

CHAPTER 1

Reading Products, Processes, and Component Skills and Knowledge

GUIDING QUESTIONS

1. What processes are involved in reading?
2. How do the three aspects of reading—products, processes, and component skills—relate to one another?
3. In what ways do the various theoretical models and frameworks (Simple View of Reading, Reading Rope, Reading Systems Framework, Active View of Reading, and Direct and Indirect Effects Model of Reading) complement or differ from each other in explaining the component skills of reading?

Consider this: Why can some of us deeply comprehend a passage while others find it difficult? What invisible mechanisms are at play when our eyes move across a page, transforming squiggles of ink into vivid mental images and profound ideas? To understand reading, we must dive deep into three interconnected aspects:

1. **The Products** of Reading: What are the tangible outcomes we can observe and measure?
2. **The Processes** of Reading: What underlying cognitive operations occur as we read?
3. **The Component Skills and Knowledge** of Reading: What building blocks form the foundation of reading processes and products?

As we explore these elements, you will gain a newfound appreciation for the marvel that is reading. You will discover why a sentence like “읽기는 단순하고 쉬운 행동으로 보일 수도 있으나 사실은 복잡한 정보처리과정을 거치는 고도의 기술입니다” can be effortlessly understood by some yet remain an impenetrable mystery to others.

When we discuss reading, we often focus on its observable **outcomes**, or “**products**.” These products are the tangible results of our reading efforts, ranging from the ability to read individual words to comprehending entire texts. However, reading is far more complex than these end results suggest. *Reading* is an umbrella term encompassing a variety of skills that operate on different levels of language, from individual letters to entire passages and multiple documents.

Let’s break down the key products of reading.

- *Word reading.* This is the ability to accurately and rapidly decode words in isolation. It is the foundation upon which all other reading skills are built.
- *Text reading fluency.* This is a text-level reading skill, involving reading connected text (like paragraphs or stories) with accuracy, appropriate speed, and expression.
- *Reading comprehension.* This is also a text-level reading skill, and the goal of reading—the ability to develop a deep understanding of what has been read.

It is crucial to distinguish between these different reading subskills because they involve shared *and* unique underlying processes and component skills and knowledge. For instance, word reading relies heavily on phonological, orthographic, and morphological processing, while reading comprehension relies on a broader set of language and cognitive processes.

The product of reading comprehension is a mental model—an internal representation of the text’s meaning. This model can vary in accuracy, richness, and completeness, depending on the reader’s skills and the text’s complexity. Educators and researchers assess the extent of one’s reading comprehension or mental models using various methods, such as multiple-choice questions, open-ended responses, retelling tasks, and cloze procedures (where readers fill in missing words in a text).

Behind these observable products lie complex **cognitive processes**. The reading process is the underlying mechanism—what occurs in our minds as we read. It involves two main components:

1. *Decoding and word reading.* This is the process of translating written symbols into language. In the early stages of reading development, decoding involves mapping individual orthographic symbols (e.g., letters) or their combinations to their corresponding sounds. As readers become more skilled, many words are recognized instantly as whole units, bypassing the need for letter-by-letter decoding.

2. *Meaning making.* This is the process of constructing meaning from the decoded text. This aspect is emphasized in the RAND Reading Study Group’s definition of reading comprehension as “the process of simultaneously extracting and constructing meaning through interaction and involvement with written language” (Snow, 2002, p. 11).

The meaning-making process involves building three distinct but interconnected mental representations of the text, as described by Kintsch’s (1988) Construction–Integration model: (1) Surface code is the most basic level, where listeners and readers process the exact words, phrases, and sentence structures of text; (2) the textbase is a

propositional representation of the explicit meaning of the text. Readers and listeners extract and organize the explicit meaning from the text into a network of connected ideas; and (3) the situation model is the deepest level of comprehension, where readers and listeners actively integrate the text's information with their prior knowledge, experiences, and mental schemas. This creates a rich, personalized understanding that goes beyond what is explicitly stated (Graesser et al., 1994).

The situation model is particularly important because it goes beyond the explicit information in the text. Readers must make inferences, resolve inconsistencies, and integrate new information with their existing knowledge to create a coherent mental representation. Successful reading comprehension results from the smooth operation of these decoding and meaning-making processes. When all processes function well, deep comprehension is achieved. However, if there's a breakdown in any part of the process, comprehension suffers. For details on the reading process, see the Construction–Integration model (Kintsch, 1988) and associated models (see McNamara & Magliano, 2009, for a review).

