CHAPTER 1

WHAT'S INVOLVED IN LEARNING TO READ?

Meaningful, enriching early language and literacy experiences provide children with a crucial foundation for later conventional reading, which involves two processes and two phases of development. Basic information about these processes and phases is provided in this chapter to support the reader's understanding of how early emergent literacy experiences contribute to children's success in both learning to read and in long-term reading proficiency.

Reading Processes and Phases

Readers engage in two different processes: ***decoding*** and ***comprehending***. Decoding involves translating printed words into their spoken counterparts. Comprehending involves striving to understand what the connected words and sentences mean. Although both processes occur simultaneously and constantly influence one another, they involve different sets of behaviors. Reading development occurs in two fairly distinct phases: ***learning to read*** (decoding words) and ***reading to learn*** (obtaining new information). When children are first learning to read, they must devote virtually all of their time and attention to decoding—to figuring out what the words mean. But because reading is a meaning-making activity, it is also important for children to understand what they read from the beginning. To make this possible for children who are

just beginning to read (i.e., to decode), the first books they use are written and designed for easy comprehension. The writers and designers of materials for beginner readers meet this goal by making sure that the books contain words and content that children already know. These beginner books also include short sentences, have words with simple spelling patterns, and use relatively few words, some of which are repeated numerous times. Phrases and similar sentences (e.g., out went the duck, out went the sheep) might also be repeated. All of these characteristics, which are featured in books intended for children through the second grade, help children who are just learning to read also understand what they are reading.

After second grade, most children can read many words at a glance because they have encountered them repeatedly while reading. After a while, they can also decode new words more quickly by drawing on patterns they have observed, such as individual spoken sounds (phonemes) and correspondences between sounds and the letters that represent them (graphemes) (Adams 1990).

Of course, while children are learning to read, they still benefit from hearing adults read aloud to them. Just as they did during their infant, toddler, and preschool years, children in kindergarten and first grade can comprehend material that is much richer than what they can read by themselves. Moreover, adults' comments and explanations continue to enhance children's comprehension. Children's motivation to engage with books is also likely to remain high when adults continue to read to them.

Once children can decode well, they enter a second phase of reading development. For most children, this phase begins in third grade. In this second phase, the child reads to obtain new information; in other words, they read to learn. Previously, reading to learn was a minor goal, and the content featured in books children read was quite familiar to them. By third grade, the books children read have a considerable amount of unfamiliar content, as well as new vocabulary and longer, more complex sentences. Consequently, the task of comprehension becomes more difficult, and it increases in difficulty with each successive school year.

It is important to continue to read aloud to children during all of the primary grade years—even longer if a child still enjoys it. When children hear books above their own reading level and adults discuss these books with them, children develop language, content knowledge, and the reasoning skills that are needed to comprehend texts they read on their own.

By fourth grade, children begin reading textbooks for content areas such as science and history, but many find these textbooks very challenging. There are several reasons that transitioning to these books can cause difficulties. For one thing, the textbook content introduces mostly, if not entirely, new information for children to process. The language is also denser and more abstract than the language found in storybooks, and the vocabulary is more sophisticated and technical (Kelley et al. 2010; Nagy & Townsend 2012). Young children typically hear more narratives (i.e., stories) than informational texts because teachers' and families' own reading preferences favor stories over informational texts (Price, van Kleeck, & Huberty 2009).

It is also the case that many books for readers in kindergarten through second grade are stories, not informational texts (Duke 2000; Fang 2008). Moreover, informational books for young children are often written as narratives or in verse (e.g., *Mama Built a Little Nest*, by Jennifer Ward, illustrated by Steve Jenkins; *Water Is Water,* by Miranda Paul, illustrated by Jason Chin;

Chickens Aren't the Only Ones, by Ruth Heller) rather than in expository text form. Verse and story text structures differ from the more technical writing found in informational textbooks for older children. While books in narrative or verse form are delightful and should be used to engage children's interest, it is important to balance them with informational texts. Using bona fide informational texts in addition to storybooks at the preschool level helps to build children's content knowledge and the vocabulary associated with it, which in turn helps children succeed later when reading textbooks. This is explored more in Chapter 4.

We authors have observed more informational book reading by teachers now than we did 10 years ago, and most curricula, even for preschool, include more informational books written in expository, not narrative or verse, form. More research is needed to understand the extent to which preschool teachers read more informational texts, feel prepared to do so, and enjoy the genre (Robinson 2020).

Understandings and Skills Needed When Learning to Read

Decoding and comprehending require different understandings and skills. The two processes also differ in relationship to one another during the two phases of reading development. This section discusses each of the major code-related skills necessary for learning to read and how they contribute. It also explores how oral language and content knowledge assist in the final steps of the decoding process.

