

# DEMYSTIFYING ACADEMIC READING

A DISCIPLINARY LITERACY APPROACH TO  
READING ACROSS CONTENT AREAS

Zhihui Fang



# Demystifying Academic Reading

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Foundational and accessible, this book equips pre-service and practicing teachers with the knowledge, understanding, tools, and resources they need to help students in grades 4–12 develop reading proficiencies in four core academic subjects—literature, history, science, and mathematics. Applying a disciplinary literacy approach, Fang describes the verbal and visual resources, expert strategies, inquiry skills, and habits of mind that students must learn in order to read carefully, critically, purposefully, and with an informed skepticism across genres and content areas. He also shows how teachers can promote language learning and reading/literacy development at the same time that they engage students in content area learning.

With informative synthesis and research-based recommendations in every chapter, this text prepares teachers to help students develop discipline-specific, as well as discipline-relevant, discursive insights, literacy strategies, and ways of thinking, reasoning, and inquiring that are essential to productive learning across academic subjects. It also provides teacher educators with approaches and strategies for helping teacher candidates develop expertise in academic reading instruction. In so doing, the book demystifies academic reading, revealing what it takes for students to read increasingly complex academic texts with confidence and understanding and for teachers to develop expertise that promotes disciplinary literacy. This state-of-the-art text is ideal for courses on reading/literacy methods and academic literacy and eminently relevant to all educators who want their students to become thoughtful readers and powerful learners.

**Zhihui Fang** is Professor and Head of Literacy and Language Education in the School of Teaching and Learning at the University of Florida, USA. He is the author of several books, including *Demystifying Academic Writing: Genres, Moves, Skills, and Strategies* (2021).



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# Demystifying Academic Reading

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A Disciplinary Literacy  
Approach to Reading  
Across Content Areas

Zhihui Fang

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# Preface

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Academic reading, or reading done for the purpose of learning and socialization in academic content areas, is a topic of critical importance to K-12 schooling and beyond. Proficiency with academic reading ensures access to the sorts of knowledge, value, and thinking that are privileged in school, workplace, and society. Unlike everyday reading, academic reading is more discipline-specific, purposeful, and critical, requiring more sophisticated and specialized skills, strategies, and habits of mind, as well as effort, practice, and guidance. As students move from elementary school through middle school and into high school and beyond, they are expected to engage with increasingly complex texts in content area learning and disciplinary socialization. This engagement requires reading skills, strategies, dispositions, and proficiencies beyond those students have developed in the elementary grades.

*Demystifying Academic Reading: A Disciplinary Literacy Approach to Reading Across Content Areas* aims to equip teachers in grades 4–12 with the knowledge, understanding, tools, and resources they need to help their students tackle the new demands of academic reading in curriculum content areas. Specifically, the book discusses what literacy means in different academic disciplines and describes strategies content experts use when reading texts in their disciplines. It also identifies discursive features that make academic and disciplinary texts at once dense, abstract, complex, and difficult to process, illuminating for students the semiotic resources through which meanings are made in genre-specific, discipline-legitimated ways. It then makes pedagogical recommendations for teachers tasked with developing students' advanced literacy in content area learning. Finally, it provides teacher educators with ideas and strategies for helping teachers develop expertise for academic reading/literacy instruction. Throughout the book, the term “content area” (also called “subject area” or “subject matter”) is used synonymously with the term “discipline”, with the former commonly understood to be the latter recon-textualized for pedagogical purposes in the K-12 setting. As such, content areas

retain many of the same conceptual, structural, and stylistic features that characterize disciplines.

This book attempts to present a state-of-the-art review of the theory, research, and practice related to academic reading in four core curriculum content areas—literature, history, science, and mathematics. It demonstrates that contrary to popular beliefs, the task of learning to read is by no means complete by the end of third grade, suggesting that even decoding-proficient students still have much to learn about how to read academic and disciplinary texts carefully, critically, purposefully, and with a healthy skepticism in content area learning. Adopting a disciplinary literacy approach—an approach that foregrounds the goals, ethos, methodologies, epistemologies, and practices of academic disciplines and emphasizes building students' understanding of how knowledge within specific disciplines is created, communicated, consumed, and learned, the book describes patterns of semiotic choices that content experts employ to construct texts in their discipline and the heuristics they employ to make sense of and interpret these texts in their reading practice. In so doing, the book demystifies academic reading, showing students how meaning in disciplinary texts is verbally and visually designed and what strategies are effective for engendering text understanding; it also provides evidence-based guidelines and ploys for helping students develop inquiry skills, discursive insights, cognitive strategies, and habits of mind that facilitate meaning making and learning across content areas.