These processes rely on a range of **component skills and knowledge**. For decoding and word reading, crucial components include knowledge and awareness of phonology (spoken sound structures), orthography (e.g., alphabet letter sounds), and morphology (meaningful parts of words). For meaning making, key components include vocabulary knowledge, grammatical knowledge, background knowledge, and higher-order cognitive skills like inference making and comprehension monitoring. All these skills and knowledge require executive functions such as working memory, inhibitory and attentional control, and cognitive flexibility.

To illustrate the interplay between reading products, processes, and component skills, consider the analogy of baking a cake. The finished cake represents the reading product—the mental model that readers construct, which varies in accuracy, richness, and completeness. The baking process (mixing ingredients, controlling temperature, timing, and chemical reactions between ingredients) represents the reading process—the cognitive operations that occur during reading, encompassing both decoding and meaning-making processes. The ingredients represent the component skills and knowledge—the building blocks that make the process possible, from phonological, orthographic, and morphological knowledge and awareness to foundational oral language skills, background knowledge, higher-order cognitions, self-regulations, socio-emotions, and executive functions. Just as a cake's quality depends on both the baking process and the quality of ingredients, reading outcomes depend on both the quality of cognitive processes and the strength of underlying skills and knowledge. For example, a student with weak orthographic knowledge (component skill) might struggle with the decoding process of translating the letters *C-A-T* into corresponding sounds /kæt/ (process), ultimately resulting in difficulty with word reading performance (product). Figure 1.1 shows the interactions of reading product, reading process, and component skills and knowledge. Understanding these relations is crucial for educators, researchers, and anyone interested in improving reading skills. By recognizing the complex interplay between products, processes, and component skills, we can develop more effective strategies for teaching reading and addressing reading difficulties. In the next section, I explore several theoretical models and frameworks of reading that delineate the component skills and knowledge that contribute to reading proficiency.

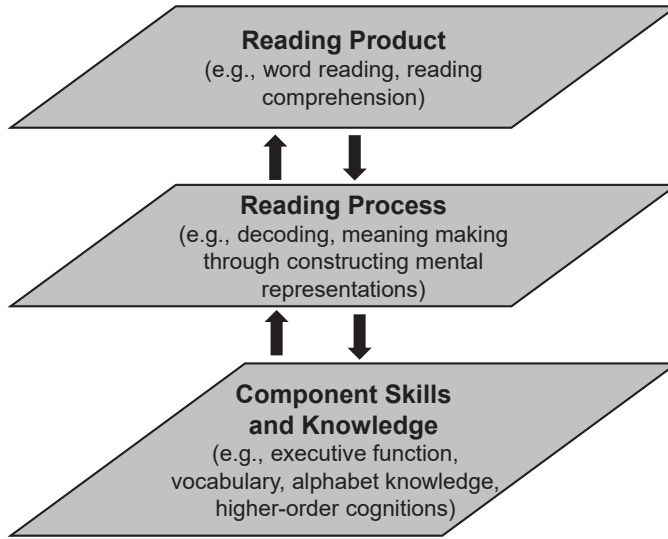


FIGURE 1.1. Reading product, reading process, and component skills and knowledge. Copyright © 2026 Young-Suk Grace Kim.

Theoretical Models and Frameworks of Reading: Component Skills and Knowledge

Several theoretical models articulate the component skills and knowledge that contribute to reading. This section provides a brief review of prominent ones: the Simple View of Reading (Gough & Tunmer, 1986), the Reading Rope (Scarborough, 2001), the Active View of Reading (Duke & Cartwright, 2021), and the Reading Systems Framework (Perfetti & Stafura, 2014). The National Reading Panel report is also included due to its popularity, although it is not a theoretical model. Finally, I delve into the Direct and Indirect Effects Model of Reading (DIER, pronounced “dear” as in “Reading is dear to me”), a recent integrative model. These models and frameworks have overlaps and unique aspects; readers are encouraged to consult the original sources for more detailed information on each.