Print Conventions

Print conventions specify how print is organized on a page and how words in print are designated. For example, in English and many other languages, print is organized on a page from left to right and top to bottom. Clusters of letters are separated with spaces to indicate where one word stops and another begins. Other conventions specify when and where to use uppercase versus lowercase letters and how to use each punctuation mark.

Children begin to learn about the directionality of print during preschool, and they solidify this understanding during kindergarten and first grade. During preschool, children also notice that their names feature capital letters at the beginning, followed by lowercase letters. This awareness is a first step for young children in learning that alphabet letters have a "big" (capital) form and a "small" (lowercase) form. They continue to learn about case use in the primary grades. Knowledge of other conventions is also acquired over an extended period of time. For example, although children might be interested in punctuation as early as preschool, learning about its use continues well into the intermediate grades and beyond.

The Alphabet and Phonological Awareness

To decode words, a reader must translate individual letters (graphemes) or letter pairs into speech sounds (phonemes) and then blend these into the spoken form of the word. Decoding skill requires letter-name knowledge and ***phonological awareness*** (i.e., knowing that each spoken word consists of a series of individual sounds). Phonological awareness helps children understand that decoding is a matter of translating letters in a printed word into sounds that comprise its spoken form. (See Chapter 5 for further discussion of phonemic and phonological awareness.)

Children must also learn many specific connections between individual letters or letter pairs and the phonemes they represent. For example, the letter *B* represents the /b/ sound, the letter *T* represents the /t/ sound, and *C* and *H* together represent the first sound heard in *cherry*.

Of course, in English, some words begin with the same sound but are spelled with a different beginning letter or letter pair (e.g., city/silly; fun/phone), while others begin with different sounds but are spelled with the same first letter (e.g., eat/enter; Connie/Cindy). No wonder it takes children several years to learn the basics of the English spelling system. The fact is, adults continue to learn about spelling throughout their lives—and, of course, look up word spellings in (primarily online) dictionaries.

Oral Language

Although oral vocabulary and grammatical understanding are not central to decoding, they do provide some support, both indirectly and directly. For example, oral vocabulary is thought to affect decoding skill indirectly (Dickinson, Golinkoff, & Hirsh-Pasek 2010). According to one explanation, words are first stored in the brain as holistic units. As vocabulary increases and the phonological structures of some words overlap (e.g., cut/cat; mouse/house), words in these clusters are reorganized and stored as smaller units of sound. This finer-grained storage is thought to provide a foundation for phonological awareness (Metsala 1999; Metsala & Walley 1998).

A child's oral vocabulary also helps them reformulate an approximate pronunciation that they obtain after the initial steps of decoding a printed word (i.e., the pronunciation does not at first match the printed word). This happens somewhat frequently in the early stages of learning to read, when children's letter-sound knowledge is not yet secure and the many spelling irregularities found in English still puzzle them.

Consider, for example, a beginner reader's difficulty in decoding the words *peanut* and *butter* as they try to read a new book to their mother at home:

1. *P* (correctly pronounced /p/)
2. *E* (correctly pronounced /e/, as in *pediatric*)
3. *A* (incorrectly responded to single letter, pronounced /a/, as in *ate*)
4. *N* (correctly pronounced /n/)
5. *U* (incorrectly pronounced /u/, as in *chute*)
6. *T* (correctly pronounced /t/)
7. The child repeated the word *peanut* with an extra syllable—pronouncing /a/, as in *ate*—and looked puzzled.
8. The child then sounded out/read *butter* but produced "beauter."
9. The child stopped to think.
10. Suddenly, the child said, "Peanut butter!"

How might such a sudden correction in pronunciation happen? First, the child knew the story was about a picnic and that animals were making sandwiches because they and their mother had discussed an illustration in the book that depicts a sandwich-making scene. Using knowledge of both this context and the kind of sandwich, the child suddenly transformed the sound approximations they had obtained into the actual words in the book. Had these words not already been in the child's vocabulary, they might not have found their way past the approximations.

Oral vocabulary and background knowledge help only *after* a reader has engaged in basic decoding to arrive at a sound approximation (Adams 1990; Share 1999). However, this assist is useful to a young child just learning to read, especially when they have interesting books at home that might not be simplified to the same degree as the beginner books they read at school. Additionally, linking the visual pattern of letters in a word to its pronunciation and meaning helps to anchor this pattern in the child's mind. As a consequence, they can read it much faster the next time they encounter the word in a book or some other context (Pikulski & Chard 2005).

