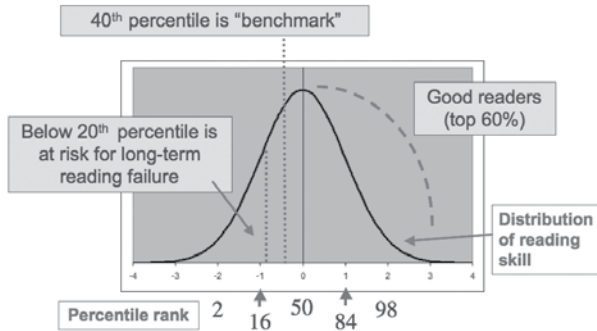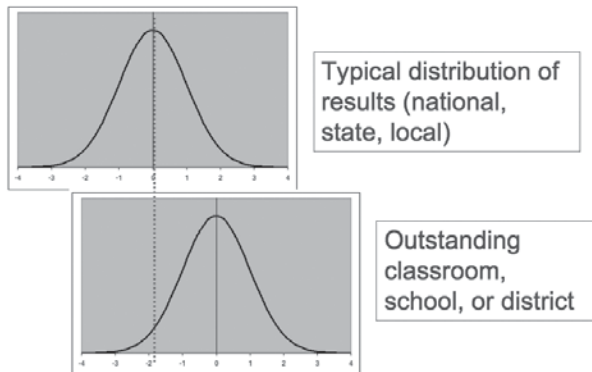
- Reading skill—like height, weight, and musicianship—is distributed on the normal, or bell, curve. Some of us seem to be born readers (or musicians), and others of us struggle. Some of that variation is due to genetics and some is due to experience, including instruction.

- 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 40th 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

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

2 domains

Decoding x **Comprehension**

Phonics   Vocabulary

PA   Fluency   Text Comprehension

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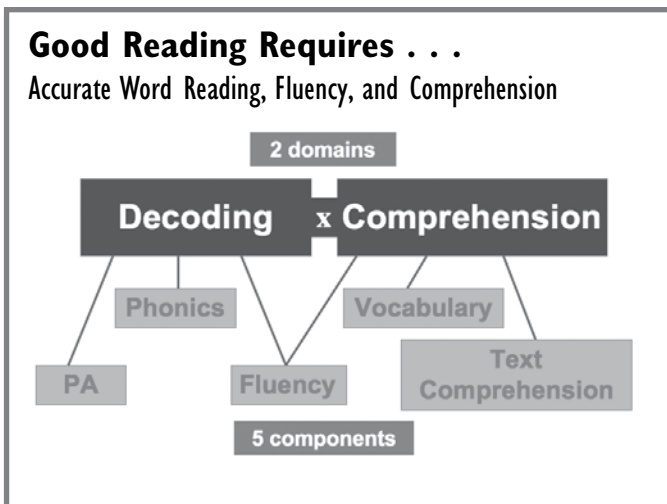
prosody. Those who read fluently usually do better on reading comprehension tests and usually like to read more than students who are dysfluent or slow readers.

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

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

- 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.
1. **Name the letters on the letter tiles.** — Of these letters, which two never come *after* the letter **h** in English spelling? _____ 2. **Say the speech sound(s) that each letter tile represents.** — Which of these letters represents more than one sound? _____	

(continued)

Exercise 1.3   (continued)

Refer to your tiles to complete each task.	Name the language system(s) involved.

3. **Arrange the first four letters to spell a real word.** _____

   — Explain two ways this word is used.

   _____

   _____

   — Change the first letter to one that spells the sound /k/.

   — Have you made a new word? _____

   — How do you know?

   _____

   _____

   _____

   _____

4. **Use tiles to spell the base word *hope*.**

   — Add the ending **-ing**. Write the new word.

   _____

   — Spell the base word again. Add the ending **-ful** and write the new word.

   _____

   — Finally, spell the base word and add the ending **-less**. Write the new word.

   _____

   — How did you change the meaning of the base word **hope** when you changed the ending?

   _____

   _____

   _____

   _____

Exercise 1.3　(continued)

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

Reflect on the Exercise

In the second column of the following chart, note **a key aspect of student behavior** that might indicate a problem with the language system that has been named in the first column. (We include examples for the first and last language system.)