The book is divided into six chapters. Chapter 1 discusses the nature of the reading process, the stages of reading development, the relationship between language and knowledge, the role of reading in content area learning, and the need for a disciplinary literacy approach to academic reading. Key questions addressed in the chapter include the following: What is reading? What is involved in the reading process? What is a text? What does it take to comprehend or understand a text? How does reading develop over the lifespan? How is knowledge construed through language? What is the role of reading in content area learning? How is academic reading similar to and different from everyday reading? What are the challenges involved in academic reading? What is disciplinary literacy? Why is a disciplinary literacy approach needed for academic reading?

Chapter 2 discusses the role of literature in the English language arts (ELA) curriculum, the challenges of literary reading, what it means to be reading like a literary expert, and what teachers can do to promote literary reading. Key questions addressed in the chapter include the following: What is literature? What is the role of literature in the ELA curriculum? What does literary competence mean? What are the types and features of literary texts?

What are the challenges literary texts present to reading and interpretation? What strategies do literary experts use in their reading practice? What are the guiding principles for teaching literature? What can teachers do to promote literary reading and foster literary literacy in the ELA classroom?

Chapter 3 discusses the notion of historical literacy, the role of reading in promoting historical literacy, different types of historical texts, the challenges of historical reading, what it means to be reading like an historian, and what teachers can do to promote historical reading. Key questions addressed in the chapter include the following: What is history? What is historical literacy? What is the role of reading in developing historical literacy? What are the types and features of historical texts? What challenges do historical texts present to reading and understanding? What strategies do historians use in their reading practice? What can teachers do to promote historical reading and foster historical literacy in the history/social studies classroom?

Chapter 4 discusses the notion of science literacy, the role of reading in promoting science literacy, the challenges of science reading, what it means to be reading like a scientist, and what teachers can do to promote science reading. Key questions addressed in the chapter include the following: What is science? What is science literacy? What is the role of reading in developing science literacy? What are the types and features of science texts? What challenges do science texts present to reading comprehension? What strategies do scientists use in their reading practice? What can teachers do to promote science reading and foster science literacy in the science classroom?

Chapter 5 discusses the notion of mathematical literacy, the role of reading in developing mathematical literacy, the challenges of mathematics reading, what it means to be reading like a mathematician, and what teachers can do to promote mathematics reading. Key questions addressed in the chapter include the following: What is mathematics? What is mathematical literacy? What is the role of reading in developing mathematical literacy? What are the types and features of mathematics texts? What are the challenges mathematics texts present to reading, problem solving, and learning? What strategies do mathematicians use in their reading practice? What can teachers do to promote mathematics reading and foster mathematical literacy in the mathematics classroom?

Chapter 6 reiterates the need for continuing reading instruction in secondary school and discusses the roles of reading/literacy teachers versus content area teachers in academic reading instruction, the expertise teachers need to orchestrate effective reading instruction in content areas, and approaches and strategies teacher educators can adopt to increase teacher candidates'

expertise in academic reading instruction. Key questions addressed in the chapter include the following: Why is reading instruction still needed beyond elementary schooling? Whose responsibility is it to teach academic reading? What knowledge, skills, and dispositions do teachers need to effectively plan and teach academic reading in content areas? What can teacher preparation programs do to develop teacher candidates' capacities for academic reading instruction in their content area (or across content areas)?

This book can be considered a companion volume to *Demystifying Academic Writing: Genres, Moves, Skills, and Strategies* (Fang, 2021), also published by Routledge, and a sequel to *Reading in Secondary Content Areas: A Language-Based Pedagogy* (Fang & Schleppegrell, 2008), published over a decade ago by the University of Michigan Press. It shows how academic texts are discursively constructed in genre-specific, discipline-legitimated ways and how these texts are read by disciplinary experts in their social practice. It also describes and exemplifies ideas for helping students learn to read academic texts in ways that are consistent with how disciplinary experts interact with these texts. Taking a disciplinary literacy approach, the book offers discursive insights and expert strategies that enable students to cope with the unique challenges of academic reading across content areas. It also shows how teachers can promote language learning and reading/literacy development at the same time that they engage students in disciplinary inquiry and learning across academic content areas. Additionally, it describes ways teacher educators can help teachers develop both motivation for and expertise in academic reading/literacy instruction.

The book does not assume technical knowledge and is written in a style easily accessible to a wide audience. It should be of primary interest to teachers and teacher educators in K-12 contexts. It should also appeal to college reading instructors, as well as scholars and students of academic reading or disciplinary literacy across a range of disciplines. The book can be used in teacher education courses that prepare teacher candidates to teach reading in content area or literacy classes. It can also be used in any course on academic reading/literacy that teaches middle/high school or college students how to read academic texts in content area learning and disciplinary socialization.

I am very grateful to Karen Adler of Routledge, who approached me in 2022 with the invitation to write a book on academic reading. It is her prodding, encouragement, trust, and support that motivated me to complete this book in a timely manner.

# Reading and Learning in Academic Content Areas

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## What is Reading?

