
The Digital SAT[®] Suite and Classroom Practice: English Language Arts/ Literacy

2023 EDITION



Evidence-Based
Approaches to Helping
All Students Become
College and Career Ready

The Digital SAT[®] Suite and Classroom Practice: English Language Arts/Literacy

2023 Edition

Edited and with an introduction by Jim Patterson

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About College Board

College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, College Board was created to expand access to higher education. Today, the membership association is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success—including the SAT[®], the Advanced Placement[®] Program, and BigFuture[®]. The organization also serves the education community through research and advocacy on behalf of students, educators and schools.

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What's New in the 2023 Edition?

This 2023 update to *The SAT Suite and Classroom Practice: English Language Arts/Literacy*, originally published by College Board in 2020, introduces new sidebars that connect the discussion in the first five chapters to the digital SAT Suite, which is replacing the paper-based SAT Suite over the course of the 2023–24 academic year. In addition, chapter 1's discussion of text complexity has been expanded to include annotated samples of texts at progressively higher difficulties. Minor updates and corrections have also been made throughout the document.

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Introduction

By **Jim Patterson, PhD**

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College Board
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The Digital SAT® Suite and Classroom Practice: English Language Arts/Literacy aims to inform secondary English language arts teachers as well as teachers in other subject areas of evidence-based instructional practices supporting college and career readiness for all students. The six chapters in this guide—covering the topics of text complexity; close reading, textual evidence use and source analysis; vocabulary and knowledge; Standard English conventions; disciplinary literacy; and English learners—were authored by experts in their fields who drew on both their own expertise and experience as well as a wealth of high-quality research, citations to which can be found in each chapter’s references list. In addition, College Board literacy content experts have created sidebars for several of the chapters highlighting further evidence from College Board research as well as drawing connections between the material presented in the chapters and how the concepts discussed are commonly assessed on the digital SAT Suite of Assessments, which comprises the SAT college admission test and the PSAT/NMSQT®, PSAT™ 10, and PSAT™ 8/9 exams. (For more information about the digital SAT Suite, please visit College Board’s microsite for the suite, sat.org/digital.)

The structure of each chapter in this guide is similar. Each author or author team begins by discussing evidence from research and practice supporting the importance of their topic (e.g., text complexity) to college and career readiness for all students. Following that, the author or authors provide a rich analysis of how the concepts they have introduced can be implemented in the classroom. This latter discussion is generously

Companion Resource

The Digital SAT Suite and Classroom Practice: Math (satsuite.org/digital-classroom-practice-math) is also available as a free digital resource from College Board.

supported with interesting and accessible examples and sample activities drawn from a wide variety of professional sources. The College Board–authored sidebars previously mentioned round out several of the chapters’ discussions with connections to the digital SAT Suite.

The “College and Career Readiness” sidebars in chapters 2–5 make reference to the *College Board National Curriculum Survey Report 2019*. This report presents the results of the most recent of College Board’s series of surveys of secondary teachers’ instructional practices and postsecondary instructors’ views of prerequisites for success in first-year, entry-level, credit-bearing courses. In brief, every few years College Board asks secondary teachers and postsecondary instructors to identify what skills and knowledge the former are stressing in their classroom teaching and what skills and knowledge the latter expect incoming students already to possess to be ready to succeed in their classrooms. The basic mode of response in both cases is a four-point rating scale (with 4 being high importance/emphasis) associated with lists of skill/knowledge survey items in both ELA/literacy and math. Ratings from individual educators are averaged, and these mean importance/emphasis ratings yield evidence of what postsecondary instructors consider essential for incoming first-year students to already know and be able to do and of what secondary teachers are stressing in their lessons. Overall, evidence from this survey strongly supports College Board’s claims that the digital SAT Suite tests assess key postsecondary prerequisites in ELA/literacy and in math; that the key digital SAT Suite design elements discussed in this collection are highly valued by educators; and that the digital SAT Suite is well aligned with important secondary instructional emphases. The full report may be found at <https://satsuite.collegeboard.org/media/pdf/national-curriculum-survey-report.pdf>.

Overview of This Collection

Chapter 1, by David Liben, covers the topic of **text complexity**. As the author notes, text complexity has become a prominent topic in ELA/literacy instruction over the last ten to fifteen years as researchers and practitioners have come to recognize its distinct role in college and career readiness and in K–12 success and as state academic standards have embedded complexity considerations into their requirements. To put the matter directly, all students must be able, by no later than the end of high school, to read and comprehend complex texts independently if they’re to be ready for the reading demands of college and workforce training. The chapter addresses the importance of text complexity to college and career readiness, discusses various definitional issues, draws in important concepts closely related to text complexity (including *standard of coherence* and *volume* and *range of reading*), surveys how text complexity can be evaluated quantitatively and qualitatively, and offers some suggestions for how teachers can take text complexity into

account when designing or modifying their lessons. Appendix A provides a College Board–developed rubric for assessing the complexity of text qualitatively, while Appendix B applies that rubric to the analysis of a series of increasingly complex texts.

Chapter 2, by Meredith Liben, is something of a companion piece to the first chapter, as it deals with **close reading**, **textual evidence**, and **source analysis**. While chapter 1 focuses chiefly on text complexity as a concept, chapter 2 helps illustrate how all students can gain access to appropriately challenging text. The author begins by giving an extended overview of close reading, which she defines as “sustained, purposeful intellectual work that centers on carefully reading a brief rich, complex text (or excerpts from a longer work) in order to understand what the text says and how it says it.” Throughout her discussion, she shows how close reading, particularly when practiced in a social, interactive way in a welcoming classroom environment, can help both proficient and struggling readers engage with difficult text. As part of close reading and in other activities, such as speaking and presenting, students must make successful use of textual evidence—for instance, quotations, paraphrases, and quantitative data—to support their interpretations. One important way students can make use of and demonstrate both close reading skills and facility with textual evidence is in analyzing one or more text sources and drawing evidence from those sources to support argumentative claims or interpretive points. The chapter also includes implementation advice relating to close reading, textual evidence use, and source analysis. Among the author’s points here are that close reading takes time and that close reading tasks are best distributed across the curriculum rather than limited to ELA classrooms.

Chapter 3, again by David Liben, treats the subjects of **vocabulary** and **knowledge** in relation to reading comprehension. The author argues that “reading” is less a generic, transferrable skill than a context-dependent activity, the success of which is importantly helped or hindered by readers’ vocabulary and knowledge stores. He observes that students and teachers should attend to both *breadth* and *depth* of vocabulary—that is, to both acquiring new words and phrases (breadth, the typical focus of vocabulary instruction) and learning more about words and phrases already acquired, such as their senses, morphology, orthography, phonology, part(s) of speech, and etymology (depth). He also urges an instructional focus on tier two vocabulary—those general academic words and phrases found relatively often in a range of readings (especially in complex texts) across content areas but less frequently in everyday speech—and attention to both direct vocabulary instruction and indirect vocabulary learning through wide and frequent reading. Knowledge, too, is critical to effective comprehension, he contends—and is especially important for less skilled readers, as a deep well of knowledge on a

text's topic can help make up for gaps in reading ability. He notes that "while knowledge enhances reading comprehension, it's not always a prerequisite": that is, the act of reading itself helps build knowledge that, in a virtuous cycle, facilitates comprehension of subsequent texts that themselves add to those stores of knowledge. The chapter concludes with an array of implementation suggestions, including using sets of connected texts on a topic as a way to develop knowledge and finding opportunistic ways to "drop in" vocabulary definitions during lessons.

Chapter 4, by Amanda Godley, concerns the **conventions of Standardized English**—as she defines it, "the variety of English most valued in academic and professional settings." While Godley recognizes the importance of students acquiring command of these conventions for success in college, career, and life, she sees them as less a fixed set of rules and more as an evolving set of practices facilitating students' (and others') communicative acts. Godley makes numerous nuanced points about the teaching and learning of Standardized English: that careful use of select terminology helps students learn the conventions and understand the purposes behind them; that students and teachers should be aware of and appreciate the many varieties of English that exist alongside Standardized English; that learning about the conventions of Standardized English doesn't happen in a linear fashion; that the teaching of the conventions should use students' home languages and dialects as a foundation; that the conventions are best thought of as communicative and rhetorical tools; and that the conventions are best learned in authentic contexts. Throughout the chapter, the author weaves in ideas for making conventions instruction meaningful and engaging to students.

Chapter 5, by Cynthia and Tim Shanahan, focuses on **disciplinary literacy**, which, in the authors' words, "aims to apprentice students into the specialized literacy practices of each of the disciplines—practices usually only developed by those immersed in the creation of knowledge in the disciplines." The development of disciplinary literacy in students is crucial, they argue, because as students progress through school, their texts grow more specialized—more reflective of how experts in various fields create and convey knowledge, make claims and points, and use evidence to support those claims and points—and the tasks students are assigned require them to create and represent knowledge in increasingly discipline-specific ways. The authors devote a substantial portion of their chapter to "disciplinary literacy portraits": extended illustrations of how experts in history, science, and literature read, write, evaluate, and communicate knowledge in their respective fields. They conclude with a discussion of how teachers can foster disciplinary literacy, which requires making disciplinary texts available to students; asking students to actually read them; providing explicit instruction in discipline-based strategies, approaches, and methods of argumentation and evidence use; and building students' content knowledge alongside disciplinary

knowledge. Undergirding the chapter is the notion that the ELA teacher can't solely be responsible for this work; rather, it must be a schoolwide effort that calls on the expertise of teachers across a range of subjects. In the end, the acquisition of disciplinary and content knowledge is critical if students are to be ready for coursework in the various fields they'll encounter in college or workforce training.

Chapter 6, by Susan Pimentel, addresses the vital question of how teachers can help all English learners (ELs) attain college and career readiness. After reviewing some of the major and considerable challenges ELs face as they work to both gain fluency in English and grade-level-appropriate content knowledge, Pimentel lays out three principles facilitating this simultaneous accomplishment: first, ensuring that ELs receive the same academically rigorous, on-grade-level instruction that native speakers get in core classes; second, making targeted supports available to ELs as they work to acquire this core content; and third, drawing on ELs' assets, including their home languages and cultural resources, to aid in English learning, academic achievement more generally, and fluent bi- or multilingualism. Pimentel devotes the remainder of her chapter to discussing how to enact these principles in the classroom in ways that benefit all ELs as well as their native-English-speaking peers.