Simple View of Reading

The Simple View of Reading (Gough & Tunmer, 1986) is perhaps the most widely known theory. As its name suggests, it posits that reading requires only two skills: word reading and listening comprehension (or language comprehension; these terms have been used interchangeably in this line of work). *Word reading* is defined as “read[ing] isolated words quickly, accurately, and silently” (Gough & Tunmer, 1986, p. 7), while *listening comprehension*, or *language comprehension*, is defined as “parsing, bridging, and discourse building” (Hoover & Gough, 1990, p. 128) and “the ability to take lexical information . . . and derive sentence and discourse interpretations” (Hoover & Gough, 1990, p. 131). The Simple View of Reading highlights the fact that reading comprehension requires word reading in addition to listening comprehension. This is because one of the motivations

for the Simple View of Reading was to highlight the necessary role of word reading in reading comprehension, as it did not receive due attention in the 1980s.

The simplicity of the Simple View of Reading is powerful for initial understanding about component skills necessary for reading comprehension. It serves as an excellent **entry point** for understanding reading development—its simplicity makes it accessible to anyone new to reading science. However, the Simple View of Reading falls short in many aspects as a theoretical model to explain the complexity of reading comprehension. Word reading and listening comprehension, while necessary, largely remain as “black boxes”—such that specific component skills and knowledge needed for word reading and listening comprehension and the relations among component skills and mechanisms are not explained. Without this understanding, educators and researchers face significant challenges in supporting the development of word reading and listening comprehension and, ultimately, reading comprehension.

Reading Rope

The Reading Rope (Scarborough, 2001) expands upon the Simple View of Reading in two ways. First, it specifies the skills needed for both word reading and language comprehension: Word reading includes phonological awareness, decoding, and sight word recognition, and language comprehension includes background knowledge, vocabulary, language structures, verbal reasoning, and literacy knowledge (Figure 1.2). Second, the Reading Rope recognizes the developmental aspect to a certain extent by stating that strands of skills become strategic and automatic and interwoven over time. While the Reading Rope’s interwoven rope metaphor is intuitively appealing and easily grasped,

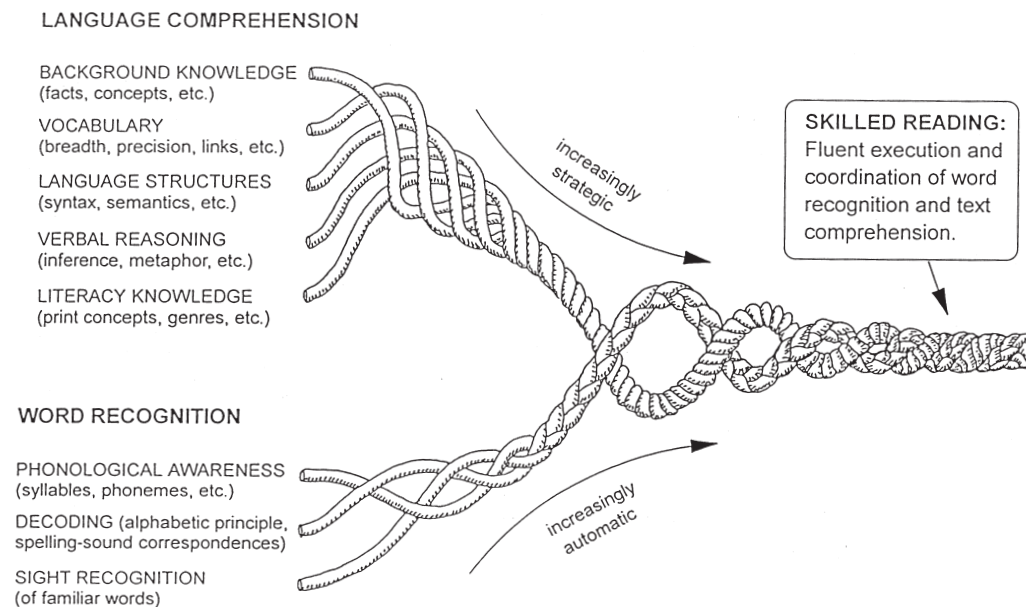


FIGURE 1.2. The Reading Rope (Scarborough, 2001). Copyright © 2001 The Guilford Press. Reprinted by permission.

it falls short in providing a comprehensive explanation of certain key aspects. Specifically, the model lacks detailed elaboration on the developmental process through which reading skills become strategic and automatic. Furthermore, it does not offer a clear explication of what it means for these skills to be “interwoven,” nor does it elucidate the mechanisms by which this interweaving occurs. This absence of detail leaves room for further exploration of how these critical aspects of reading development unfold and interact over time.