Reading is a ubiquitous activity in our society. It is important for individual development not only because it is the foundation for academic success and career advancement (Berman & Biancarosa, 2005; Shanahan et al., 2010) but also because it has a strong correlation with personal health and well-being (Bavishi, Slade, & Levy, 2016; Cunningham & Stanovich, 1998). Due to its importance and pervasiveness, reading has been one of the most well researched, albeit still highly controversial, subjects in school. Much is now known about the nature, processes, effects, emergence, development, and uses of reading. Reading is widely understood to be an active process in which the reader constructs meaning based on what s/he sees in print or on screen (Pearson, Palincsar, Biancarosa, & Berman, 2020; Sweet & Snow, 2003). At least three basic elements are involved in this process: the reader, the text, and the task. The reader initiates the interaction with the text for a particular purpose in a specific context. S/he brings to the act of reading his/her knowledge, experiences, beliefs, values, attitudes, worldviews, interests, intentions, identity, capabilities, abilities, and habits of mind, all of which impact his/her level of engagement with the text, the sense s/he ultimately makes of the text, and the uses to which s/he puts the meaning that has been constructed.

The text is, broadly speaking, any object that can be “read”. This object represents “any configuration of signs that provide a potential for meaning” (Smagorinsky, 2001, p. 137). It can be a newspaper article, a poem, a textbook, a movie, a television show, a person, a piece of art (e.g., sculpture, building, photograph, painting), a political cartoon, a song, a map, a traffic sign, an online advertisement, or a mathematical equation. Each of these objects has structure, coherence, function, development, and character at the same time (Halliday, 2002). They can be looked at, examined, made sense of, analyzed, interpreted, interrogated, and renovated because they

“have causal effects upon, and contribute to changes in, people (beliefs, attitudes, etc.), actions, social relations, and the material world” (Fairclough, 2003, p. 8).

A text is typically constructed using verbal and/or visual resources. Verbal resources refer to natural language with its lexis (vocabulary) and grammar. Visual resources consist of images such as tables, figures, photos, mathematical symbols (e.g., %,  $\Sigma$ ,  $\varphi$ ,  $\beta$ ), drawings, maps, sonograms, and videos. Verbal texts are governed by “the logic of time and of sequence in time”, and they represent the world through telling (Kress, 2003, p. 2). Reading verbal texts, thus, involves making sense of the world told/narrated. Visual texts, on the other hand, are governed by “the logic of space” and “the simultaneity of elements in spatial arrangements”, and they represent the world by showing (Kress, 2003, p. 2). Reading visual texts, thus, involves making sense of the world shown/displayed. Most texts today are multimodal, with some more heavily reliant on verbal resources and others more heavily dependent on visual resources to convey meaning. Reading these texts, therefore, entails the ability to make sense of the world told *and* shown.

A text can be print/paper-based or screen-based. With print/paper-based texts, reading is typically a linear and continuous process, with the reader expected to begin at a certain point in the text clearly marked by the author (e.g., title, paragraph, section, chapter) and then proceed to an end that is also clearly marked by the author. The reading path—from the beginning to the end of the text—is to a large extent determined by the author, whose choice of verbal and/or visual resources positions the reader to follow a route carefully laid out by the author. Screen-based texts can be traditional texts displayed on a digital device—such as a computer, an e-reader, a tablet, or a smart phone—instead of on paper. Reading these texts is similar to reading paper-based texts in that it is a largely sequential process. However, research has shown that when people read on screen, they usually do not understand what they have read as well as when they read the same text in print (see Delgado, Vargas, Ackerman, & Salmeron, 2018 for a research review). The advantage of paper-based reading is greater in time-constrained reading than in self-paced reading and with informational texts than with narrative texts. This advantage can be explained by two factors. First, we tend to read faster on screen. This habit hinders us from absorbing the ideas in the text, particularly when we are interacting with an academic or disciplinary text, where ideas are often densely packed and hierarchically structured. Second, we do a lot of scrolling when reading on screen. This scrolling back and forth makes us lose a sense of place in the text (e.g., a particular paragraph, page, section, or chapter), which is important to remembering and recall. Moreover,

scrolling up and down a page takes quite a bit more mental work than reading a still page because our eyes cannot focus on the words but have to keep chasing them as we scroll up and down the page.