Unifying Themes

As the foregoing discussion suggests, these authors, though working separately, have crafted essays that coalesce around several key ideas. These include

- the attainability of college and career readiness by all students, including students from population groups that have historically struggled to reach that goal;
- the multifaceted, complex nature of reading and the need for teachers to consider during text selection and lesson planning such factors as reader characteristics, task variables, the inherent complexity of the text itself, the discipline in which the text is situated, and the language employed in the text to communicate its messages;
- careful study of the text (broadly defined) as a key basis of ELA/ literacy instruction and the importance of helping students acquire the means to access text, particularly complex text, for themselves (with appropriate scaffolding and support as needed);
- the value of a clear focus on words and phrases in instruction—as vocabulary to be learned for its own sake, as keys to unlocking the meaning of text, as representations and building blocks of knowledge, and as rhetorical tools to employ in one's own communication;

- the value of the languages and cultures that students bring from home to school and the importance of seeing these as assets rather than impediments to English acquisition, to academic achievement, and to full and fulfilling participation in society; and
- the schoolwide responsibility for literacy development—that is, the need for all of a school’s teachers to play their important, distinct roles in helping students gain the literacy skills and knowledge they need for success after high school.

Acknowledgements and Final Words

I have several people to acknowledge for their contributions to this work, most notably Meredith and David Liben for not only writing much of the material but also helping organize and lead the project, and members of my department’s Editorial team, including Nancy Burkholder for overall editorial direction, Georgina Keenan for her skilled and tireless copyediting, and Beth Oxler and Liz Belgarde for their design and layout work and for attending to other publication details. Garrett Ziegler, another department colleague, has also been invaluable as a reader and contributor.

As I review the outcome of this effort once again, I’m struck anew and all the more profoundly by the commitment to equity, access, and opportunity that the authors have singly and collectively brought to their contributions here, commitments embedded deeply in College Board’s mission as well. I believe these commitments are the motive force behind the authors’ willingness to expend some of their valuable time and energy on this project, and I hope that this pervading spirit infuses a renewed sense of the generative possibilities of teaching and learning in ELA/ literacy in all who take the time to engage with this work.

CHAPTER 1

Text Complexity

By David Liben

David Liben is a national literacy expert who led schools and taught for over three decades before turning to support publishers and teachers in the equity work that undergirds college and career readiness standards. He helped synthesize the research behind the Common Core State Standards (CCSS) as well as the text complexity measurement work published in appendix A of the CCSS.

Introduction

Every U.S. state and dominion now has college and career readiness standards requiring that students be given access to grade-appropriate complex text, an emphasis that began with the Common Core State Standards in 2010 (NGA Center for Best Practices and Council of Chief State School Officers 2010). Despite this requirement, the majority of instruction in our classrooms fails to provide all students with the opportunity, as part of the instructional mix, to work regularly and productively with text at appropriately challenging levels of complexity within successive grade bands (TNTP 2018). The regrettable outcome is that over the thirteen-year span of K–12 schooling, too few students climb the staircase of increasing text complexity that ends with them becoming skilled, independent readers of the kinds of texts typically required in first-year, entry-level college courses and in workforce training programs (Schak et al. 2017).

The primary reason for this failure is the well-intended but mistaken belief that if students work only or primarily with texts they can read with fairly minimal support (that is, within their “instructional” level or “zone of proximal development”), no matter how far below grade level this is, students will still progress toward grade level (Allington 2013). Intuitively, this notion of meeting students where they are and moving them up from there makes some sense, and it certainly feels kind to avoid texts

that might lead to (short-term) frustration or discouragement, yet this approach has no support in the research literature beyond the earliest grades and hasn't been borne out in practice (Shanahan 2011).

Compounding the problem of inadequate exposure to complex text is the fact that our K–12 system hasn't provided all students with the opportunity to engage regularly in the volume of reading necessary to grow the vocabulary and knowledge base needed to comprehend text at the college and career readiness level by no later than the end of twelfth grade (TNTP 2018; Landauer and Dumais 1997; Cervetti, Wright, and Hwang 2016). The majority of students who don't reach this level by the end of high school are from low-income families, making both access to complex text and expectations for amount of reading significant equity issues (Schak et al. 2017).

This chapter will explore text complexity in terms of both research and practice. We begin with an overview of the research on text complexity and the related concepts of *standard of coherence* and volume and range of reading. We then turn to how text complexity is measured quantitatively and qualitatively. Finally, we look at how to provide all students with access to both the volume and range of reading they need to engage in and the tools they need to comprehend complex text with steadily increasing facility.

Key Definitions

Before proceeding further, we should examine briefly what we mean by the terms *text complexity*, *complex text*, and *grade-level complex text*. Later sections of this chapter will explore the factors that contribute to complexity (or ease) of text and how complexity is assessed, so for now we'll focus on defining our terminology. We use the term *text complexity* to refer to the inherent difficulty (or ease) of text, distinct from reader and task considerations. Aspects of text contributing to text complexity (or ease) include both word- and sentence-level factors, such as word frequency and sentence length, and broader considerations, such as text structure, density of information and ideas, and demands on the reader's knowledge (i.e., the extent to which the text assumes readers have relevant prior knowledge). Text complexity conceived this way can be measured quantitatively and qualitatively, and, as we'll see, various tools take some or all the above elements (and others) into consideration.

By *complex text*, we mean text that's at a level of complexity typically assigned to students as part of course work in common entry-level, credit-bearing courses in college and workforce training programs. In this sense, *complex text* represents a destination. As defined by college and career readiness standards, students must be able to read complex text proficiently and independently by no later than the end of high school in order to be ready for the kinds of texts they'll encounter in postsecondary

education. In other words, by no later than high school graduation, students must be able to read and comprehend text at the college and career readiness level with little or no scaffolding and support.

Text that's *grade-level complex*, by partial contrast, is material that's appropriately challenging relative to students' level of schooling. *Grade-level complex text* is thus a relative concept: what's grade-level complex for, say, fourth and fifth graders isn't the same as what's grade-level complex for first- and second-year high school students. We can think of grade-level complex text as steps on the journey to the destination of complex text, as we defined the latter above. In this conception, in order for students to reach college and career readiness proficiency in reading—that is, have the ability to read complex text independently—by the end of high school (if not earlier), they need to be asked to read appropriately challenging texts—that is, grade-level complex texts—all along the path of K–12 education. Practically speaking, this means that as students move through the grades, the average level of text complexity should increase, with students in the upper division of high school routinely being expected to read text at the college and career readiness level. (Thus, in the upper grades of high school, *grade-level complex texts* and *complex texts* are the same.) To be sure, students in the various grades should be given a range of texts, some easier and some perhaps more challenging than the “average,” and they should receive appropriate scaffolding and support as they tackle the harder ones, but the general movement should be toward mastery of higher levels of complexity as students advance through school.

Text Complexity, Standard of Coherence, and Volume and Range of Reading

Now that we've established something of a framework for discussing text complexity conceptually, let's look briefly at some of the early research in the area. We'll also examine the closely related ideas of *standard of coherence* and volume and range of reading.

Reading between the Lines (ACT 2006) was an early, illuminating study validating the role of complex text in reading and college readiness. Each year, the ACT test is given to roughly two million students. Based on test data, ACT had previously determined a benchmark score for the reading portion of the test that correlated with likelihood of success in college.¹ In the 2006 study, ACT sought to determine whether there were certain kinds of reading comprehension questions that students scoring at or above the benchmark were able to answer that students scoring below the benchmark weren't. From its analysis of student data

¹ The benchmark score was associated with a 75 percent chance of earning a course grade of C or better and a 50 percent chance of earning a B or better in such credit-bearing college courses as psychology and U.S. history.

from seven test forms, ACT found no statistically significant differences between students scoring at or above the benchmark and those scoring below it in terms of performance on literal and inferential questions and on questions testing five separate reading concepts (main ideas/author's approach, supporting details, relationships, meaning of words, and generalizations and conclusions). Nor was there any significant difference in performance with respect to whether passages were literary or informational. The *only* statistically significant difference ACT found was in performance in relation to the complexity of the reading passages themselves. On the most complex passages,² students below the benchmark performed at chance level, answering 25 percent of the four-option multiple-choice questions correctly. In other words, the single identifiable predictor of readiness for college-level reading found by ACT was the ability to read complex text. These findings held for male and female students, students from varying income levels, and students from all racial/ethnic groups sampled. *Reading between the Lines* was a major influence on the drive toward including text complexity in the college and career readiness standards that subsequently emerged. Nelson et al. (2012) later established the validity of particular measures of complexity and confirmed the findings of the ACT study.

In another line of research, several studies have investigated whether K–12 text complexity declined over the course of the twentieth century, as prior research (e.g., Adams 2009) has sometimes suggested, and whether, if true, this left a widening gap between K–12 (particularly high school) reading requirements and those for incoming postsecondary students. Work by Gamson, Lu, and Eckert (2013) most directly challenged this premise. While the researchers found that text complexity hadn't declined over a fifty-year window, their study has several important limitations. First, their work addressed only grades three and six. Second, when Gamson, Lu, and Eckert evaluated the central texts of elementary reading textbooks, commonly known as basal readers, they looked only at a single text in each chapter, leaving out the variety of supplementary texts that could conceivably occupy the bulk of student time weekly since basals are designed for daily small-group work. There's no way of knowing how much time teachers spent on the myriad texts in these programs nor how many ignored the central text in favor of working exclusively with texts at students' reading levels. Finally, the researchers did acknowledge that complexity had declined relative to that for texts from a period earlier than the fifty-year window they examined, and they didn't dispute an earlier finding of a four-year gap in complexity between twelfth-grade texts and entry-level college and career training texts (Williamson 2008).

² For the study, ACT (2006) defined *complex text* as text that explores subtle, involved, and deeply embedded relationships; has a high degree of richness; has an elaborate, sometimes unconventional structure; has an often intricate style; includes demanding, highly context-dependent vocabulary; and has an implicit, somewhat ambiguous purpose.

Hiebert and Mesmer (2013) also looked at the question of whether K–12 text complexity had declined and what the implications for teaching and learning might be. Observing that it was in middle school and high school where text complexity had dropped over a fifty-year span, they argued that efforts to increase text complexity in school should wait till those grades rather than begin in second grade, as the Common Core State Standards had called for. It should be noted, however, that this approach would greatly shorten the window students have to achieve college and career readiness levels of independent proficiency with complex text and would place a heavy instructional burden on middle school and high school teachers, who generally have less training in and knowledge about reading instruction than do their elementary school counterparts.