Understandings and Skills Needed When Reading to Learn

In addition to good decoding skill, reading to learn requires good oral language skills, solid background knowledge, and reasoning skills. After first explaining how decoding affects comprehension, each of these items is discussed.

Decoding Skill

If children make serious errors in recognizing words, the meanings of sentences and passages are distorted. Additionally, if children struggle to sound out each word instead of recognizing some words automatically and decoding others relatively easily, they have fewer cognitive resources available for thinking about meaning. In short, unless word recognition is fairly accurate and somewhat automatic, comprehension suffers (LaBerge & Samuels 1974; Pikulski 2006).

Oral Vocabulary and Other Oral Language Skills

Oral vocabulary knowledge is very important to reading comprehension because readers need to know the meanings of individual words to understand the text as a whole. Oral vocabulary learning begins in infancy and happens when children hear the adults who care for them, such as teachers and family members, say words (Rowe, Romero, & Leech 2023). The repetition of words and exposure to diverse words impact vocabulary size and growth in children's early years (Newman, Rowe, & Ratner 2016; Rowe 2012).

Syntactic and grammatical skills also matter because word forms and meanings differ depending on the position and order of words in a sentence. Consider the difference between *wave* used as a verb and a noun:

1. *Wave* bye-bye to Grandma.
2. When we went to the beach, I saw a very large *wave*.

The position of *wave* used as a verb in the first sentence differs from the position of *wave* used as a noun in the second sentence, and the nearby words in each sentence also differ.

Skill with grammar and syntax helps children know whether a word is the name of something, stipulates an action, or modifies the meaning of another word. Similar to vocabulary, language exposure affects children's syntax comprehension and use (Language and Reading Research Consortium 2015). Good language skills become absolutely essential for good comprehension of books, especially those that children read to learn about content areas, such as science, history, or geography (Nagy & Townsend 2012). A strong foundation of oral language skills in early childhood supports this later success.

Background Knowledge

Background knowledge is everything a person knows about the physical, biological, and social worlds. Young children use background knowledge to comprehend books they hear read aloud, just as older children use it to comprehend books they read independently (Smith et al. 2021).

For instance, consider the effects of background knowledge (or lack thereof) on story interpretation in a preschool example during a reading of *Whistle for Willie,* by Ezra Jack Keats (Schickedanz & Collins 2012). Immediately after the teacher read, "He jumped off his shadow, but when he landed, they were together again," a child shouted, "He found another one!" Adults and older children understand that "He jumped off his shadow" means that Peter's (the

main character's) body made the shadows. But unless a child understands that shadows are nonmaterial objects—which many preschoolers do not (Carey 1985)—they could easily think a shadow stays where cast and that someone coming along later might find it.

Background knowledge is also critically important for comprehending informational books. Although these books are written and designed to help children acquire information, when used in isolation from related concrete experiences, children can find it difficult to understand the concepts these books are trying to teach (Leung 2008). If a child's science or geography book is not coupled with meaningful real-life experiences that use key words, children will rarely learn terms at the depth required to understand the book. Prior subject knowledge (including associated vocabulary) aids children's comprehension, even when using books that are intended to teach about specific topics. Good knowledge of grammar and syntax helps too.

Children also apply knowledge about different text structures. For example, informational texts usually do not have characters, a problem, or a plot, while narratives do. Additionally, informational texts are denser with ideas than narratives and contain considerably more technical terminology (Kelley et al. 2010; Nagy & Townsend 2012). Knowledge about these differences in text structures, gained from experience in hearing adults read them aloud and discuss them, helps children comprehend different kinds of books (Best, Floyd, & McNamara 2008).

Reasoning

Children must learn to use background knowledge in conjunction with information provided in a book's text and illustrations. This learning occurs as adults read books to children, model reasoning by sharing their thoughts, and ask questions that prompt the children to reason. Authors often leave gaps in stories and expect readers or listeners to use reasoning to fill them in. For example, at the beginning of *One Dark Night*, by Hazel Hutchins, illustrated by Susan Kathleen Hartung, Jonathan (the main character) is awake in bed, looking out his window. The text tells readers that a storm is approaching; lightning flashes and thunder booms. Although the text does not state that Jonathan was kept awake by the storm, background knowledge helps readers to infer this.

Table 1.1 lists other events from *One Dark Night*, as well as gaps in the story that must be inferred. This filling in requires reasoning based on the integration of information from the book's text and illustrations and the reader's or listener's background knowledge.