More often, however, screen-based texts exist in an online environment populated with hyperlinks, digital references to other objects or files that the reader can follow by clicking. These texts, called hypertexts, transcend the linear quality of traditional texts. They provide access to a vast amount of information that may or may not be reliable or relevant, compelling the reader to play a more active role in deciding what to read next (i.e., which hyperlinks to click) and how much time to spend on each hyperlink. Although the author is the one who decides how many and which hyperlinks to embed in a text, the reader has to determine the relationships between linked texts and images as well as among various hyperlinks so that s/he can choose a reading path that best suits his/her purpose and satisfies his/her curiosity. In this sense, reading hypertexts, or online reading, is a non-linear, or discontinuous, process that does not follow a specific order and requires a new set of skills not commonly associated with the reading of conventional texts, or offline reading. These skills include, for example, filtering (becoming more selective in choosing what to read in the text), skimming (actually reading less of the text), pecking (reading passages in no particular sequence), imposing (imposing readers' frameworks on the texts they peruse), filming (deriving significant meaning more from graphics than from words), trespassing (loosening of textual boundaries, with readers becoming textual burglars), de-authorizing (lessening sense of authorship and authorly intention), and fragmenting (breaking texts into fragments so that they can be reassembled in ways that satisfy the reader's intention) (Sosnoski, 1999).

A text can also be classified according to its purpose, to wit, genre. Three major categories of school-based genres have been identified: person, factual, and analytical (Martin, 1989). Personal genres, which include recount and narrative, (re)create personal experiences. Factual genres, which include procedure, biography, and report, present factual information about a process, a person, or a thing. Analytical genres, which include explanation and exposition, present analysis and argument. Each of these genres consists of a series of schematic stages, or macrostructural elements, that are unique to the genre and is constructed with a distinct set of lexical and grammatical resources that are not only functional for making it the kind of text it is but also appropriate for a particular context. Successful engagement with these genres requires, among other things, mature control over the schematic, lexical, and grammatical resources that construct them.



Finally, the task includes purpose (why the reader reads), process (what mental activity the reader engages in while reading), and consequence (what the reader learns or experiences as a result of reading) (Sweet & Snow, 2003, p. 2). It also impacts reading in tangible ways. For example, reading for leisure or entertainment is a different sort of experience and engenders a different sort of outcome than reading for specific information to be recalled later or reading to analyze and evaluate an argument. When reading for leisure, the reader may scan and skim a text, sampling passages that sound interesting, that relate to personal experiences, or that evoke empathy, without the pressure to learn or memorize anything in particular. When reading for specific information, the reader will need to be more intentional in his/her search for particular passages or sections, with the goal of identifying, processing, and remembering detailed information in these text segments for later recall. When reading for critical analysis and evaluation, the reader needs to pay close attention to the author's verbal/visual choices, think critically about the ideology (e.g., values, beliefs) imbued in these choices, assess the quality of evidence and the strength of argument, make intertextual connections, identify who is (dis)advantaged by the text message, and determine what course of action to take in light of this message. The amount and intensity of mental work involved in each of these three readings is clearly different.

To summarize, reading is a complex process involving (a) understanding written text, (b) developing and interpreting meaning, and (c) using meaning as appropriate to type of text, purpose, and situation (Pearson, Palincsar, Biancarosa, & Berman, 2020, p. 26). This process is seen by some (e.g., Goodman, 1986; Smith, 2004) as natural, similar to reading faces or learning to speak, but by others (e.g., Fletcher & Lyons, 1998; Stanovich, 2000) as unnatural and, for many children, laborious and difficult. Regardless of how the process is viewed, there appears to be a general consensus among scholars from different camps that reading is simultaneously social, cognitive, semiotic, and critical (Fang, 2012a). It is social in the sense that it involves the transaction between the reader and the author via text for a specific purpose and in a specific context. It is cognitive in that it involves the use of mental processes, strategies, and procedures in comprehending and meaning making. It is semiotic in that it involves the decoding and processing of verbal and/or visual signs in a text. It is critical in that it involves constant evaluation of the messages in the text and formulation of responses to these messages. The ability to read is a tremendous feat that gives us access to knowledge, values, worldviews, habits of mind, capital, and power that are otherwise not readily accessible, making us become a more informed, thoughtful, and active participant in our academic, professional, and social

lives. Developing this ability is, as will be shown in this book, a multifaceted process that requires considerable investment in time, commitment, resources, and support.

## Models of Reading Process

Reading, or reading comprehension, has been defined as “the ability to extract and construct linguistically based meaning, both literal and inferred, from written text” (Tunmer & Hoover, 2019, p. 77). Exactly how comprehension happens during reading has been the subject of much debate. Many models of reading process have been proposed to explain how meaning is made during the act of reading or what it takes to comprehend a text. Two models are currently popular and being hotly contested—the simple view of reading and the complex (or multidimensional) view of reading. Although Hoover and Tunmer (2021) contended that the simple view of reading, as it was originally conceptualized by Gough and Tunmer (1986), is “a model of the cognitive capacities needed for reading and not the cognitive processes by which reading is accomplished” (p. 400), they also acknowledged that the two (cognitive capacities vs. cognitive processes) are inextricably intertwined in that a description of the relationships among various cognitive capacities (abilities or competencies) inevitably involves an explanation of the mechanisms, or processes, that underlie their interaction and the outcome of this interaction (i.e., comprehension).