Chart of Symptoms of Difficulty With Language	
Language System	**Problem Indicators**
1. **Orthography**: knowledge of letters and the spelling system	– Student cannot remember the letters in irregularly spelled words. – Student uses impossible letter sequences (e.g., **ck** at the beginning of a word).
2. **Phonology**: awareness of speech sounds	
3. **Semantics**: knowing word meanings	

4.	**Morphology**: the system of meaningful parts from which words may be created	
5.	**Syntax**: the system of permissible word order and sentence structures in a language	
6.	**Discourse**: how we combine sentences to communicate ideas	
7.	**Pragmatics**: social rules about language use	— Student demands instead of asks. — Student does not take turns in conversation. — Student talks to adults too informally.

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.
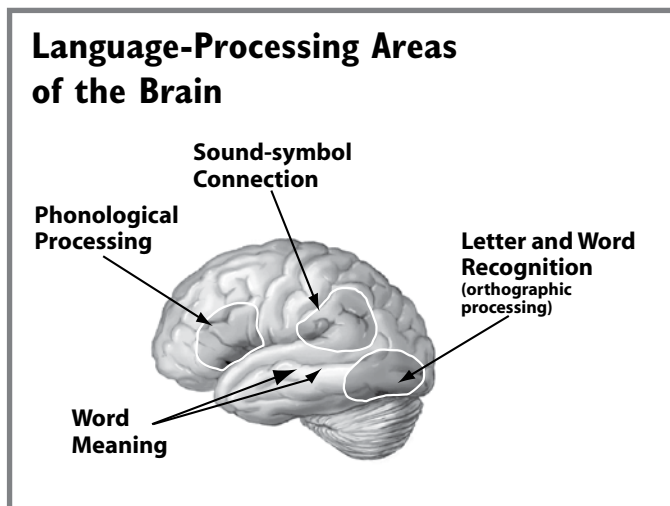
After a reader names the printed words, they are associated with **meanings**. To connect with meaning, the phonological and orthographic systems must to be "wired" into and activated with a "meaning processor" or language comprehension system. Language comprehension is processed mainly in the middle 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
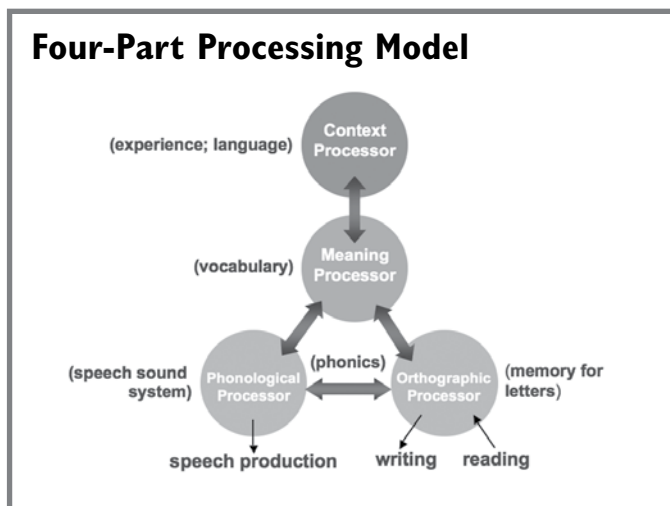
Exercise 1.4 | Labeling the Four-Part Processing System for Word Recognition

- 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.

  1. Read the nonsense word **pem**.

  2. Say the separate sounds in the *spoken* word **light**.

  3. Orally give a definition of the word **unique**.

  4. *Read* a sentence to determine which meaning of **pitch** is intended.