Importantly, neither of these reviews seriously challenged the consensus that students' ability to navigate grade-level complex text is a major contributor to success in both the secondary grades and in postsecondary work, whether in college or workforce training. While there's some disagreement about instructional means and whether and to what extent K–12 text complexity has declined over time, there's general agreement that a gap exists between high school and postsecondary reading requirements, and both standards and research have attempted to help close that gap.

A pertinent body of work about how to support students' capacity to navigate complex text successfully concerns a concept known as *standard of coherence* (van den Broek et al. 2011). According to this work, proficient readers have a high standard of coherence in that they enter into the task of reading with an expectation that they'll be able to comprehend all the text has to offer; they're therefore willing to work to achieve understanding when their understanding breaks down. Research indicates that in order to support the development of this proclivity, students need to work regularly, with appropriate scaffolding and support, with texts at levels of complexity above what they can read on their own. (Chapter 2, on close reading, textual evidence, and source analysis, offers some practical suggestions for such instructional support.)

Another aspect of reading instruction that contributes to students' growing capacity to handle the demands of increasingly complex text is sufficient volume and range of reading material. Reading comprehension improves through practice, and the more varied and frequent those practice opportunities are, the greater the increase in capacity. This idea is explored in depth in chapter 3, which focuses on increasing students' troves of knowledge and vocabulary, but it's important to note here the complementary relationship between volume and range of reading and the ability to read complex text. It's from frequent, wide-ranging reading that vocabulary grows and knowledge is gained; these acquisitions, in turn, facilitate the development of reading ability. This

relationship is essential to growing students' capacity to read complex text independently and proficiently (Cervetti, Wright, and Hwang 2016; Cunningham and Stanovich 1998; Guthrie et al. 2009; Landauer and Dumais 1997; Nagy, Anderson, and Herman 1987).

Dimensions of Text Complexity

Earlier we introduced the concept of *text complexity* and offered a rough-and-ready definition of it as the inherent difficulty of a text irrespective of reader and task considerations. In this section, we delve more deeply into what factors contribute to text complexity (or ease) primarily by examining what elements various quantitative (algorithm-based) and qualitative (human judgmental) measures of text complexity attend to.

A text is made more or less complex by the features it contains and the demands it makes on readers. Some of these features and demands are straightforward and fairly intuitive. It makes sense, for example, that word frequency and sentence composition would have important bearing on text complexity. The more uncommon the words in a text and the longer the sentences, the more complex the text becomes. However, many other aspects of text also contribute to how complex (or simple) it is. How densely packed are the information and ideas in the text? How familiar is the structure of the text? How many allusions does the text make? How much knowledge does the author assume the reader already has about the subject? How transparent has that author made the purpose for writing? Is there, in fact, more than one purpose? Answers to these and other questions help determine how complex a given text is.

Below we explore the concept of text complexity in two parts: first, the quantitative dimensions of complexity (those a computer can readily analyze) and second, the qualitative dimensions of complexity (those best or only evaluated by human judgment).

QUANTITATIVE DIMENSIONS OF TEXT COMPLEXITY

Most quantitative measures of text complexity assess only two dimensions of text: word frequency, or how common the words in the text are, and sentence complexity, generally defined as sentence length. Importantly, these features happen to account for most of the variance in text complexity (Nelson et al. 2012). Put more simply, if you have to measure only two factors of text complexity, word frequency and sentence complexity are the ones to attend to, as they have a strong association with the difficulty (or ease) of text.

By far the most common commercial measure of complexity, the Lexile Framework for Reading (<https://lexile.com/>) (Mesmer 2008; White and Clement 2001; Stenner, Sanford-Moore, and Williamson 2012), examines only these two ingredients. The more uncommon the words and the longer the sentences in a text, the higher the Lexile score. Numerous

studies over the years have shown that the higher a text's Lexile score, the lower readers' average comprehension score associated with that text is (Nelson et al. 2012; Mesmer 2008; White and Clement 2001).

Measures that focus only on word frequency and sentence length have been around for decades and are commonly known as *readability measures*. Although Lexiles are used by the majority of publishers today to measure the complexity of their texts, other readability measures are available as well. Microsoft Word includes one of these measures, Flesch-Kincaid, among its spelling and grammar check options. All readability measures produce comparable complexity results, meaning that when these measures are applied to the same set of texts, there's no statistically significant difference in the grade levels they report the texts falling into (Nelson et al. 2012).

Readability measures can, however, mask or at least fail to reveal what actually makes a text more or less complex. Let's first consider informational text. The uncommon words and phrases in a particularly challenging informational text may reflect a generally high level of diction or may instead name specialized concepts, perhaps those associated with a domain of knowledge such as science. In the former case, the resultant complexity is largely a product of vocabulary level; in the latter case, the complexity is more closely associated with the knowledge demands the text places on readers than with vocabulary per se. What's more, while informational texts often have numerous uncommon words (e.g., *respiration, caucus, guild, membrane*), authors of such texts, aware of the complexity that the use of such vocabulary can introduce, take pains to support readers' understanding with glosses, repetition, and the like, thereby mitigating the challenge. Sentence length is also not perfectly correlated with complexity. Many students comprehend no better when a long sentence dense with information is broken up into shorter sentences carrying the same information (Hiebert 2002, 2012). Thus, density of information, rather than sentence length itself, may be the more significant contributor to a text's complexity.

To better understand the effects of informational density and sentence length on readability, consider the following sentence from the preceding paragraph:

What's more, while informational texts often have numerous uncommon words (e.g., respiration, caucus, guild, membrane), authors of such texts, aware of the complexity that the use of such vocabulary can introduce, take pains to support readers' understanding with glosses, repetition, and the like, thereby mitigating the challenge.

The sentence has a Flesch-Kincaid score of 24.5. A rewrite that broke up the content into multiple sentences but otherwise preserved the message might result in something like the following:

Informational texts often have numerous uncommon words. Examples of such uncommon words are respiration, caucus, guild, and membrane. Authors are aware of the complexity that the use of such vocabulary can introduce. Therefore, they take pains to support readers' understanding with glosses, repetition, and the like. These efforts mitigate the challenge of uncommon words in sentences.

This cluster of sentences yields a Flesch-Kincaid score of 10.4. In both cases, a reader has to work fairly hard to understand the ideas the author's communicating, yet the multiple-sentence rewrite results in a substantially lower readability score even though the content hasn't appreciably changed.

In addition, the impact on readability of visual elements common to many types of informational texts can't be assessed by electronic means. Illustrations as well as informational graphics (tables, graphs, and the like) can influence complexity, yet their effect on complexity is a matter of qualitative judgment.

The complexity of literary text, too, isn't always adequately captured by some kinds of quantitative analysis. Literary texts often contain a great deal of dialogue, and most dialogue contains a high proportion of common words. Yet dialogue can be difficult for many students to follow. For instance, dialogue can be heavy with idioms (e.g., *fill his shoes*, *flash in the pan*), which, by definition, convey ideas that don't directly correspond to the meaning of the individual words composing them. If unfamiliar to students (including, but not limited to, some English learners), these idioms add to rather than lessen the difficulty of comprehending the text, something a quantitative measure reliant on word- and sentence-level factors would fail to account for. To take another example, authors of certain literary texts (e.g., some political speeches) may use long sentences that contain a great deal of repetition for emphasis or other effect, changing only a word or two between sentences. This repetition makes the text less complex, but the number of long sentences would contribute to a high readability score.

Despite the limits discussed above, Lexiles and other readability measures generally give a good, easily obtainable and interpretable *initial* sense of a text's complexity. However, as we've seen, they don't tell the whole story. Given the considerations discussed above, it might at first appear that text complexity dimensions other than word frequency and sentence complexity—to return to our earlier examples, information density and use of repetition—are beyond the capacity of computer programs to account for and that our only recourse for greater nuance is a human reader. As it turns out, however, some computer applications can attend to features in addition to word frequency and sentence length (though the latter two factors remain important). Information density, for example, can be measured by the frequency with which noun and

verb phrases appear in text, as these two elements are particularly likely to contain informational content. Greater relative density of noun and verb phrases in text is associated with higher complexity regardless of sentence length and word frequency.

Most of the additional factors measurable by computer application fall under the heading of *cohesion features*. Cohesion features are elements that help tie a text together in order to make comprehension easier. The greater the number of cohesion features, the more cohesive and less complex a text will be and vice versa. The best way to get an idea of the various types of cohesion features is to examine text excerpts that contain examples of the most common sorts.

Referential cohesion concerns how an author's word choice informs the connection between and among clauses and sentences to produce greater cohesion and thus lower text complexity. For the most part, referential cohesion is simply the result of the overlap of words or word stems from one clause or sentence to another. The greater the incidence of this overlap, the less complex the text and vice versa. Consider this excerpt (emphasis added) from a 1944 speech by Judge Learned Hand addressing newly naturalized citizens:

What then is the **spirit of liberty**? I cannot define it; I can only tell you my own faith. The **spirit of liberty** is the **spirit** which is not too sure that it is right; the **spirit of liberty** is the **spirit** which seeks to understand the minds of other men and women; the **spirit of liberty** is the **spirit** which weighs their interest alongside its own without bias . . .

Hand's repetition of "spirit of liberty" and "spirit" throughout the excerpt makes it easier for the listener (or, in our case, reader) to absorb the meaning of each new example of the concept than would've been the case if he'd instead repeated the pronoun "it" throughout, used terms such as "this idea" or "this notion," or a combination of these approaches.

From the same text, consider the line "Some of us have chosen America as the land of our adoption; the rest have come from those who did the same." It takes some processing on the part of the listener (or reader) to understand that "the rest" are the children and grandchildren of those who chose America as the land of their adoption. If Hand had instead written something such as "Some of **us** have **chosen** America as the land of our adoption; the rest of **us** are the children and grandchildren of those who made this **choice**," the repeated use of the word "us" and the overlapping word forms "chosen" and "choice" would've made the content easier for the listener (or reader) to process. The overlap characteristic of referential cohesion can occur within sentences, between adjacent sentences, between sentences farther apart, or all of the above. The closer the overlapping portions are to each other, the greater the enhancement to cohesion.