### Simple View of Reading

The simple view of reading, or SVR, posits that reading is the product of two basic but independent components—decoding and listening comprehension (Gough & Tunmer, 1986; Tunmer & Hoover, 2019). Their relationship can be expressed in a formula as:

$$D \text{ (decoding)} \times LC \text{ (listening comprehension)} = RC \text{ (reading comprehension)}$$

Here, decoding means efficient word recognition, to wit, the ability to read words quickly, accurately, and silently. Listening comprehension refers to the ability to derive meaning from spoken words in sentences. It is sometimes, and perhaps misleadingly (because word recognition is also a linguistic/language process that contributes to comprehension), called “linguistic comprehension” or “language comprehension”, especially in the more recent descriptions of SVR. For example, Tunmer and Hoover (2019) presented

an updated version of SVR, called the Cognitive Foundations Framework, in which reading comprehension is conceptualized to be dependent on two necessary and equally important cognitive capacities—word recognition and language comprehension. Word recognition is defined as “the ability to derive accurately and quickly a representation from printed input that allows access to the appropriate word meaning contained in the internal mental lexicon” (p. 78). It is an alphabetic coding skill that encompasses concept about print, letter knowledge, and phonemic awareness. Thus, word recognition has two components. One is the ability to recognize the shape, size, look, and other orthographic features of a word without necessarily knowing its meaning. For example, we can recognize someone (e.g., facial features, hair style, body structure) without necessarily knowing who that person really is (e.g., his/her name, age, place of birth, profession, habits, preferences). Another dimension of word recognition is the ability to turn graphs/letters (after initial recognition) into sounds. Being able to sound out a word does not necessarily mean that the reader will understand what the word means, unless this word is already in his/her listening vocabulary (that is, oral language repertoire). For example, it is possible that a reader is able to sound out a word like “Huawei” or “Auschwitz” but does not know what it means or represents. Language comprehension, on the other hand, refers to “the ability to extract and construct literal and inferred meaning from linguistic discourse represented in speech” (p. 78). It includes linguistic (phonological, syntactic, semantic) knowledge, background knowledge, and inferencing skills. In this sense, language comprehension means understanding what a word (or text) means in context. When we have “comprehended” someone, we know who that person is (e.g., his/her name, profession, habits, dispositions, cravings, tendencies, and so on). Word recognition relates to language comprehension in that if one can identify, or recognize, a word quickly and effortlessly, s/he can then channel his/her cognitive resources to constructing meaning from words, sentences, and paragraphs—i.e., to comprehend.

These two essential components of reading comprehension are further unpacked by Scarborough (2001), who used a rope to visually illustrate the different strands or components that are woven into skilled reading. The Rope Model similarly sees skilled reading as the outcome of fluent execution and coordination of word recognition and language comprehension. Word recognition in this model includes phonological awareness (i.e., awareness at the word, syllable, and phoneme level), decoding (i.e., phonics—alphabetic principle and spelling-sound correspondence), and sight recognition of familiar words. Language comprehension consists of background knowledge (e.g., facts and concepts about a topic), vocabulary (breadth and depth of knowledge about a word), language structures (e.g., syntax and semantics),

verbal reasoning (i.e., the ability to make inferences and interpret metaphor), and literacy knowledge (e.g., print concepts, genre knowledge). As word recognition becomes increasingly automatic and language comprehension becomes increasingly strategic, the reader is said to become increasingly skilled or proficient in reading. Like the original SVR, the Rope Model of Reading also lumps together everything else besides word recognition that impacts reading comprehension into the basket called “language comprehension” (cf., Duke and Cartwright [2021, p. 533], which reconfigures the components of language comprehension but in a way that is not too drastically different from what the Rope Model does). From this perspective, then, if another component of reading comprehension (e.g., background knowledge) were to be emphasized, the SVR can conceivably be revised to be “background knowledge x language comprehension = reading comprehension”, with “language comprehension” again being the all-encompassing category that captures everything else—both linguistic (e.g., decoding, vocabulary, syntax) and non-linguistic (e.g., strategy use, motivation)—that impacts reading comprehension.

In essence, what the SVR presumes is that once the words in a written text are decoded, the reader would apply the same mechanism s/he uses in listening comprehension to written text comprehension. In other words, the SVR grafts the reading process into the listening process, such that reading is seen as involving the conversion of written language into spoken language, where meaning is presumed to be more readily accessible. According to the model, it is possible to have strong listening/language comprehension and still be a poor reader if there is difficulty with decoding. Similarly, it is possible to be strong in decoding and still be a poor reader if listening/language comprehension is weak.