  5. Determine whether the spoken words **lighten** and **lighting** end with the same speech sound.

  6. Underline all the words in a paragraph that have the suffix **-ed**.

  7. Write the dictated sentence "Please give me the keys."

  8. Read and comprehend the sentence "The plans for the project never came to fruition."
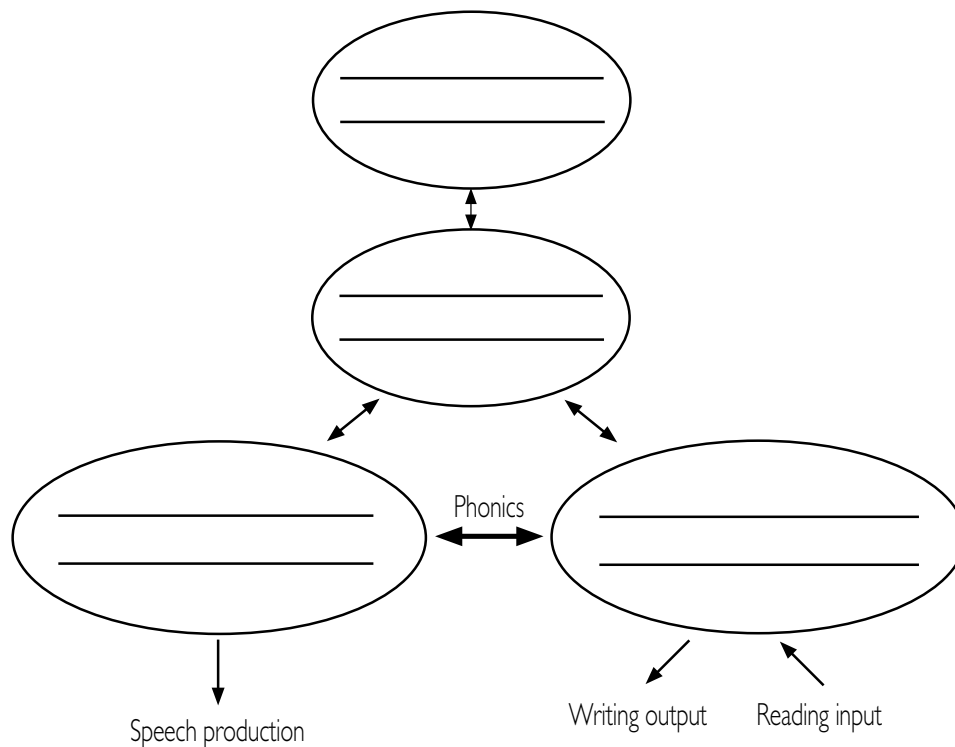
The Reading Brain at Work

The slides shown below are of functional magnetic resonance images (fMRI) of the brain at work during reading. Notice first how many areas are activated in the reading brain. Several major regions of the left brain must perform specific jobs in concert, and some activation occurs on the right side of the brain as well. Notice that the orthographic processor, specialized for storing and recognizing visual word images, is on the side of the brain (left) that serves language. Between the back (orthographic) and front (phonological) areas is an area that links phonological and orthographic information. This is activated when new words are decoded and when words are spelled. Areas that are activated to provide meaningful associations to words are more diffusely distributed in the brain.

Good summaries of recent brain studies and their implications for understanding reading and language can be found in Shaywitz (2003) and in Fletcher et al. (2007).
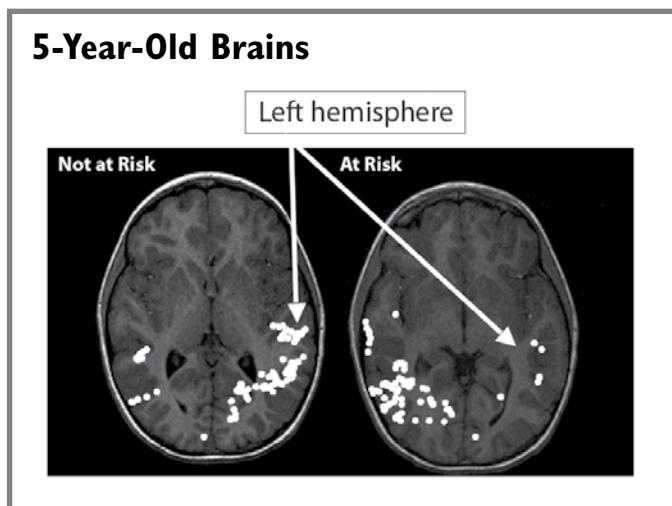
**First brain slide**: This picture, recorded in an NICHD study, illustrates profile activation patterns in five-year-old brains for individuals not at risk and at risk for reading difficulty. The language centers contributing to reading skill are on the left side of the brain. Compare the activation patterns on the left sides of each of these brain images. What do you notice? The five-year-old who is at risk has noticeably less activation on the left side than the individual who is not at risk. The child who is not at risk shows a lot of activation in the area that processes phonological information. The at-risk child shows little activation in the phonological processing area.
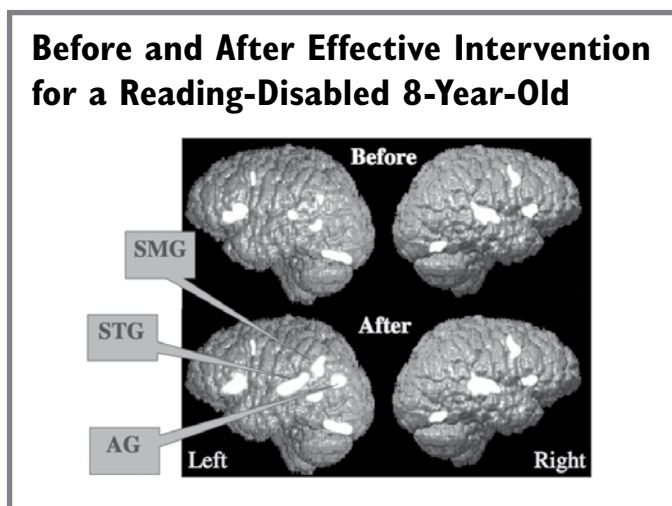
Second brain slide: Studies at the University of Texas–Houston by Simos et al. (2002) provide educators with evidence for actual changes in the activation patterns of an eight-year old reader's brain following instructional intervention that is intensive and focused on improving phonological and decoding skills. Following intervention, activation patterns resembled activation patterns of a proficient reader's brain. Note the increased activation in the left hemisphere's phonological and word recognition centers after intervention.