Consider a classroom example that occurred as the teacher finished reading *The Snowy Day,* by Ezra Jack Keats. At the end of this story, Peter (the main character) is going out to play in the snow with a friend who is not named in the text. One child suggested that Peter's friend was Gilberto, a character the children knew well from hearing their teacher read *Gilberto and the Wind,* by Marie Hall Ets. Like Peter, Gilberto had also played outside by himself. Apparently, the child thought that Peter and Gilberto would make good friends. Although it is unlikely that Peter's friend at the end of this story is Gilberto, this is an example of a child's engagement in reasoning. What the child did not understand is that Peter lived in the city and Gilberto lived in the country. A lack of knowledge leads the preschooler to draw erroneous conclusions, even when the child engages in drawing inferences—in high-level reasoning.

Table 1.1. Examples of Thinking Needed to Fill in Gaps in *One Dark Night*

Event	Inference
An illustration shows Jonathan is in pajamas in bed, looking through the window. The text tells readers it is nighttime and that Jonathan sees lightning and hears thunder. Readers can infer that Jonathan should be asleep or trying to sleep.	Readers use background knowledge about lightning and thunder to help understand why instead he's awake and looking out his window. He looks concerned. Readers' experiences with thunderstorms help them understand why Jonathan is a bit frightened.
The text says that Jonathan sees something small outside and that it is looking back at him. Readers see the outline of a cat's head and its two green eyes in the darkness.	Readers can infer that Jonathan might not know what the animal is; the text only says he sees "something small." Perhaps it's an owl, dog, or cat. Readers can use background knowledge to infer that it is an animal because of the eyes. They can also guess that it is a cat, given the shape of the head.
The text says Jonathan runs downstairs, opens the door, and lets a stray cat in. He's depicted near the door, as a cat runs in. Jonathan tells his grandparents the cat is afraid of thunder. Grandfather says stray cats are not afraid of thunder. Grandmother says she thinks the cat has a mouse in its mouth.	Jonathan's grandparents are introduced here; readers might infer that he lives with them or was sleeping over. Readers might also infer that the grandparents were awakened by the storm and heard Jonathan get out of bed and run downstairs. Perhaps they wondered what was going on and got out of bed to find out. Grandfather may have said something, such as, "Hey! Why are you opening the door?" which prompted Jonathan to say the cat was afraid of thunder. Finally, Grandmother might have thought the cat had a mouse because cats catch mice and like to show what they have caught.
An illustration shows a kitten on a rug. Jonathan is not shown, but the text says he announces, "It's a kitten!"	Readers can infer that the large cat is the kitten's mother. Readers don't see Jonathan with the kitten, but they can infer that he's there because he identifies it. They can also infer that his grandparents had not joined him because he calls to them as if they are in another part of the house. Finally, readers might infer from Jonathan's announcement that he is excited and wants Grandmother to know there is no mouse.

What Are Preschoolers Thinking? (Schickedanz, Collins, & Marchant 2022) explores many examples like this one, where higher-level reasoning about some aspect of a plotted narrative yields a wrong conclusion because the child lacked essential knowledge.

Over time, preschoolers' reasoning becomes more accurate because they learn from teacher feedback and comments to take account of more information (Duke & Carlisle 2011). They also learn to reason when teachers ask higher-level questions in a discussion that follows a first reading (Collins 2016). It is important to note that questions asked *during* a first reading can interrupt thinking. Think about watching a film in a theater and having it stopped every 10 minutes for a question. Adults would be outraged if this happened! After children have had opportunities to hear the story uninterrupted in its entirety, questions can be used strategically during later readings on subsequent days.

Different Learning from Different Experiences

Different experiences in the early years yield different kinds of learning. Some things children learn influence decoding, while other things they learn influence comprehension (Language and Reading Research Consortium 2015; NICHD Early Child Care Research Network 2005). Moreover, because beginner books are simplified, educators do not see the full effect of the understandings and skills that primarily affect comprehension until a reader moves past the first phase of reading development and encounters more challenging texts.

Refer to Table 1.2. The first column lists a selection of early literacy practices similar to typical preschool standards for language and literacy. Additional standards, such as science and social studies, also impact reading development because background knowledge in these domains provides critical support for comprehension. The most important contributions that each experience makes are featured in the table's second column. The third and fourth columns indicate whether a contribution is very important (i.e., strong) for either decoding or comprehension or less important (i.e., weak). Early childhood experiences that support oral vocabulary development and background knowledge significantly aid comprehension and make some contribution to decoding skill. Good decoding skill is necessary, though not sufficient, to support good comprehension, as noted for the decoding items listed in the third column.