Reading Systems Framework

According to Perfetti and Stafura (2014), reading comprehension is too “broad a target” for precise models, and the Reading Systems Framework is a global theoretical framework rather than a theoretical model with a set of claims. At its core, the Reading Systems Framework proposes three main components: orthographic processes, linguistic processes, and general cognitive processes. Orthographic processes focus on visual word reading, including letter recognition and the mapping of letter patterns to words. Linguistic processes encompass phonology, morphology, syntax, and semantics, which work in concert to construct meaning from text. General cognitive processes, such as attention, working memory, and reasoning, support the overall reading process and help integrate information. An important aspect of the framework is the concept of word-to-text integration, which links word identification with comprehension by connecting newly read words to the ongoing representation of the text. The framework also incorporates the Lexical Quality hypothesis (Perfetti, 2007), which suggests that the quality of word representations, including orthographic, phonological, and semantic information, significantly affects reading skill. One of the key strengths of the Reading Systems Framework is its emphasis on the interconnectedness of all components.

Active View of Reading

The Active View of Reading (Cartwright, 2023; Duke & Cartwright, 2021) expands upon previous models like the Reading Rope by acknowledging additional factors that contribute to reading comprehension beyond word reading and language comprehension. This model places significant emphasis on executive function, encompassing both domain-general and reading-specific executive functions, as well as motivation, engagement, and strategy use. These components are viewed as crucial for orchestrating the reading process and maintaining sustained, active interaction with text (for a more detailed discussion, see Cartwright, 2023; Duke & Cartwright, 2021).

A distinctive feature of the Active View is its recognition of the partial overlap between word reading and language comprehension processes. These areas of intersection are called “bridging factors” and include several elements: print concepts, reading fluency, vocabulary, morphological awareness, and graphophonological–semantic cognitive flexibility. The latter refers to the ability to “switch between the letter–sound (graphophonological) and meaning (semantic) features of printed words” (Duke & Cartwright, 2021, p. 531). By incorporating these additional components and highlighting the interconnected nature of various reading processes, the Active View of Reading offers a more nuanced framework for understanding the complexities of reading comprehension.

National Reading Panel Report

The “Report of the National Reading Panel” identified five areas that support reading development: phonemic awareness, phonics, vocabulary, reading fluency, and reading comprehension strategies (National Institute of Child Health and Human Development, 2000). This report has been influential in the United States, particularly due to its adoption in the No Child Left Behind Act (2002–2015)—an unprecedented federal-level initiative that focused on and brought attention to reading and reading instruction. This report also played a significant role as a framework beyond the U.S. context, as it was used in many international projects in low- and middle-income countries supported by the U.S. Agency for International Development (see Kim et al., 2016, for a review). These five areas became known as the “big five” and were widely used as a framework in practice. However, the National Reading Panel report is not a theory designed to explain the reading process or comprehensively describe the component skills and knowledge that contribute to reading comprehension. Instead, the National Reading Panel report is a meta-analysis—a quantitative analysis of data from a comprehensive and systematic review of literature—using experimental data available up to the late 1990s. This does not deny the importance of the five skills identified in the National Reading Panel report, but it is important to recognize that these five areas were not intended and are not sufficient to fully explain reading comprehension.

Direct and Indirect Effects Model of Reading

The Direct and Indirect Effects Model of Reading (DIER; Kim, 2017a, 2020a, 2020d, 2023c) builds on some of the previously mentioned theories (e.g., Reading Rope, Reading Systems Framework) and subtheories (e.g., the triangle model [Harm & Seidenberg, 2004]; see Chapter 2) and expands them. DIER specifies skills and knowledge that contribute to the reading process and consequent reading skills in a comprehensive manner based on contemporary literature. The component skills and knowledge needed for reading comprehension according to DIER are presented metaphorically using a house figure, as shown in Figure 1.3.