5-Year-Old Brains

Before and After Effective Intervention for a Reading-Disabled 8-Year-Old

Slides provided by P. Simos and used with permission.

Children Learn to Read and Spell in a Predictable Progression

Step-by-Step

The process of learning to read has been compared to the weaving of a rope from different threads or the building of a spiral staircase. Each step that is accomplished allows the next step to be accomplished. *Figure 1.1*, an image created by Hollis Scarborough (2001), shows the dynamic process by which word recognition and language comprehension subskills are combined as skilled reading is accomplished. The named subskills are like strands in a rope that become more and more amalgamated as reading skill develops.

Figure 1.1 "Rope" Model of Reading Skill Development

The Many Strands that are Woven into Skilled Reading
(Scarborough, 2001)

LANGUAGE COMPREHENSION

BACKGROUND KNOWLEDGE
(facts, concepts, etc.)

VOCABULARY
(breadth, precision, links, etc.)

LANGUAGE STRUCTURES
(syntax, semantics, etc.)

VERBAL REASONING
(inference, metaphor, etc.)

LITERACY KNOWLEDGE
(print concepts, genres, etc.)

WORD RECOGNITION

PHONOLOGICAL AWARENESS
(syllables, phonemes, etc.)

DECODING (alphabetic principle,
spelling-sound correspondences)

SIGHT RECOGNITION
(of familiar words)

increasingly strategic

SKILLED READING:
Fluent execution and coordination of word recognition and text comprehension.

increasingly automatic
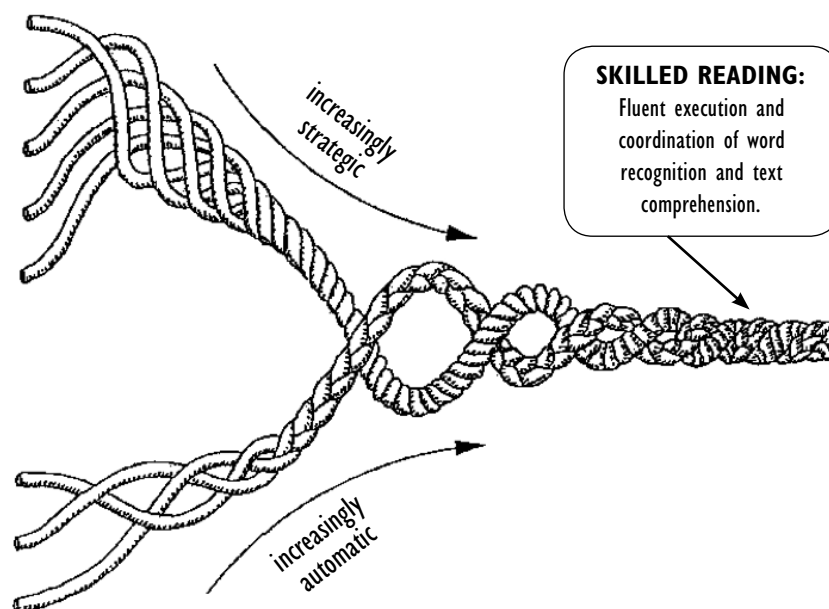
Used with permission of Hollis Scarborough.