Adopting a Long View

Children benefit more when teachers and families emphasize language development, background knowledge, and comprehension strategies rather than focus primarily on code-related skills, such as alphabet learning. Likewise, encouraging deep levels of word understanding by using a rich language and content knowledge curriculum benefits children's comprehension more than settling for only simple labels to increase vocabulary (Kelley et al. 2010; Ouellette 2006). These instructional issues matter because the reading comprehension levels of school-age children in the United States—already low in most national assessments (NCES 2022)—were further exacerbated by the COVID-19 pandemic. Early childhood programs are encouraged to reach beyond the use of minimal approaches to vocabulary development and provide a balanced, more thorough approach to language and literacy that will benefit children in the long term.

Table 1.2. Selected Early Practices and Their Contributions to a Foundation for Reading

Teaching practice	Contributions	Importance in decoding (learning to read)	Importance in comprehension (reading to learn)
Reading storybooks	Print conventions	Strong	Weak
	Oral language/vocabulary	Weak	Strong
	Reasoning	Weak	Strong
Reading informational texts	Print conventions	Strong	Weak
	Oral language/vocabulary	Weak	Strong
	Background knowledge	Weak	Strong
	Reasoning	Weak	Weak
Reciting songs and nursery rhymes	Phonological awareness	Strong	Weak
	Oral language/vocabulary	Weak	Strong
Explaining word meanings	Oral language/vocabulary	Weak	Strong
Playing with the sounds in words	Phonological awareness	Strong	Weak
Teaching alphabet letters	Alphabet letter identification	Strong	Weak
	Print conventions (uppercase and lowercase letter forms)	Strong	Weak
Underlining book and poem titles	Print conventions	Strong	Weak
Going on field trips	Background knowledge	Weak	Strong
	Oral language/vocabulary	Weak	Strong
Having conversations	Oral language/vocabulary	Weak	Strong
	Reasoning	Weak	Strong

Alphabet letter identification is the ability to label alphabet letters by their names. ***Background knowledge*** is information about the physical, biological, and social worlds. ***Oral language/vocabulary*** includes grammatical and syntactic skills, plus oral vocabulary support. ***Phonological awareness*** is the ability to recognize and manipulate sounds in spoken words. ***Print conventions*** include left-to-right scanning of print, top-to-bottom scanning of a page, and putting spaces in between words. ***Reasoning*** includes thinking about text and illustrations to infer information, as well as abstract thinking in decontextualized conversations.

Looking Beyond Code-Related Skills

Sometimes early childhood educators adopt a code-related focus without realizing that different sets of understandings and skills affect decoding and comprehending, or that young children must start building both sets before formal learning begins. This misunderstanding results in an overemphasis on decoding skill because teachers know that these are needed when children learn to read. Although children learn to read first, they must simultaneously begin to develop knowledge and skills that influence reading to learn (Neuman & Kaefer 2018).

Some kindergarten and first grade teachers want children to recognize and name the alphabet letters and to write their names by the time they finish preschool. While this expectation is acceptable, preschool teachers must in turn emphasize to kindergarten and primary grade teachers that code-related understandings and skills and comprehension-related skills must be addressed and instructed with more balance (Shanahan 2016; Stahl 2012). In fact, research has indicated for years a need for this balance in the early primary grades.

One of the first longitudinal studies spanning preschool through fourth grade (Storch & Whitehurst 2002) advocates supporting code-related skills and oral language comprehension skills simultaneously. Children do not need proficiency in decoding before receiving instruction in oral language skills. Children need both, beginning in preschool and continuing throughout the *learning to read* and *reading to learn* years.

Strong support for oral language must begin during the infant and toddler years (Rowe, Romero, & Leech 2023) and must continue not only during preschool, but *forever* after that.

Looking Beyond a Narrow Focus on Recognition-Level Oral Vocabulary

The oral language focus in curricula used in some early childhood programs is often too narrow. Learning words only as labels of objects within the confines of books alone develops oral vocabulary at a simple recognition level. A deeper focus that provides children with information about words is of considerably more benefit to their comprehension in the short and long term (Ouellette 2006). Encountering words in authentic contexts, such as hands-on science experiences, is a critical part of meaning making (Gelman & Brenneman 2004). Children must also have multiple encounters with a word in a variety of contexts, rather than in just one or two (Nagy & Townsend 2012). In short, meaningful firsthand experiences (historically a mainstay in preschool programs) are part and parcel of good emergent literacy programs that have long-term effects.

Concluding Thoughts

The truth is, early childhood educators must keep many balls in the air, right from the beginning. The alphabet is not *the* place to start, nor is oral language or content knowledge. Teachers must start on many fronts simultaneously, which is why early educational standards include literacy, language, math, science, social studies, and more, and why curriculum frameworks suggest a wide range of experiences.