Reading comprehension is positioned at the top, forming the roof. This placement illustrates that reading comprehension is built on all the other skills and knowledge below it. Text reading fluency is placed in the beam that supports reading comprehension and connects the two pillars to reading comprehension. The two pillars that support the beam and roof are word reading and listening comprehension, respectively. The foundation for the word reading pillar is code-related emergent literacy skills such as knowledge and awareness of phonology, orthography, and morphology. The foundation for the listening comprehension pillar includes background knowledge, higher-order cognitions such as inferencing skill, perspective taking, and reasoning, and self-regulations such as goal setting, self-monitoring and assessment, self-reinforcement, and employment of appropriate reading strategies. Note that higher-order cognitions and self-regulations are presented together in the house structure in Figure 1.3, but they are differentiated for precision in Figure 1.4. Listening comprehension and higher-order cognitions are supported by foundational oral language skills, vocabulary, and grammatical knowledge (which includes both morphosyntactic and syntactic knowledge). At the very foundation or at the very bottom of the house figure are domain-general

cognitive skills or executive functions such as working memory, inhibitory and attentional control, and cognitive flexibility. Within the house, background knowledge is placed near listening comprehension and text reading skills (text reading fluency and reading comprehension) and includes knowledge about the world and culture, content knowledge, and discourse knowledge (e.g., genre features, text structure). Also within the house are socio-emotional factors (e.g., attitude, motivation, interest, anxiety, self-efficacy) that are placed near word reading and text reading skills (text reading fluency and reading comprehension).

According to DIER, component skills are not independent, but instead they are systematically related (see Chapter 3 for details). The structural relations are stated in the bubble in Figure 1.3 and include hierarchical, interactive, and dynamic relations. The placement of the component skills and knowledge in the house structure in Figure 1.3 is intentional for structural relations, specifically for the hierarchical relations. Details about structural relations are presented in Chapter 3.

Figure 1.4 is another way of representing DIER, illustrating the reading process, together with the component skills and knowledge shown in Figure 1.3. The reading process includes decoding and word reading processes and associated orthographic, phonological, and semantic processes. It also encompasses comprehension processes

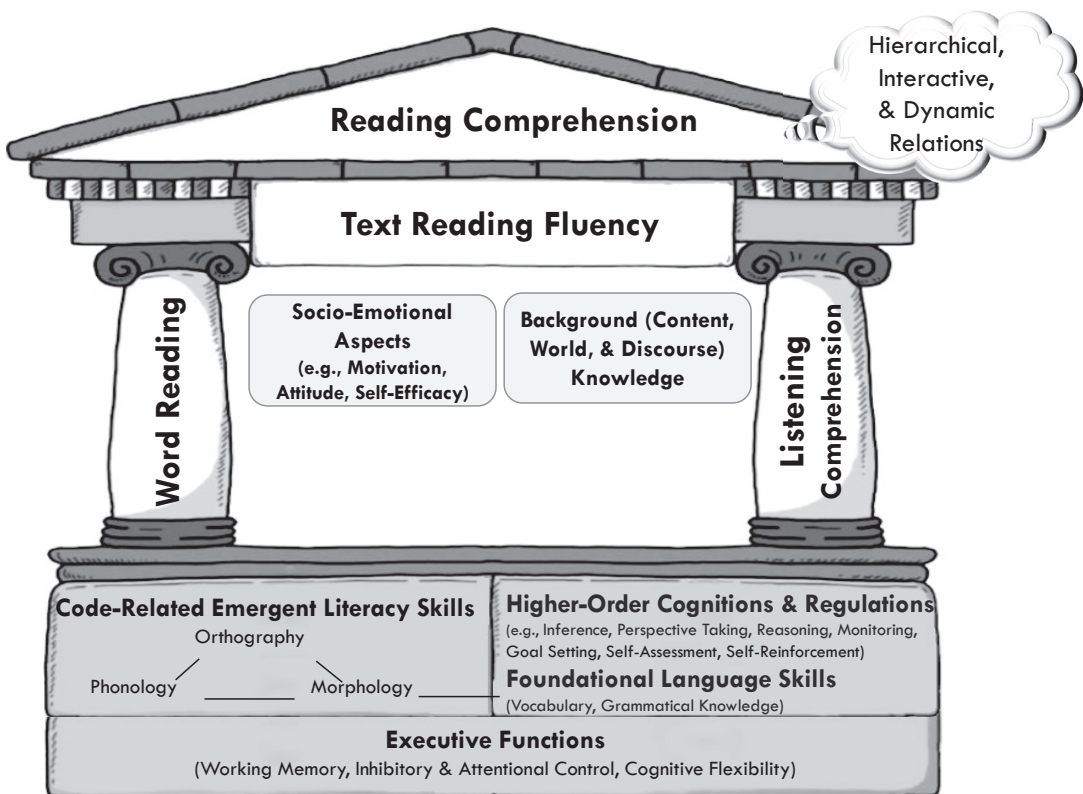


FIGURE 1.3. Direct and Indirect Effects Model of Reading (DIER). Adapted from Kim (2017b). Copyright © 2026 Young-Suk Grace Kim.