The SVR demonstrates that to achieve reading comprehension, the reader must have strong word recognition and strong language comprehension. It suggests that improvement in word recognition and language comprehension will lead to improvement in reading comprehension. The implication of this suggestion for pedagogy is that reading instruction should focus on word recognition and language comprehension. In reading instruction, efforts to improve automaticity and fluency in word recognition typically focus on phonological awareness and phonics. This emphasis is highlighted in recent discussions of what is referred to as “the Science of Reading” (Snowling, Hulme, & Nation, 2022), a term loaded in tone as well as in meaning because scholars from different research traditions tend to define and approach “science” very differently (see, for example, Reinking, Hruby, & Risko, 2023 for a poignant commentary on this topic and

Goodwin & Jimenez, 2020 for a special issue of *Reading Research Quarterly* on the same topic). Unlike word recognition, which is believed to be “a teachable skill” because “it involves a narrow scope of knowledge (e.g., letters, sounds, words) and processes (decoding)” (Kamhi, 2007, p. 28), language comprehension “is not a skill and is not easily taught” because it is “a complex of higher-level mental processes” that are domain/content-specific and “include thinking, reasoning, imagining, and interpreting” (Kamhi, 2007, p. 28). In reading instruction, efforts to improve language comprehension typically focus on vocabulary (seen as a proxy for knowledge) and background knowledge. This emphasis is reflected in the recent push, by scholars like Hirsch (2005, 2006) and Willingham (2006), for knowledge-based, or content-rich, school curricula, the most famous of which is the Core Knowledge Curriculum Series (<https://www.coreknowledge.org/curriculum/>), provided by the Core Knowledge Foundation, a not-for-profit organization founded by E. D. Hirsch, a professor emeritus of education and humanities at the University of Virginia, USA.

## Complex view of reading

There is no doubt that the ability to recognize, decode, and aurally comprehend words in sentences is important to reading comprehension. The SVR is an adequate model for beginning reading, that is, the initial stage of learning to read. The texts that young children are expected to read typically deal with topics that are near and dear to them (i.e., topics with which they are familiar) and the language (e.g., vocabulary, sentences) that presents this topic is akin to the everyday language children use in their daily social interaction with peers and family members. Two examples of such texts can be found in Text 1.1 and Text 1.2. Text 1.1 is an excerpt from “Arthur’s TV Trouble”, which is part of Marc Brown’s Arthur Adventure book series, a favorite of children. Text 1.2 is a brief excerpt about the fights in a late-night band show from *Diper Overlode*, which is one of the “Diary of a Wimpy Kid” series by popular children’s book writer Jeff Kinney.

### Text 1.1

Ads for Treat Timer were everywhere. Now Arthur really wanted one.

Arthur counted his money. D.W. helped. “Even with all of my birthday money,” he said, “I only have ten dollars and three cents.”

“I know what you’re thinking,” said D.W. She ran to protect her cash register.

Arthur decided to ask Dad for an advance on his allowance.

“Gee, I’d love to help,” said Dad, “but my catering business is a little slow right now.”

Arthur knew Mom would understand. “Money doesn’t grow on trees,” said Mother, “and I think Pal likes treats from you, not a machine.” (Brown, 2004, pp. 174–177)

### Text 1.2

The crowd was starting to get annoyed, and they let the band know it by pelting them with chicken wings. But I was dealing with a BIGGER issue. People started lining up to use the porta-potty, and I couldn’t do anything to STOP them. Thankfully, the club ran out of chicken wings, and the audience started to head home. And that was a good thing, because Billy got Buffalo sauce in his eye and couldn’t read the lyrics off his phone anymore. (Kinney, 2022, pp. 108–109)

Thanks to familiarity with the topics of the two texts, children who are native speakers of English would normally be able to comprehend both texts if they can hear the words and sentences read aloud. In other words, the vocabulary and syntax of the two texts are within children’s oral language repertoire and, thus, their listening comprehension capability. This means that the main challenge for reading and understanding this sort of text is word recognition, and the SVR simply highlights the extreme importance of word recognition in this early stage of reading acquisition.

However, when children start to read texts in curriculum content areas, or academic disciplines recontextualized for the purpose of K-12 schooling, where topics become more unfamiliar and the language that presents these topics becomes more unlike the everyday language that they use in their mundane social life, the SVR becomes too simplistic and not robust enough to account for comprehension of more advanced academic and disciplinary texts. In a literary text such as Robert Frost’s (1915) “The Road Not Taken”, for example, students would typically have little trouble decoding and understanding individual words in this narrative poem; however, many of them are likely to struggle with comprehending or, rather, interpreting the overall meaning, or theme, of the poem, which is about the importance of choices in our journey through life. Many of us have experienced tremendous challenges when trying to comprehend academic or disciplinary texts that are read aloud to us, recognizing that these texts often need to be read silently, slowly, and closely in order to ensure comprehension and understanding. Two cases in point are Texts 1.3 and 1.4, presented below.

**Text 1.3**

After a lengthy description of how integration was a Communist/Socialist plot to destroy America and how the mixing of races would ruin our nation, Brady unknowingly foreshadowed the Emmett Till case thirteen months before it happened: . . . This warning from Brady put segregationists in Mississippi on the lookout for smart-talking Negro boys from Northern cities who would soon come to the South to harass white women and ultimately destroy segregation and the Southern way of life.