Global cohesion concerns how an author’s word choice informs the connections among the events, ideas, concepts, and information in different parts of a text to produce greater cohesion and thus lower complexity. These connections are established by several different types of words and phrases. Some are relatively straightforward. These include time connectives such as *after*, *earlier*, *before*, *during*, *while*, and *later*; sequential connectives such as *first*, *second*, *next*, and *from here on*; causal connectives such as *because*, *consequently*, and *thus*; and additive connectives such as *additionally*, *furthermore*, *moreover*, *what’s more*, and *both*. Adversative connectives, which include *but*, *yet*, *however*, *although*, and *nevertheless*, are a little trickier for student readers. Adversatives connect two notions that on some level conflict with each other—for example, “My favorite sport is baseball; **however**, I watch more football” and “Whales aren’t fish, **yet** they spend their lives in the water.” All these connectives help to tie the events, ideas, concepts, and information in a text together for the reader. The greater the number of these connectives, the more cohesive and less complex the text. A smaller number of such connectives results in a more complex text, one in which the reader has to infer more of the implicit connections.

Some other aspects of cohesion are *degree of narrativity*, *word concreteness*, and *sentence similarity*. Narrativity is simply how story-like the text is: the more story-like (narrative) it is, the more cohesive and therefore less complex it is. Concrete words (e.g., *mask*, *spoon*, *ammunition*) are easier to integrate into the meaning of a text than are more abstract words (e.g., *democracy*, *appear*, *vary*, *joy*); therefore, greater degrees of concreteness and abstraction are associated with greater ease and difficulty, respectively. The presence of sentences with similar structures, regardless of the length of those sentences, also increases cohesion.

A small number of online tools account for the cohesion features discussed above. The publicly available Coh-Metrix Web Tool (<http://tool.cohmetrix.com/>) yields scores on over one hundred different dimensions, including both readability indices and less traditional factors. The Coh-Metrix Text Easability Assessor (<http://tea.cohmetrix.com/>), also publicly available, channels aspects of the full results into easier-to-interpret percentile scores on a smaller range of dimensions (narrativity, syntactic simplicity, word concreteness, referential cohesion, and deep cohesion) and also provides a grade-level readability estimate. TextEvaluator (<https://textevaluator.ets.org/TextEvaluator/>), a tool operated by ETS, provides both free and client-based text complexity evaluation services. TextEvaluator analyzes text on eight dimensions (academic vocabulary, word unfamiliarity, concreteness, syntactic complexity, lexical cohesion, level of argumentation, degree of narrativity, and interactive/conversational style) and also yields an indication of the text’s grade level. While these tools’ results provide deeper insight into the difficulty

Digital SAT Suite Connections

In line with the evidence presented in this chapter, text complexity is a key consideration on the digital SAT Suite Reading and Writing section. Students are presented with passages of varying complexities aligned to college and career readiness levels of textual challenge and asked to read, comprehend, analyze, and reason about these passages when answering questions.

Passages on the Reading and Writing section include texts in the grades 6–8, grades 9–11, and grades 12–14 bands. Complexity for the passages is determined through a combination of quantitative and qualitative measures. (The qualitative rubric used to rate passages is found in this chapter’s appendices along with an illustrative qualitative analysis of three real-world texts of varying complexities.) Passages of all complexity bands appear on all tests of the digital SAT Suite with the exception that grades 12–14 passages are excluded from PSAT 8/9, as these texts are, generally speaking, inappropriately challenging for students in eighth and ninth grade.

(or ease) of text, they do so at the cost of some additional interpretive complexity.

In any event, no quantitative measure alone will give a complete picture of how complex a text is. For that, human judgment is required. Quantitative assessments about text complexity, therefore, should always be used in conjunction with qualitative measures (as well as consideration of the reader and the purpose for reading), even if you're using one of the more sophisticated measures described above.

QUALITATIVE DIMENSIONS OF TEXT COMPLEXITY

A qualitative evaluation of text complexity involves bringing human judgment to bear on the task of ascertaining how easy or challenging a text is to read. The typical process of qualitative evaluation involves a reader using a rubric, ideally accompanied by level-setting exemplar texts, to rate a text's complexity on a number of different dimensions.

A text complexity rubric developed by staff at College Board is included in appendix A of this chapter; appendix B contains an annotated series of texts on the same topic at successively higher levels of complexity. A number of other organizations have also developed rubrics as guides to help users determine text complexity by qualitative means. Of these, the most robust tools are available from Achieve the Core (<https://achievethecore.org/page/2725/text-complexity>), Learning for Justice (<https://www.learningforjustice.org/magazine/publications/reading-diversity>), and Achieve (<https://www.achieve.org/files/EQuIP-ELArubric-06-24-13-FINAL.pdf>).

To be most productive, qualitative evaluation should be used in conjunction, whenever possible, with one or more quantitative measures and should focus on those aspects of text not easily or directly assessed by computer. While, for instance, a person could count the number of words in each sentence of a text and determine how common each of the words in it is by using a frequency dictionary, this sort of drudgery should be left to a computer application; the human should instead attend to aspects of text less amenable to machine measurement. Though the specifics of qualitative rubrics vary, in nearly all cases they focus on *knowledge demands*; *language demands* pertaining to vocabulary and syntax; *content* and *theme*; and *structure*.

The *knowledge demands* of a text are the presumptions a text makes about the reader's prior understanding of a topic or situation. A text can make relatively few knowledge demands, supplying significant amounts of background information, or it can make many knowledge demands on the assumption that the reader is already well versed in the subject. Knowledge demands include assumptions about the reader's life experiences, such as those pertaining to family, travel, or work. (The impact of such demands on text complexity can be difficult to evaluate, as what's common knowledge for some readers won't be for others from

different backgrounds, yet these sorts of demands appear in all kinds of texts and shouldn't be ignored.) Knowledge demands can also include assumptions about the reader's prior knowledge in subject domains, such as natural science, social science, the arts, the humanities, and technology. Though it doesn't get the attention it deserves, knowledge of people—of personality types, socioeconomic classes, common motivations, and so on—can also be required for or at least helpful to an understanding of certain texts (e.g., many works of fiction). These categories of knowledge demands can easily overlap. For example, students who travel a good deal are likely to have experience with a wide variety of people. Quantitative measures may pick up on some knowledge demands through a text's use of less common vocabulary, but they can't account for the full extent of these demands.

It's important to understand that knowledge in any of these categories can be gained through wide reading; even life experiences distinct from one's own can be better understood through reading. It's equally important for educators to analyze texts for knowledge demands so that they can anticipate where in the text they may have to stop to check student understanding and perhaps provide some timely information that will clarify what otherwise might block comprehension.

As we've seen, *language demands* can be partially determined by quantitative means, since syntax and vocabulary load are the two variables all the measures we previously reviewed assess, but language demands should also be evaluated using qualitative rubrics and human judgment. The qualitative assessment of language demands addresses some of the weaknesses of readability measurement approaches discussed earlier, such as artificially low readability ratings for some literary narratives (e.g., those making extensive use of common vocabulary but nonetheless containing challenging content) and artificially high readability ratings for some informational texts (e.g., those making extensive use of uncommon vocabulary but providing significant scaffolding for those words and phrases).

Poetry exemplifies the value of qualitative assessment of text complexity over reliance on a machine-produced rating. Consider "The Red Wheelbarrow" (1923), William Carlos Williams's familiar poem:

so much depends
upon

a red wheel
barrow

glazed with rain
water

beside the white
chickens

The words are simple, the structure unusual, the punctuation and print conventions nonexistent. Flesch-Kincaid gives it a 6.8 grade level (when formatted as a conventional sentence), which isn't a fair reflection of its richness and subtlety. Only a human reader can wrestle with the challenge of assigning complexity to a poem.

Determining the challenges presented by *content* and *theme* is another area where qualitative analysis shines. Quantitative methods can't evaluate text for maturity of theme or sophistication of author's purpose, nor can they recognize when themes and purposes are multiple or subtle. This is important because many challenging works by canonical authors commonly read in high school classes (e.g., Morrison, Hemingway, Wright) use simple sentences, common vocabulary, and extensive dialogue. These factors can result in readability scores in the lower elementary range. Yet the themes and content in these works present demands that are perhaps inappropriate for or insurmountable by elementary-age students.

Text structure is another area in which qualitative analysis of complexity provides a critical complement to quantitative approaches. Structure does have a known relationship to complexity: the more the text conforms to the conventions of narrative, the less challenge it presents. This is because students are used to narrative structure from hearing stories and seeing movies before entering school, because narrative elements (e.g., setting, protagonist, problem, outcome/solution) have real-life analogs, and because narratives generally require less prior knowledge (and what knowledge they do call on is generally widely available from life experience) (McNamara, Graesser, and Louwerse 2012). Informational text structures, which include comparison-contrast, problem-solution, goal-action-outcome, chronology, and description, are comparatively more challenging because students don't frequently listen to or read texts with these structures, because these texts don't mimic structures found in life experience, because (unlike the largely unitary narrative structure) there are multiple informational structures to learn, and because informational texts can employ more than one structure. Textbooks essentially use every structure, often within a single chapter—which is likely one of the reasons so many students struggle with them. In most respects, quantitative methods can't account for text structure, though, as noted earlier, both Coh-Metrix and TextEvaluator assess the extent to which a text is story-like (and thus easier to comprehend).

As the above discussion suggests, the most valid analysis of text complexity involves a combination of quantitative and qualitative approaches. Quantitative measures can more efficiently account for most word- and sentence-level factors than can humans, and the more sophisticated tools can go well beyond that to factor in elements such as cohesion devices and some aspects of text structure. There remains,

“The most valid analysis of text complexity involves a combination of quantitative and qualitative approaches. There remains a vital place for the skilled, knowledgeable human evaluator in assessments of text complexity.”

however, a vital place for the skilled, knowledgeable human evaluator in assessments of text complexity. No machine has yet to replace the insight that a thoughtful human reader can bring to bear on many of the more substantive aspects contributing to the complexity (or ease) of text.

Besides the fact that there are specific dimensions of text complexity unknowable to even the most advanced algorithm, the synergistic nature of text argues strongly for human involvement. The ease or challenge of any one aspect of text is influenced by that of others. Complex syntax with simple vocabulary is less difficult to process than the same syntax with commensurately challenging vocabulary. High information density presents fewer demands if readers have extensive background knowledge on the topic. Richard Dawkins (1996) once compared the genome to a game of cat's cradle: tugging on any one string affects every other. Text complexity, with all its ingredients and features, is just as tightly interwoven.

Still, too much can be made of the abstruseness of text complexity. The large number of features that one could consider in judging a text's difficulty can be misleading in one crucial sense: the features aren't equal in their contribution to complexity. As previously noted, word- and sentence-level factors account for much of what makes a text easier or harder to read. Moreover, a great deal of work over nearly a century has established the key role of knowledge in determining complexity. (Vocabulary and knowledge are the particular subject of chapter 3.)