The staircase model of reading mastery depicts a similar progression. At the base of the staircase are essential foundations for reading including recognition of letters, awareness of speech sounds, and beginning knowledge of phonics—the alphabetic principle. Knowledge of letters, sounds, and phonics allows children to recognize whole words quickly and build a sight vocabulary. Fast and accurate word recognition supports the development of reading

Learning to Read Step by Step

Word knowledge

Oral reading fluency

Word Origin and History

Roots, Prefixes, Suffixes

Multisyllabic Words

Phonics, Sight Words

Phoneme Awareness

Letter Knowledge

Language comprehension, vocabulary
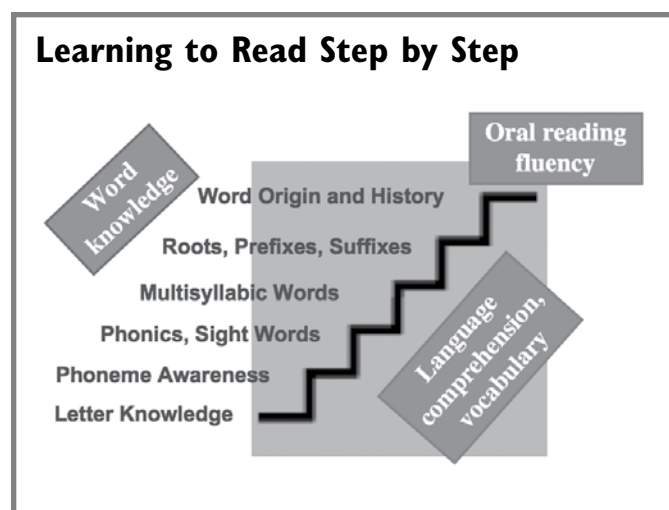
fluency. In addition, from the beginning of the learning process, language development, background knowledge, and vocabulary play essential roles. As academic language in books and in the classroom becomes more unfamiliar and demanding, those higher-level language skills become more and more important 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.

Chapter 2

Oral Language, Vocabulary, and Comprehension

Learner Objectives for Chapter 2

- Describe the various reasons why students might not comprehend.
- Complete a graphic organizer on dimensions of comprehension.
- Brainstorm ways of increasing, stimulating, and improving conversation in classrooms.
- Design a two-minute lesson on the meaning of one new word by:
  - using it in several contexts
  - providing a student-friendly definition
  - associating it with something visible or memorable
  - showing its relationship with some other words
  - providing practice for the student(s)
- View a videotape of guided oral reading instruction and identify the strategies the teacher is using to promote comprehension.
- Practice generating open-ended or probing questions.

Warm-Up Questions

Read each of the following scenarios. Discuss *why* and *how* the following events might affect student comprehension:

1. A student is reading a passage silently and reads the word **pamper** as **pander**.
2. A student is listening to his teacher read a story and hears the word **clowns** instead of the actual word, **clouds**.
3. A student is timing himself while reading a passage. When he is through, he is glowing about his improved reading rate. His teacher asks him to tell about what he just read, and he replies, "It doesn't matter what the story was about. It only matters how fast I can read it!"
4. A student in North Dakota is reading about **beachcombing**, and she has never been to a beach or seen an ocean.
5. A student is reading a science text and does not understand the new concept that is introduced in one paragraph. She continues on, reading the next paragraph without pausing.

6. A student decodes an unfamiliar word accurately but doesn't try to figure out its meaning in the passage.
7. A student replies to an inferential question with a brief, two-word answer.
8. A student reads a complicated, lengthy sentence with an embedded clause and phrase. While he is reading the sentence, his cell phone rings.