**Text 1.4**

Over the last 40 years, Europe and North America have been leaders in reducing particulate air pollution from industry, autos, energy, and other sources. The increasing absence of human-caused air pollution in the Northern Hemisphere, estimated to be a 50-percent drop in concentration from 1980 to 2020, has led to surface warming over the tropical Atlantic Ocean, which contributes to more frequent tropical cyclones. Without significant amounts of particulate pollution to reflect sunlight, the ocean absorbs more heat and warms faster. A warming Atlantic Ocean has been a key ingredient to a 33-percent increase in the number of tropical cyclones during this 40-year period, Murakami said. (<https://www.noaa.gov/education/resource-collections/weather-atmosphere/weather-systems-patterns>)

Text 1.3 is an excerpt from Chris Crowe's (2003, p. 31) *Getting Away with Murder*, an award-winning social studies trade book about the kidnapping and killing of a Black teenage boy (Emmett Till) and the subsequent trial and acquittal of his two White killers (Milam and Bryant). Text 1.4 is an excerpt from an online article about weather systems and patterns. Both texts deal with topics that are not commonsensical and, thus, likely less familiar to children. The language used to present these topics is more technical, abstract, dense, and hierarchically structured than the language that children are accustomed to using in their daily social interaction. Simply being able to recognize and decode words in these texts does not ensure their comprehension. Moreover, the sort of knowledge needed for understanding these passages goes beyond the commonsense knowledge to which young children are exposed daily. The texts are difficult to comprehend when listened to. That is, it is beyond the listening comprehension capability of typical adolescents or adults. This is why some reading scholars have argued to move beyond the SVR to embrace a more complex view of reading (CVR), where other factors impacting comprehension—such as domain knowledge, academic language proficiency, knowledge of disciplinary conventions, strategy use, motivation,

interest, identity, purpose, and context—become more relevant or prominent in reading comprehension and are given greater attention.

An example of this more complex view of reading can be found in the DRIVE model described by Cartwright and Duke (2019), where reading is compared to driving. Specifically, the DRIVE model tries to explain what happens during reading by likening the reader reading a text to the driver operating a motor vehicle, as shown in Figure 1.1. It identifies many cognitive and sociocultural contributing factors related to the three elements involved in reading—the reader, the text, and the context, drawing particular attention to the roles of the reader, the purpose for reading, and the characteristics of the text being read.

The CVR dovetails with the multidimensional view of reading espoused by other scholars. Kucer (2014), for example, argues that reading is not a monolithic or generalized skill that can be applied unproblematically across contexts (e.g., school vs. home vs. community) or content areas (e.g., science vs. literature vs. music); rather, it is simultaneously cognitive, linguistic, sociocultural, and developmental. Each of these dimensions emphasizes a particular aspect of reading. The linguistic dimension emphasizes text features (e.g., discourse genre, grammatical complexity, format of presentation) that impact the reading process. The cognitive dimension emphasizes the mental processes involved in comprehension and meaning making. The sociocultural dimension emphasizes what the reader brings to the reading task, such as funds of knowledge, prior experience, identity, stamina, interest, motivation, and purpose. The developmental dimension emphasizes the patterns and trajectories of, as well as the support needed for, reading development. Similarly, Lee (2014) identified four dimensions of reading that she believed should receive more attention in K-12 schools: (a) the role of culture in reading, (b) the social and emotional dimensions of such reading, (c) the complexities entailed in such reading, and (d) the infrastructure demands of promoting such reading. Taken together, these dimensions provide us with a deeper, more comprehensive understanding of reading. They can better inform not only our explanations of children's reading successes and failures but also our pedagogical responses to their reading achievements.

In essence, the CVR recognizes that reading is much more than just a cognitive activity; it is deeply embedded in the socioeconomic, cultural, historical, political, racial, and gendered identities of the reader (Paugh & MacPhee, 2023; Yaden & Rogers, 2022). While the CVR seeks to encapsulate “almost anything and everything” that impacts the process of reading, it can get a little too complicated such that its relevance or applicability to classroom



Reading	Driving
Purpose for reading	Destination
Texts	Roads
Text types	Road types
Text structure	Traffic patterns
Organizational signals	Road signs
Other text features	Other road features
Text content	Route
Number of texts	Number of lanes
Reader	Driver and vehicle
Concepts of print and graphics	Knowledge of how vehicle transportation works
Reading motivation & engagement	Ignition & gas
Knowledge for word recognition	Wheels
Word recognition strategies	Tires
Phonological awareness	The treads
Reading fluency	Axles
Vocabulary and morphological knowledge	Struts and shock absorbers
Syntactic knowledge	Chassis
Discourse knowledge	Seats
Text structure knowledge	Traffic pattern knowledge
Content knowledge	Route knowledge
Reader's emotional state	Driver's emotional state
Critical reading	Road reviews
Comprehension monitoring	Dashboard
Strategic reader	Strategic driver
Executive function skills and reading	Multitasking drive
Context for reading	Context for driving
Past & upcoming context	Rearview mirror and headlights
Reading conditions	Weather conditions
Setting for reading	Scenery for driving
Culture of reading	Rules of the road