Implementation Advice and Sample Activities

Before teachers can help their students understand what makes text complex, they must understand text complexity themselves. The best way to do that is to practice analyzing text qualitatively for complexity. At the time of this writing, the most comprehensive set of tools and training materials can be found at Achieve the Core (<https://achievethecore.org/page/2725/text-complexity>). After getting a feel for using such tools, teachers then can work with their students to analyze sections of texts for complexity by breaking down the text's features and come to shared conclusions about the complexity of parts of the text in relation to the whole. Teachers and students can even make decisions together about where to concentrate classroom time and attention in close reading. For example, characters in novels sometimes digress philosophically; these stretches are generally more complex than surrounding text. Similarly, the opening chapters of informational texts often introduce the topic or purpose as well as provide a picture of what's to come. The information density, knowledge demands, and vocabulary load of such sections can present greater challenge than that of the work as a whole and often merit disproportionate amounts of class time.

In addition to giving students a “meta-awareness” of features contributing to complexity (or ease), this purposeful exploration of text helps students see the whole as greater than the sum of its parts, a reflection of the previously discussed synergistic nature of texts. For example, uncommon vocabulary becomes less challenging if syntax is simple, text structure is narrative, and knowledge demands are minimal. In other words, as noted, every feature of a text tugs on every other feature; an understanding of the resulting whole likely gives students a better sense of how to recognize complexity in texts and the features that contribute to difficulty and ease. Such recognition will help comprehension. Students will be aware of these elements as always present in some form in any text they’ll encounter, and as they internalize that reality they’ll start to evaluate these features for themselves. This will cultivate much more sophisticated reading and self-monitoring of comprehension and heighten their expectation that text can be made to make sense (i.e., raise their standard of coherence).

Examination of text complexity also plays out at the sentence level, with equally valuable results. Analyzing challenging syntax supports students’ ability to process the varied and sophisticated sentence structures they’ll encounter in complex text. Students can undertake a range of activities that will prepare them to work with complex syntax encountered in sophisticated texts. These activities include parsing longer sentences (i.e., breaking them down into their simplest elements in order to lay bare the underlying structure and logic) and combining short sentences into longer ones while preserving the content of each original sentence.³ (For a fuller treatment of syntax, see chapter 4, on the conventions of standardized English.)

Analyzing texts to determine complexity, working with challenging sentences, and reading challenging text regularly all contribute to students’ ability to comprehend grade-level material proficiently. These activities have to be accompanied by students engaging in lots of diverse reading on their own in order for them to experience a volume and range of reading sufficient to promote the development of a robust vocabulary and to gain access to the knowledge that will allow them to connect with complex information and ideas. This work should culminate, by no later than high school, in students’ attainment of the ability to read independently and proficiently at the college and career readiness level. Many students, however, are below or far below grade level and will need support to accomplish this goal. An optimal mode of support is in the form of text sets, groups of readings organized around

³ A good resource for sentence combining is Richard Nordquist, “An Introduction to Sentence Combining,” ThoughtCo., updated October 22, 2018, <https://www.thoughtco.com/an-introduction-to-sentence-combining-1692421>. Quill.org (<https://www.quill.org/tools/connect>) also offers a number of sentence-combining activities accompanied by electronic feedback.

a topic appropriate to a subject of study. Such cohesive sets have the advantage of helping students efficiently develop vocabulary and build knowledge on a given subject. Chapter 2 discusses the ways that close reading, with support, facilitates the reading of grade-level complex text by all students. Chapter 3, on vocabulary and knowledge development, provides additional information on supporting students' learning through text sets and adequate volume of reading.

Conclusion

This chapter has established the importance of students being able to comprehend complex text to be ready to succeed in college and workforce training. We know that far too many students need to improve their reading capacity before they're able to take common entry-level, credit-bearing postsecondary courses with a high chance of success (Cromley and Azevedo 2007; Oakes and Guiton 1995; Slavin 1990; Stanovich 1986). We know, too, the features that determine text complexity and techniques that can support all students in working with the complex text typically encountered in the last years of high school and in common first-year, entry-level postsecondary courses. And we know that reading widely and voluminously leads to higher levels of comprehension. Why, then, aren't more students sufficiently skilled in reading to be prepared for the challenges they'll face in K–12 and after high school?

Students who fall behind in the early grades stay behind or even fall farther behind as they move through the grades (Stanovich 1986). As these students proceed from one grade to another, they're unable to read text at grade-level complexity or, in many cases, even close to grade-level complexity. Confronted with this situation, we have too often restricted these students to reading texts at their "level" despite the lack of research attesting to the efficacy of this approach beyond the very earliest grades (Shanahan 2011). When these students reach high school, they're invariably put in lower-track classes where, once again, they read texts of lower complexity levels and read less than their higher-tracked peers. National Assessment of Educational Progress data (Schak et al. 2017) consistently show that the majority of these students are from lower-income families, are children of color, are English learners, or are some combination of the three. Access to complex text and the advantages that access bestows are therefore equity issues as well as academic ones. Understanding text complexity, the importance of facility with complex text to future success, and how to support all students attaining such facility are essential to changing this trajectory for students we need to help the most. ❖

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Appendix A: Qualitative Text Complexity Rubric

Dimension	Complexity Band			
	Grades 4–5 (Provided as a baseline; not represented on the SAT Suite)	Grades 6–8 (SAT, PSAT/NMSQT, PSAT 10, PSAT 8/9)	Grades 9–11 (SAT, PSAT/NMSQT, PSAT 10, PSAT 8/9)	Grades 12–14 (SAT, PSAT/NMSQT, PSAT 10)
	Basic	Somewhat challenging	Moderately challenging to complex	Complex to highly complex
Purpose <i>Chiefly informational texts</i>	Single Clear and direct	Single Generally clear and direct	Single or multiple Somewhat subtle or complex	Multiple Subtle or complex
Level(s) of Meaning <i>Chiefly literary texts</i>	One or multiple; if multiple, text can be understood/enjoyed on a literal level	One or multiple; if multiple, text can be understood/enjoyed on a literal level	Multiple and beneficial to a full understanding of the text	Multiple and important to a full understanding of the text
Central Idea(s) and Theme(s)	Explicit Straightforward	Explicit or implicit; if implicit, easy to infer Relatively straightforward	Explicit or implicit; if implicit, somewhat challenging to infer Relatively subtle or complex	Explicit or implicit; if implicit, challenging to infer Subtle or complex
Information, Ideas, and Relationships	Straightforward; connections are explicit and clear	Relatively straightforward; connections may be implicit but easy to infer	Relatively challenging; connections are often implicit	Challenging; connections may be subtle or complex
Familiarity of Experiences, Information, and Ideas	Common or easily relatable	Sometimes unfamiliar	Often unfamiliar	Frequently unfamiliar
Abstraction	Concrete	Generally concrete	Often abstract or theoretical	Frequently abstract or theoretical
Density and Pace	Low to moderately low Slow to fairly slow	Moderately low Fairly slow	Moderately high to high Fairly rapid to rapid	High to very high Rapid to very rapid
Text Structure	Basic; easy to predict	Straightforward; generally easy to predict	Somewhat intricate or complex	Intricate or complex
Syntax	Basic Mostly simple sentences	Somewhat challenging Mostly simple and compound sentences	Often challenging Many complex sentences	Challenging Mostly complex sentences
Diction	Similar to everyday language; may be conversational in style and tone	Generally similar to everyday language; may be conversational in style and tone	Somewhat elevated and somewhat distinct from everyday language	Elevated and distinct from everyday language; ironic or intentionally ambiguous language possible
Vocabulary	Moderately low tier 2 and/or tier 3 demands; if present, tier 3 words/phrases clearly glossed and foregrounded	Moderate tier 2 and/or tier 3 demands; tier 3 words/phrases routinely glossed and foregrounded	Moderately high to high tier 2 and/or tier 3 demands; tier 3 words/phrases less explicitly glossed and foregrounded	High to very high tier 2 and/or tier 3 demands; little scaffolding for tier 3 words/phrases
Knowledge Demands	Moderately low; assumes little prior world, cultural, and/or subject matter knowledge	Moderate; assumes some general world, cultural, and/or subject matter knowledge	Moderately high to high; understanding benefits from world, cultural, and/or subject matter knowledge developed while taking a rigorous secondary curriculum	High to very high; understanding requires world, cultural, and/or subject matter knowledge developed through a rigorous secondary curriculum

Appendix A (continued)

Dimension	Complexity Band			
	Grades 4–5 (Provided as a baseline; not represented on the SAT Suite)	Grades 6–8 (SAT, PSAT/NMSQT, PSAT 10, PSAT 8/9)	Grades 9–11 (SAT, PSAT/NMSQT, PSAT 10, PSAT 8/9)	Grades 12–14 (SAT, PSAT/NMSQT, PSAT 10)
	Basic	Somewhat challenging	Moderately challenging to complex	Complex to highly complex
Disciplinary Literacy Demands	Broadly observes some or all of the basic norms and conventions of professional communication in the disciplines (e.g., for science: problem, hypothesis, research methods, data collection, results, implications) while simplifying or omitting details (e.g., a general-interest article in a student-oriented publication)	Observes the basic norms and conventions of professional communication in the disciplines but written for a lay audience (e.g., a general-interest article in the popular press)	Observes the norms and conventions of professional communication in the disciplines but written for an interested nonprofessional audience (e.g., a detailed research summary in a science news article)	Is an example of or closely mimics the features of professional communication in the disciplines (e.g., peer-reviewed journal article)
Intertextuality	Absent, low, or incidental to a full understanding of the text	Absent, low, or incidental to a full understanding of the text	Low to moderate; may be beneficial to a full understanding of the text	Moderate to high; may be central to a full understanding of the text
Subject Matter Sensitivity	Little emotional or intellectual maturity specifically expected	Certain degree of emotional and intellectual maturity sometimes expected; recognition that one's viewpoint may differ from that in the text is required	Some degree of emotional and intellectual maturity and the ability to distance oneself from the text and its point of view expected	Emotional and intellectual maturity and the ability to distance oneself from the text and its point of view routinely expected

Appendix B: Annotated Text Complexity Examples

To illustrate the increasing demands of text complexity (and of disciplinary literacy; see also chapter 5), three text samples on the same topic—the regulation of the cell cycle in biology—are presented below and then discussed in relation to common dimensions of text complexity as exemplified in the qualitative rubric presented in appendix A of this chapter.