# Comprehension Involves Many Skills and Abilities

Each of the brief scenarios described in the Warm-Up embodies an important dimension of comprehension. Together, these typical classroom events begin to illustrate why comprehension depends on many different skills and abilities. Do the *sounds of language* have something to do with meaning? Yes; **clouds** and **clowns** are words that differ only in one speech sound, but diverge in meaning. Do *oral language*, *vocabulary*, *attention*, *background knowledge*, and *experience* all have an influence on comprehension? By all means. All of these variables, and others, contribute individually and in combination to listening comprehension and reading comprehension. This section provides a glimpse into these relationships and identifies a few proven classroom practices for fostering oral language, vocabulary, and comprehension abilities.

Before you begin Exercise 2.1, look back at Chapter 1 to review the list of language ingredients (see Exercise 1.2) and to review the slide illustrations that label the four neural processors that are critical for word recognition. Then, complete the graphic organizer in Exercise 2.1.

Exercise 2.1 Oral Language, Written Language, and Reading Comprehension

Four-Part Processing System Necessary for Word Recognition During Reading
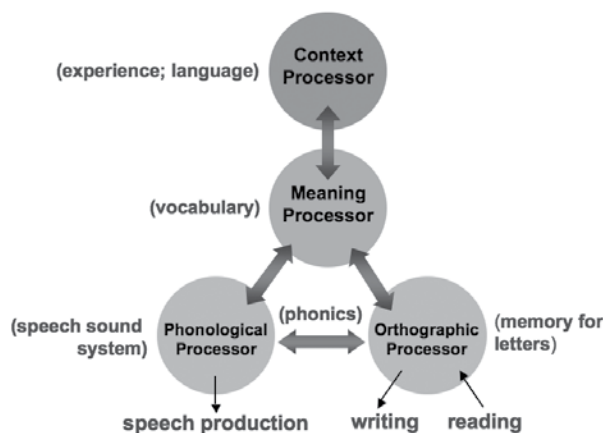
Exercise 2.1 | (continued)

- How does oral language connect with written language, and how do other nonlinguistic factors combine with language to enable reading comprehension?

- Below is a simple graphic organizer depicting the interactions among these variables. Place each of the terms listed below the organizer in the blank lines under the headings you think best define them. (Some terms may apply to more than one heading.)

Other Skills

_____

_____

_____

_____

_____

Written Language

_____

_____

_____

_____

Oral Language

_____

_____

_____

_____
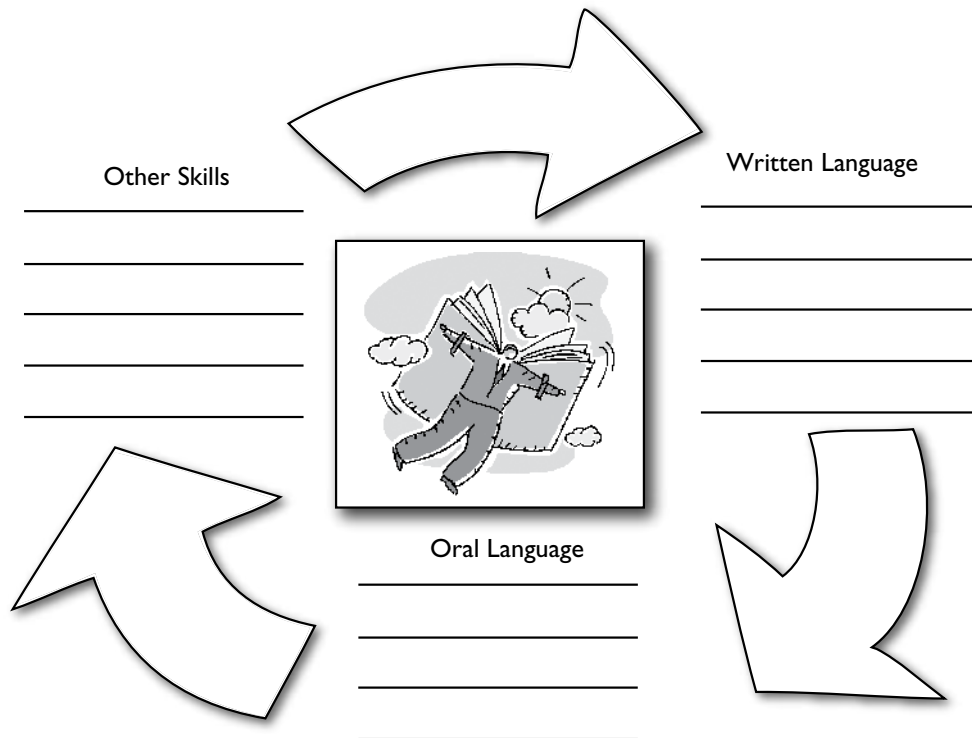
Terms for the graphic organizer: decoding, semantics, syntax, verbal reasoning, phonology, background knowledge and experience, orthography, pragmatics, morphology, attention, self-regulation, phonics, discourse comprehension, concept formation, vocabulary.