**Figure 1.1** Reading–Driving Analogy (Cartwright & Duke, 2019)

instruction is diminished (or not readily apparent). In other words, if reading involves what is perceived to be “almost anything and everything”, as described in, for example, Cartwright and Duke’s (2019) CVR, then what should the focus of instruction be, since reading teachers are not likely to have the time or expertise to attend to “almost anything and everything” in the classroom? For this reason, some scholars like Kamhi (2007) have proposed to reject a complex view of reading in favor of a simple view of reading, arguing that the scope of reading should be limited to word recognition only because “it is a skill that can be taught to every typically developing child and to most students with language and learning disabilities” (p. 29). (For a different view on this issue, see, for example, Reinking and Reinking [2022], who contended that phonics in English is incredibly complex and, thus, cannot be fully understood, taught, learned, or applied, cautioning that “mastering phonics in English is a fluid and dynamic process of coordinated concessions to complexity, not checking off mastery of items in a random set of generalizations” [p. 18]). Comprehension, on the other hand, is seen as a much more fluid, variable construct that depends heavily on content knowledge and other variables. In the words of Frank Smith (2004), “comprehension and learning are fundamentally the same, relating the new to the already known” (p. 13). For this reason, Kamhi (2007) and others have suggested that the task of building content knowledge (and by implication, expanding vocabulary)—that is, improving comprehension—should be left to domain-specific content areas such as history/social studies, science, literature, and mathematics. This implies that the responsibility for teaching comprehension belongs to content area teachers (see Chapter 6 for further discussion of this issue).

## Factors Impacting Academic Reading

Academic reading, or reading done for the purposes of learning and socialization in academic content areas, is a meaning-making process that involves interaction between the skills and cognitive processes of the reader and the linguistic/discursive characteristics of a text (van den Broek, 2010). According to Kintsch (1998), reading comprehension involves three levels of representation: *the surface*, *the textbase*, and *the situation model*. When interacting with a text, the reader engages with the surface structure of the text, by processing words and sentences, to construct propositions (concepts or ideas) presented in the text. The propositions are then stitched together to form a textbase of meanings. The textbase formed by these propositions is integrated with the reader’s schemata (prior knowledge and experience)

to create the situation model, which is an in-depth mental representation consisting of actions and relations described in the text. This construction-integration theory of text comprehension suggests that the extent to which a reader understands a text is influenced by at least four factors (Fang, 2008).

The first is the reader's familiarity with text language and text genre. Fluency with text language at the word, phrase, and sentence levels enables efficient processing of text and contributes substantially to comprehension. Research (e.g., Lonigan, Burgess, & Schatschneider, 2018; Uccelli et al., 2015) has consistently demonstrated a significant, positive relationship between language skills and reading ability among both first and second language learners. For example, Uccelli et al. (2015) found that grades 4–6 children who are more skillful at unpacking morphologically complex words and dense sentences, resolving anaphoric reference, understanding discourse connectives, and recognizing academic register scored higher on reading comprehension measures than those with poorer academic language skills. Similarly, knowledge of text genres (e.g., narrative vs. informational) impacts comprehension in that readers who understand the schematic structure and linguistic features of a text tend to perform better on comprehension and recall tasks than those who do not (Denton et al., 2015). Sadoski, Goetz, and Rodriguez (2000) reported that concrete texts (i.e., texts using concrete/familiar language and non-technical content) result in “overwhelmingly better” gist recall and reading engagement than do abstract texts (i.e., texts using abstract/unfamiliar language and technical content) and that the effect of concreteness is greater for narrative and persuasive texts than for literary stories and expository texts. Osterholm (2006) found that students read mathematical texts with symbols and mathematical texts without symbols differently because symbols have “both a semantic meaning (like ordinary words) and an operational meaning” (p. 341) and students with greater facility in detaching the semantic component of the symbols can work much more quickly with the symbols. In short, familiarity with text characteristics facilitates mental representations of the propositional relations in the text, or the textbase, which can then be integrated with the reader's pre-existing schemata to create the situation model.

The second factor is the reader's prior, or background, knowledge about the topic of the text. This knowledge includes both mundane knowledge about our everyday social/cultural lifeworlds and domain-specific knowledge about specialized topics. Every text makes lexical and grammatical choices that are inherently ambiguous and takes for granted the reader's familiarity with a wide range of unspoken and unwritten facts about the natural and social worlds. It is prior knowledge (about the topic and the context)