It's important to recognize here that the following excerpts are **not** SAT Suite examples. They're literally textbook examples, as they're adapted from three different open-source biology textbooks targeted at different ages from early secondary grades to college entry, and they begin with the assumption that readers have already studied earlier chapters in the books. The knowledge demands of these excerpts, therefore, may not be representative of those of texts used for the SAT Suite, which assume no topic-specific prior knowledge. Nevertheless, the examples below are indicative of how authentic text can vary by complexity.

Note that illustrative graphics and some other text features, such as cross references to prior lessons, found in the original texts have been omitted here to sharpen the focus on the contrasting text complexity levels.

Figure B1: Text Complexity Example (Grades 6–8)

If the cell cycle occurred without regulation, cells might go from one phase to the next before they were ready. What controls the cell cycle? How does the cell know when to grow, synthesize DNA, and divide? The cell cycle is controlled mainly by regulatory proteins. These proteins control the cycle by signaling the cell to either start or delay the next phase of the cycle.

They ensure that the cell completes the previous phase before moving on. Regulatory proteins control the cell cycle at key checkpoints. There are a number of main checkpoints.

- The G₁ checkpoint, just before entry into S phase, makes the key decision of whether the cell should divide.
- The S checkpoint determines if the DNA has been replicated properly.
- The mitotic spindle checkpoint occurs at the point in metaphase where all the chromosomes should have aligned at the mitotic plate.

Source: Brainard, Jean. 2021. "Section 5.1: Cell Division and the Cell Cycle." *CK-12 Biology*. Last modified October 6, 2015. Palo Alto, CA: CK-12 Foundation. <https://www.ck12.org/book/biology/section/5.1/>.

Figure B2: Text Complexity Examples (Grades 9–11)

It is essential that daughter cells be exact duplicates of the parent cell. Mistakes in the duplication or distribution of the chromosomes lead to mutations that may be passed forward to every new cell produced from the abnormal cell. To prevent a compromised cell from continuing to divide, there are internal control mechanisms that operate at three main cell cycle checkpoints at which the cell cycle can be stopped until conditions are favorable. These checkpoints occur near the end of G_1 , at the G_2 -M transition, and during metaphase. [. . .]

The G_1 Checkpoint

The G_1 checkpoint determines whether all conditions are favorable for cell division to proceed. The G_1 checkpoint, also called the restriction point, is the point at which the cell irreversibly commits to the cell-division process. In addition to adequate reserves and cell size, there is a check for damage to the genomic DNA at the G_1 checkpoint. A cell that does not meet all the requirements will not be released into the S phase.

The G_2 Checkpoint

The G_2 checkpoint bars the entry to the mitotic phase if certain conditions are not met. As in the G_1 checkpoint, cell size and protein reserves are assessed. However, the most important role of the G_2 checkpoint is to ensure that all of the chromosomes have been replicated and that the replicated DNA is not damaged.

The M Checkpoint

The M checkpoint occurs near the end of the metaphase stage of mitosis. The M checkpoint is also known as the spindle checkpoint because it determines if all the sister chromatids are correctly attached to the spindle microtubules. Because the separation of the sister chromatids during anaphase is an irreversible step, the cycle will not proceed until the kinetochores of each pair of sister chromatids are firmly anchored to spindle fibers arising from opposite poles of the cell.

Source: Fowler, Samantha, Rebecca Roush, and James Wise. 2017. "Section 6.2: The Cell Cycle." *Concepts of Biology*. Houston, TX: Openstax. <https://openstax.org/books/concepts-biology/pages/6-2-the-cell-cycle>.

Figure B3: Text Complexity Example (Grades 12–14)

Progress through the cell cycle is regulated. The cycle can be controlled or put on ‘pause’ at any one of several phase transitions. Such checkpoints monitor whether the cell is on track to complete a successful cell division event. [. . .]

The sequence of signals that control progress through the cell cycle is probably more intricate and extensive than we currently know, but the best-described checkpoints are in G_1 , G_2 and M.

We generally envision checkpoints as monitoring and blocking progress until essential events of a current phase of the cell cycle phase are completed. These kinases are part of molecular sensing mechanisms that act by phosphorylating cytoplasmic and/or nuclear proteins required by upcoming phases of the cycle. [. . .]

The G_1 Checkpoint

The G_1 checkpoint controls the transition from the G_1 to the S phase of the cell cycle. If actively dividing cells (e.g., stem cells) in G_1 fail to complete their preparation for replication, the S-phase kinase won’t be produced and the cells won’t proceed to the S phase until the preparatory biochemistry catches up with the rest of the cycle. To enter S, a cell must be ready to make proteins of replication, like DNA polymerases, helicases, primases . . . , among others. Only when these molecules have accumulated to (or become active at) appropriate levels, is it “safe” to enter S and begin replicating DNA. [. . .]

The G_2 Checkpoint

Passage through the G_2 checkpoint is only possible if DNA made in the prior S phase is not damaged. Or if it was, that the damage has been (or can be) repaired [. . .] Cells that do successfully complete replication and pass the G_2 checkpoint must prepare to make the proteins necessary for the upcoming mitotic phase. These include nuclear proteins necessary to condense chromatin into chromosomes, tubulins for making microtubules, etc. Only when levels of these and other required proteins reach a threshold can the cell begin mitosis.

The M Checkpoint

The M checkpoint is monitored by the original MPF-catalyzed phosphorylation of proteins that a) bind to chromatin causing it to condense and form chromatids, b) lead to the breakdown of the nuclear envelope, and c) enable spindle fiber formation. We have seen that the tension in the spindle apparatus at metaphase tugs at the kinetochores holding the duplicated chromatids together. When this tension reaches a threshold, MPF peaks and an activated separase enzyme causes the chromatids to separate at their centromeres. Beginning in anaphase, continuing tension in the spindle apparatus draws the new chromosomes to opposite poles of the cell. Near the end of mitosis and cytokinesis, proteins phosphorylated by MPF initiate the breakdown of cyclin in the cell. Passing the M checkpoint means that the cell will complete mitosis and cytokinesis, and that each daughter cell will enter a new G_1 phase.

Source: Bergtrom, Gerald. 2020. "Section 19.4: Regulation of the Cell Cycle." *Annotated Cell and Molecular Biology: What We Know and How We Found Out—All Versions*, 4th ed., 530, 533–35. Milwaukee: UWM (University of Wisconsin–Milwaukee) Digital Commons. https://dc.uwm.edu/biosci_facbooks_bergtrom/13.

All three text excerpts address similar points: why and how regulation of cell division proceeds via various “checkpoints” in the division process. Each successive treatment is, however, more textually complex than the preceding on various qualitatively observable dimensions.

Note that length isn’t a direct consideration in analysis of text complexity. Simple texts can be long and complex ones short. Length, however, can have indirect impacts on or be a byproduct of greater complexity. As we observe in the grades 12–14 example in figure B3, the extended discussion of the G₁, G₂, and M checkpoints is much more precise and detailed than those found in the grades 6–8 or grades 9–11 examples, contributing to the grades 12–14 example’s greater complexity *and* length.

ANALYSIS BY QUALITATIVE DIMENSION

Before beginning the evaluation of the three science text excerpts in figures B1 through B3, it’s worth mentioning that few, if any, real-world texts—including these samples—are uniform with respect to all the qualitative dimensions discussed below and in appendix A. Put another way, and as the following discussion illustrates, texts tend to be *generally* more or less complex than others and not harder or easier on every single dimension. Situating a text within a qualitative text complexity scheme, therefore, is about best fit, or what the preponderance of the traits of a given text indicates about its complexity.

Purpose: At a basic level, all three texts have a similar, singular purpose: to introduce students to some of the ways in which cell division is regulated. However, the clarity and directness of the purpose decreases somewhat across the excerpts, with the grades 6–8 excerpt having the most explicit, forthright purpose and the grades 12–14 excerpt having the least.

Central ideas: The central idea of each text is similarly explicit, and the way in which each text presents its central idea isn’t obviously more or less subtle or complex than the others. Although the grades 12–14 text takes less time to arrive at the central idea than the other texts do (at least in these excerpts), the two earlier-grades texts provide setup and context that make the significance of the central idea somewhat easier to grasp.

Information, ideas, and relationships: The three texts vary noticeably in terms of informational complexity. While the grades 6–8 text offers a high-level overview of cell regulation appropriate for an early secondary audience, the grades 9–11 and grades 12–14 texts provide successively more—and more precise—detail about the cell regulation checkpoints. The relationships among information and ideas are, however, generally explicit (rather than implicit) across the three texts despite increasing complexity in other respects, as is typical for writing in science.

Familiarity of experiences, information, and ideas. The information and ideas discussed in each of the three texts are likely unfamiliar to most student readers, which makes sense given that the texts are excerpted from introductory textbooks (albeit ones targeted at different grade/instructional levels). The familiarity (and therefore the immediate accessibility) of the content does, however, decrease some across the range from grades 6–8 to grades 12–14 owing to the greater level of detail provided in the higher-complexity texts.

Abstraction. All three texts describe a concrete process, albeit one that, in most cases, is not directly observable.

Density and pace. Each successively more complex text describes the regulation of cell division by checkpoints in greater detail and at a faster pace. The grades 6–8 text, for example, begins with a basic statement to frame the discussion and orient readers (“If the cell cycle occurred without regulation, cells might go from one phase to the next before they were ready”), then poses a pair of rhetorical questions (“What controls the cell cycle? How does the cell know when to grow, synthesize DNA, and divide?”) that signal the importance of the topic and preview the subsequent discussion, and then concludes with a high-level overview of the proteins responsible for much of the regulation of the cell cycle. The grades 9–11 text follows a similar structure but makes more precise, formal, and elaborated statements about the regulation checkpoints. The grades 12–14 text is denser still, conveys information and ideas even more quickly, and takes fewer pains to orient the reader to the subject before diving in.

Text structure. The structure of the three texts is quite similar, with each text introducing the idea of regulation of the cell cycle by proteins at checkpoints and then going on to list and, particularly in the higher-complexity texts, describe each of the checkpoints (though the terminology used varies somewhat between the grades 6–8 text and the other two).