- Check your responses with the group's responses. How did you do? What have you learned about the relationships among oral language, written language, and reading comprehension?

- Now write a short paragraph that summarizes the main idea depicted by this graphic organizer.

_____

_____

_____

_____

_____

Making Sense of the Components of Reading Comprehension

When one dissects and isolates the many skills and abilities necessary for fluent reading with comprehension, learning to read can seem like an almost impossible task! It seems even more remarkable that so many students read quite well. Not only must the basic elements of the reading process be learned, but students must also attend to the task at hand, regulate their own reading rate, and read for specific purposes (Westby, 2004). The notion that reading comprehension is very complex and multidimensional is of critical importance to educators who want to increase reading levels and improve higher-order thinking skills. Without this perspective, teachers may be influenced by fads and pay too little attention to the anchors that ground comprehension: decoding, oral language proficiency, vocabulary, background knowledge, and the ability to connect what is read to other contexts, including one's own and others' experiences.

Making Sense of the Components of Reading Comprehension

How, actually, do we make sense of written text? The processes of comprehension can be described as labyrinthine. In a reading maze (see next page), when we run into a blind alley (i.e., lack of understanding), instead of reading ahead, we seek another route through the text. Mental problem solving during reading can involve: (a) *rereading* or searching the text to *clarify*; (b) asking oneself a *question* and seeking the answer before continuing; (c) mentally *summarizing* what has been read so far; or (d) *predicting* where the text is going (Palinscar & Brown, 1984). Good readers engage in these mental habits automatically. In addition, good readers employ skills or tools for problem solving, such as: (a) knowing how to recognize a *main idea* and a *detail*; (b) knowing what to expect of certain text *genres* or organizational features; and (c) recognizing *key transition words* that signify logical relationships in the text (Williams, 2006). If we make the right turns, we'll come out of the reading maze with comprehension in place! But novice readers need a guide—a teacher—to help them learn how to navigate text.

The skills and strategies a reader knows for navigating text will determine whether he will emerge from the experience successful or whether he will become lost or stymied. Good readers generally have a better "tool kit" in the following language domains:

- **Vocabulary**. Knowledge of word meanings reflects home environment and social learning experience. Vocabulary depends greatly on exposure to language models.
- **Oral language proficiency**. Command of word form, sentence structure, and discourse are all parts of oral language. Oral language ability includes the production of words, sentences, and discourse.
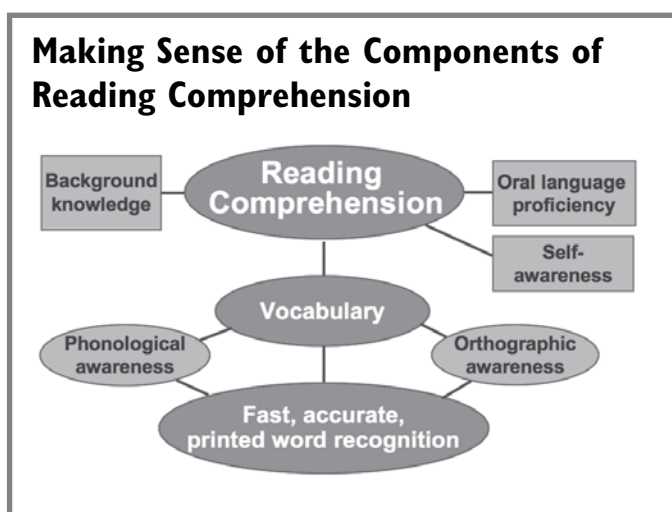
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