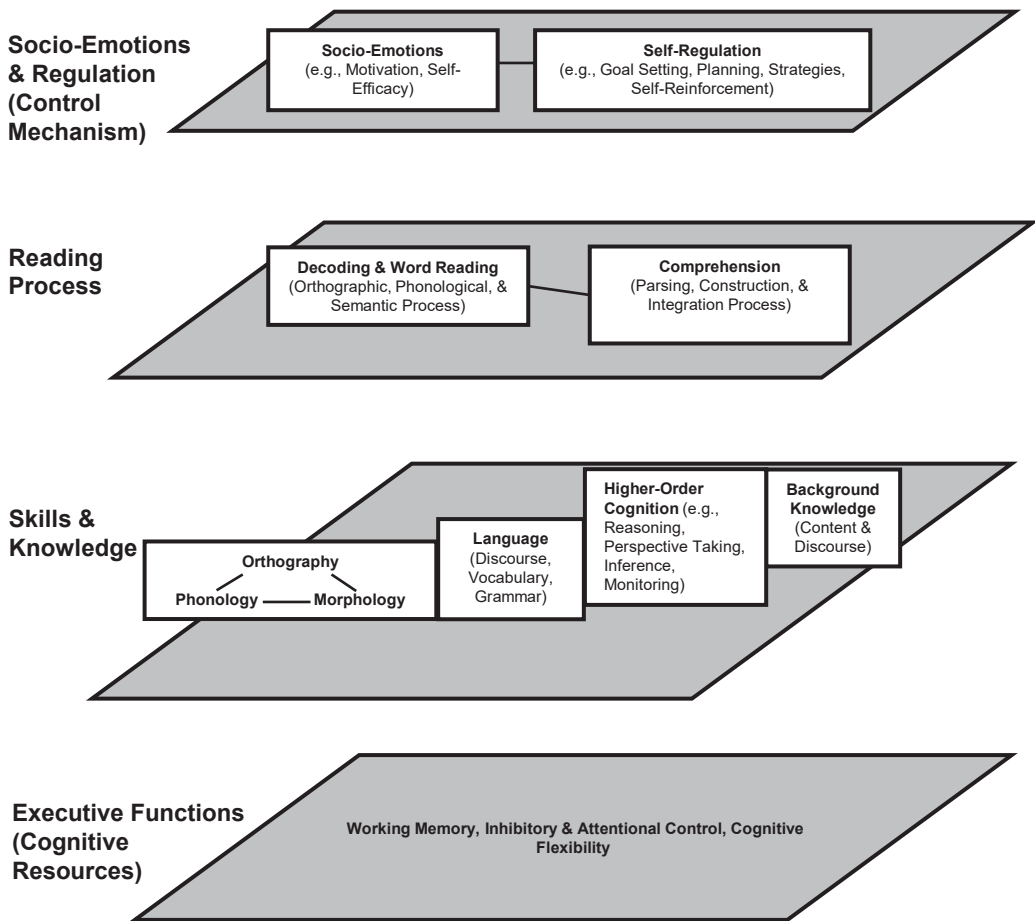


FIGURE 1.4. Reading process and component skills of reading according to DIER. Copyright © 2026 Young-Suk Grace Kim.

such as parsing information and constructing surface code, textbase, and situation model, as well as integration processes (e.g., inference).

The component skills and knowledge involved in the reading process are depicted in three planes: socio-emotion and self-regulation, skills and knowledge, and executive functions. Socio-emotions and self-regulation support the entire reading process and act as a control system by enabling one to engage in and sustain the reading process. Skills and knowledge are involved in both the decoding and word reading processes, as well as comprehension processes. Executive functions serve as cognitive resources that support the reading process and associated component skills and knowledge. In Chapter 2, I delve deeper into each of the component skills and knowledge that contribute to reading proficiency according to DIER.