Syntax. The syntactical complexity of the three texts is significantly different. The grades 6–8 text makes heavy use of simple, relatively short declarative and interrogative statements, and it tends to break up constituent information and ideas into separate sentences with noticeable anaphoric overlap for cohesion and readability (“The cell cycle is controlled mainly by regulatory proteins. **These proteins** control the cycle . . .”; “Regulatory proteins control the cell cycle at key checkpoints. There are **a number of main checkpoints**”). We see more syntactic complexity in the grades 9–11 text, including generally longer sentences, a greater number of complex sentences (e.g., “Because the separation of the sister chromatids during anaphase is an irreversible step, the cycle will not proceed until . . .”), and more embedded phrases and clauses (e.g., “Mistakes **in the duplication or distribution of the chromosomes** lead

to mutations **that may be passed forward to every new cell produced from the abnormal cell**"). The grades 12–14 text has many long sentences, a greater variety of complex sentences, and a large amount of information compacted into individual statements (see, for example, the list of protein functions in the first sentence of the text's description of the M checkpoint).

Diction. Although it'd be a stretch to say that any of these three texts is primarily conversational or everyday in word choice and tone, the texts' language does become more formal and elevated at each successive text complexity level. Among other functions previously discussed, the grades 6–8 text's rhetorical questions mirror the kinds of questions student readers might themselves have and serve as a way to engage those readers in the subsequent discussion. The grades 9–11 and grades 12–14 texts, by contrast, exhibit increasing levels of formality as well as distinctiveness from everyday language use in their more scientifically precise and detailed discussions of the cell cycle regulation checkpoints.

Vocabulary. Increasing tier two and tier three vocabulary demands are readily evident across the three texts. The grades 6–8 text is relatively light on both, with a moderate amount of tier two words (e.g., "occurred," "regulation," "signaling") and a carefully limited number of tier three words (e.g., "phase" and "synthesize" in technical senses; "DNA," "regulatory proteins"). The relatively few tier three terms are somewhat foregrounded and internally glossed. For example, the concept of "phase" is clearly situated within the somewhat more common notion of a cycle, providing a clue to readers unfamiliar with the former term that a "phase" is probably a part or step of a larger process. The grades 9–11 text has notably greater tier two (e.g., "duplicates" as a noun, "distribution," "abnormal") and tier three (e.g., "daughter cells," "parent cell," "chromosomes") words and phrases. More demanding still is the grades 12–14 text in terms of use of tier two (e.g., "progress," "regulated," "sequence") and tier three ("phase transitions," "kinases," "molecular sensing mechanisms") vocabulary.

Knowledge demands. All three texts come from introductory biology textbooks, albeit ones targeted at different age groups. Therefore, the texts assume relatively little prior knowledge on the part of readers regarding the topic of cell cycle regulation at checkpoints. However, as one might expect, each text builds on student knowledge of basic biological concepts and processes, and because each successive text requires a more precise and detailed prior understanding of biology, the subject matter knowledge demands can fairly be said to increase across the range.

Disciplinary literacy demands. All three texts employ a similar approach rooted in science writing to conveying information and ideas. However, as we move across the range, we observe distinct differences in the extent to which each text resembles professional communication in science.

The grades 6–8 text is clearly written for a lay (and student) audience, as the discussion is compact and omits many details found in the higher-complexity texts. The grades 9–11 text, by contrast, is simplified relative to the grades 12–14 text but more closely resembles, in its precision and detail, the kind of general-interest science writing that one might find in a quality print or digital publication—for example, in a *Scientific American* article describing a new discovery. The grades 12–14 text most closely resembles the way professionals would communicate with each other—for instance, in peer-reviewed journals—in its precision and detail, but the text is still designed for a student audience, although a college-level one.

Intertextuality. Each of the three texts as excerpted is essentially self-contained and makes no clear references to other works in the field of science, such as references to relevant research studies.

Subject matter sensitivity. There’s nothing in any of the three texts that requires either emotional maturity or the ability to set aside one’s own viewpoint in order to fairly assess that of the authors.

CONCLUSION AND FINAL THOUGHTS

On balance, then, the foregoing qualitative analysis affirms that there are meaningful differences in complexity across the three texts excerpted above and validates their assignment to distinct text complexity bands. This is true even though the complexity of the texts doesn’t increase uniformly across all the qualitative dimensions examined here.

Although not evident here owing to the (relatively) brief nature of each excerpt, real-world texts of anything but the shortest length often vary in terms of complexity *within* the texts, meaning that some portions may be easier or harder to read than others even when the text as a whole has an overall complexity rating, whether derived quantitatively or qualitatively. Teachers are advised to take this into account when deciding, for example, what readings to examine together in class and which to assign as homework. It may be desirable in many cases to assign easier portions of a longer text to students to read independently and to use close reading techniques (discussed in chapter 2) and other methods to help students read and comprehend more challenging portions with scaffolding and support. Such assistance can and should generally diminish over time as students develop the capacity for reading more complex texts independently.

Finally, it’s worth remembering that any assessment of text complexity should take into consideration characteristics of the readers as well as the nature of the tasks readers are assigned. For example, students who are highly motivated to read about a topic and/or who have extensive prior knowledge on a subject (perhaps developed through leisure reading or personal experience) may well be able (and willing) to read more complex texts on that topic or subject than they otherwise might; these same

students might also be bored by what to them are simplistic texts that have been deemed to correspond to their overall reading achievement level. Similarly, demanding text-based tasks may tax even generally strong readers, whereas simpler tasks with appropriate scaffolding and support may allow weaker readers entry into a more complex text. The key point here is that although texts can be evaluated for complexity in the abstract, determining the appropriateness of a given text for a given reader requires careful consideration of reader and task variables, not just a complexity rating for the text itself or an overall reading achievement level for the student.

CHAPTER 2

Close Reading, Textual Evidence, and Source Analysis

By **Meredith Liben**

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Introduction

With the advent of college and career readiness standards, a movement that started with the release of the Common Core State Standards in 2010, the complexity of the texts K–12 students are routinely asked to read in school has increased substantially (Chall, Conard, and Harris 1977; Stenner, Sanford-Moore, and Williamson 2012; Nelson et al. 2012). This emphasis on complexity represents a radical departure from what came before, when the normal practice of giving readers texts that they could readily read (Mesmer 2008; Gunning 2003) meant that only some students—those already reading at or above grade level—were being regularly exposed to texts of a complexity that would adequately prepare

them for eventually meeting the demands of postsecondary education and career preparation, subsequent occupations, and civic life. This resulted in success for the students already on pace to attain college- and career-ready reading proficiency levels but left many other students reading below grade level without the help they needed to join their ranks.

The driving question for K–12 educators about increased text complexity is what to do to provide access to it for all their students, not just the students performing well enough to be in traditional college preparatory tracks in high school. Chapter 1 focuses on text complexity as a general concept. Here we focus more narrowly on the issue of access to complex text for secondary students, for whom postsecondary options and requirements are of immediate concern.

This chapter centers on two means of access: employing close reading techniques and making regular use of textual evidence. (How to elicit textual evidence from students by posing text-focused questions will also be explored.) As we'll see, these capacities are interwoven with successful reading comprehension. Becoming proficient with close reading and learning to glean and marshal evidence from text can then be connected to specific applications, such as forms of source-based analytical writing, including rhetorical analysis.

Using close reading techniques and identifying and discussing textual evidence are the chosen foci for this chapter because they're highly efficient means of attaining competencies in literacy closely linked to readiness for and success in college, workforce training, and civic engagement in a democratic republic. In particular, the ability to identify and deploy textual evidence when reading and writing analytically is consistently highly ranked in polls of employers and college faculty (Hart Research Associates 2018; ACT 2016, 2018, 2020; College Board 2019; ICAS 2002). Facility with textual evidence is also considered essential to attaining the academic literacies that enable students from a variety of minority cultural and linguistic backgrounds to integrate successfully into postsecondary academic and technical settings (Preto-Bay 2004; Papashane and Hlalele 2014).

Close Reading

For our purposes here, *close reading* is defined as sustained, purposeful intellectual work that centers on carefully reading a brief rich, complex text (or excerpts from a longer work) in order to understand what the text says and how it says it. Since the emergence of college and career readiness standards, many people have developed resources and systems designed to support teachers in integrating close reading into their classrooms (e.g., Beers and Probst 2012; Fisher et al. 2014; Shanahan, n.d.; Lapp et al. 2015). Though there are many different

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approaches to engaging students in close reading, those who have studied the matter generally agree on the following features:

- Reading the text selection multiple times, with each reading having a different focus (e.g., reading for the gist, for critical vocabulary or word choice, to deepen understanding of the author’s purpose, to examine text structure)

The initial reading is always for gist; during this reading, the text is oftentimes read aloud by the teacher (or another skilled reader) in order to provide students of differing reading achievement levels with equal access to the text’s content.

- Asking questions about the text as a whole, its structure (e.g., paragraphs), its sentences, and its individual words and phrases in a way that requires the use of textual evidence, with the questions coming from the teacher, the students, or both
- Possibly engaging in annotating or summarizing of the text as a way to turn over responsibility for understanding to the student
- Producing some form of individual written response to the text

In sum, close reading involves multiple “passes” through a text as well as questions that require evidence to answer. (Though one can also “closely read” various nonprint media—say, a photograph, painting, or piece of music—this chapter will confine itself to close reading of the written word.)

What does close reading look like in practice? Though teacher-facilitated close reading can take many forms, below is a common sequence of classroom activities that might take place over a few days.

Let’s imagine that a tenth-grade English class is studying the woman suffrage movement and that the teacher wants her students to closely read the Declaration of Sentiments (1848) from the Seneca Falls Convention, a central text of the movement.¹ The teacher might initially read the text aloud to the students as they follow along. The oral reading would provide universal access to the text and give students a chance to read for the gist. Some words and phrases in the text are particularly important to understanding (e.g., *impel* in line 6 and *secure* in line 11), so next the teacher might have students read the text themselves with a focus on that key vocabulary. The language and structure of the Seneca Falls declaration closely parallel those of the Declaration of Independence (which these students had already read as part of their high school history course work), and the teacher would certainly want the students to understand this and think about why Elizabeth Cady Stanton and her coauthors would have co-opted the structure and cadence of that earlier document. The teacher might, therefore,

¹ The full text is appended to this chapter for reference.

next ask the students to examine the opening lines of the Declaration of Sentiments and, working in pairs, compare them to those of the Declaration of Independence (1776).²

<p>1 When, in the course of human events, it becomes necessary for</p> <p>2 one portion of the family of man to assume among the people of</p> <p>3 the earth a position different from that which they have hitherto</p> <p>4 occupied, but one to which the laws of nature and of nature's God</p> <p>5 entitle them, a decent respect to the opinions of mankind requires</p> <p>6 that they should declare the causes that impel them to such a</p> <p>7 course.</p>	<p>When in the Course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth, the separate and equal station to which the Laws of Nature and of Nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.</p>
<p>8 We hold these truths to be self-evident: that all men and women are</p> <p>9 created equal; that they are endowed by their Creator with certain</p> <p>10 inalienable rights; that among these are life, liberty, and the pursuit</p> <p>11 of happiness; that to secure these rights governments are instituted,</p> <p>12 deriving their just powers from the consent of the governed.</p>	<p>We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness.</p> <p>—That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed.</p>

As part of the paired activity, the teacher might ask students to identify points at which the wording of the two documents diverges (e.g., “all men and women are created equal” versus “all men are created equal”) and to infer both why the authors of the Declaration of Sentiments chose to hew so closely to the Declaration of Independence in most respects and why they elected to deviate selectively from the earlier text.

² In this chapter's excerpts from the Declaration of Sentiments, boldface emphasis has been added in select places to help readers locate words and phrases called out in the body of the chapter.

A subsequent approach might be to attend closely to the following section of the Declaration of Sentiments:

30 The history of mankind is a history of repeated injuries and
31 usurpations on the part of man toward woman, having in direct
32 object the establishment of an absolute tyranny over her. To prove
33 this, let facts be submitted to a candid world.

34 He has never permitted her to exercise her inalienable right to the
35 **elective franchise**.

36 He has compelled her to submit to laws, in the formation of which
37 she had no voice.

38 He has withheld from her rights which are given to the most
39 ignorant and **degraded** men—both natives and foreigners.

40 Having deprived her of this first right of a citizen, the **elective**
41 **franchise**, thereby leaving her without representation in the halls of
42 legislation, he has oppressed her on all sides.

The teacher might have the students work together to paraphrase this excerpt since it lays out the authors' grievances directly. As before, the teacher would've scanned this excerpt for vocabulary that might baffle some students (e.g., *elective franchise*, used in lines 35 and 40–41, and *degraded*, used in line 39) and would now make sure everyone understood what those words and phrases meant. The teacher might also ask the students to trace all the pronouns from lines 34–42 ("he," "she," and "her," in the lines containing the facts that will prove tyranny) back to their antecedents in line 31 ("man" and "woman," used in the general sense). This tracing of anaphoric references is an important practice that good readers regularly engage in to make sure they're clear about what's what. The teacher might also ask the students to be prepared to discuss what "this first right of a citizen" (line 40) refers to and to use the text to guide thinking about the consequence of depriving half the population of this right.

After having the students investigate the Declaration of Sentiments in order to gain an understanding of its power and purpose, the teacher might end the close reading by asking them to write an essay or prepare discussion notes in response to a prompt such as the following:

Explain why you think the authors of the Declaration of Sentiments chose to adopt and adapt the language and structure of the Declaration of Independence. Be sure to describe specific parallels in language and structure and to discuss specific points at which the language of the Declaration of Sentiments diverges from that of the

Declaration of Independence. How do the parallels contribute to the persuasive power and effectiveness of the Declaration of Sentiments? What rhetorical purpose or effect do the divergences achieve? Use at least three pieces of evidence from the documents to support your explanation.

For students to learn to work at unveiling meaning from complex text—and to gain the confidence that they *can* do so—they need to recognize which aspects of the text are particularly rich and/or dense and learn to pay particular attention to them. They need to learn to notice and focus on, rather than skip over, places in the reading that confuse them. Sources of text difficulty aren't infinite, and, over time, students can learn what to do when they encounter those sources. Regular practice with close reading can develop such recognition and provide the means for meeting the challenges associated with unpacking rich text. In the group setting of a classroom, as teachers and/or peers model strategic responses to difficulties, students who don't initially understand a given section of a text will better understand it via observing their teacher's or classmates' efforts and will come to see how to assimilate useful reading comprehension strategies into their own reading.

These high-value strategies are the tools that good readers enlist when they're stumped by something they've read (Shanahan 2018; Willingham 2012; National Reading Panel 2000). Comprehension strategies are best practiced—and learned—in context, right when and where the demands of the text cause understanding to break down.

What are these powerful strategies for building comprehension? They begin with *comprehension monitoring*, or tracking one's own understanding in order to recognize breakdowns in comprehension and to find ways to address them. Among the repair strategies are *questioning the text*, or actively asking questions of the text and oneself to verify understanding or identify areas of confusion; *rereading* confusing sections more carefully; and *reflecting* on the author's intent. During rereading, readers should focus on specifics, such as identifying unfamiliar words and phrases and learning what they mean from context (if possible) or out of context (e.g., by checking a dictionary) and parsing complex sentences, which could mean determining the contribution of subordinate clauses to meaning. They should also check to see whether there might be important anaphoric references in a given sentence that they might not have understood in the earlier reading. Finally, good readers frequently stop and *summarize* sections of text for themselves, particularly sections they found opaque on first encounter. It's vital that teachers and students alike understand there are *multiple* purposes for going back into a text and working from these (and potentially other) angles to comprehend it completely.

“Students need to recognize which aspects of the text are particularly rich and/or dense and learn to pay particular attention to them. They need to learn to notice and focus on, rather than skip over, places in the reading that confuse them.”

Close reading of complex text in a whole-class setting, as in the Declaration of Sentiments example above, makes each of these strategic approaches to reading transparent for students who may not yet know them or how to activate them in certain cases. Comprehension monitoring, in particular, is fostered by the focus that close reading requires. Returning to the text repeatedly to check understanding or in pursuit of the answer to a question is the essence of monitoring for comprehension. With close reading, the teacher or the task is prompting behaviors that ideally become habitual for students. The result of these regular opportunities to engage in close reading with peers is that students get stronger together while building a collective understanding of rich, complex texts that in the teacher's view are well worth investing some time in. Every participant can accrue the advantages of and ultimately adopt the strong reading practices initially possessed only by some students.

For that reason, and because it's time intensive, close reading is best done with the class as a whole and as interactively as possible. A summative assessment can be used as a wrap-up to evaluate each student's individual understanding, but the learning along the way is best done in as social a manner as the teacher can manage so that everyone in the class stays involved and gets the benefit. Students who confidently volunteer to answer questions posed during class discussions and who, spontaneously or when prompted, can substantiate their answers with textual evidence and explain their process for uncovering that evidence demonstrate prowess everyone else in that class needs to attain if they haven't already. Students want to have these skills and may prefer to learn (or do better learning) from peers rather than the teacher how to find pertinent textual evidence to better understand a challenging section of a text. When classrooms engage in this kind of text-centered discussion routinely, the community benefits from having explanatory thinking rendered manifest through frequent discussions and widespread student participation.

Another positive aspect of close reading is that it makes explicit what it means to have a *standard of coherence* at the same time that it helps inculcate one. A high standard of coherence—a strong internal disposition that assumes every text can be comprehended—makes readers stubborn in ways that bear fruit for comprehension. They approach the text assuming it will yield its offerings and are then driven to do something about it if they don't fully understand. Research has found that a high standard of coherence is one of the hallmarks that distinguish excellent readers from adequate ones (Pearson and Liben 2013; van den Broek et al. 2011).

For the many students who arrive at high school reading below (sometimes well below) grade level, gaining insight into the strategic

Digital SAT Suite Connections

Close reading and evidence use are foundational to the digital SAT Suite Reading and Writing section. Students are expected to read closely and comprehend a range of appropriately challenging passages (sources) drawn from a variety of subject areas and to determine what the authors of these passages say directly as well as imply. They're also frequently asked to make skillful use of evidence—both textual and quantitative—to support, challenge, or otherwise respond to claims presented in questions.

thinking of more accomplished readers is priceless. Close reading, done with positive energy in an instructive and collaborative way, is thus a lever for increasing equitable access to complex text.

If students are to benefit from close reading, they must feel safe and be willing to engage. Teachers working with secondary students need to create an environment that promotes engagement, especially among students who might be reluctant to admit to reading shortcomings or to engage with texts that might expose those shortcomings to their peers. This environment should be accepting of false starts and partial successes but demand improvement on them, as well as make clear that students who undertake the risk of participation gain the significant benefit of becoming independent readers better able and more disposed to learn about topics of importance to them through text.

When teachers provide all students with high-quality, appropriately challenging texts worthy of their time and energy, ask them worthwhile questions, and support their efforts to succeed, they're laying the groundwork for every student to become a proficient reader equipped for the demands of life after high school. Teaching secondary students what a standard of coherence is and challenging them to develop their own promotes students' agency. Gaining that awareness makes students more likely to engage in close reading, which, in turn, strengthens that standard and develops the cognitive muscles associated with reading comprehension itself. Engaging in close reading also broadens and deepens students' word awareness, sharpens their sense that they need to understand each word and phrase they read, and increases their stocks of knowledge. Opportunities for vocabulary study and knowledge acquisition arise when students carefully consider authors' word choices and how ideas are developed within and across sentences—activities that close reading promotes. Broadened and deepened vocabularies and expanded knowledge bases, in turn, strengthen reading comprehension, as students have more and more touchstones for the new information and ideas they encounter while reading. (Chapter 3 discusses in more detail the contributions of vocabulary and knowledge to comprehension.)

Another important skill that improves with regular close reading opportunities is the gathering and use of textual evidence. Students need to collect and deploy textual evidence in the service of supporting what they've asserted to be true about what they've read when they're engaged in close reading and other text-centered discussions and when they're writing analytically about sources. Close reading cultivates a disciplined approach to identifying and presenting this evidence, the subject to which we now turn.

Textual Evidence

Textual evidence is support within a text itself, in such forms as direct quotations, paraphrases, and quantitative data, for a reader's interpretive claim regarding the text. Textual evidence is marshaled in support of an answer to a question—either the reader's own or one posed to the reader—regarding the information, ideas, or events the text is communicating. Textual evidence needs to be identified, gathered, and organized so that it can be communicated effectively.

There are important connections between close reading, textual evidence, and reading comprehension. The more disciplined students get about finding textual evidence through such activities as close reading, the better they'll understand what they've read. Moreover, presenting that evidence effectively, whether by summarizing the essence of it for oneself, responding to questions posed during close reading, or developing a well-reasoned formal argument based on the collected evidence, cements understanding.

Gathering evidence is arguably the primary activity readers engage in when reading closely. All other reading-related activities—for example, monitoring comprehension, questioning the text, rereading, and summarizing while reading—circle back to evidence gathering. Students have to read closely in order to locate the textual evidence needed to answer their own and others' questions about what the author's saying, make an effective point in a discussion, or prepare a formal response to the text. Reading for evidence demands the careful attention that's the hallmark of close reading. In turn, the process of collecting evidence returns the reader, sometimes repeatedly, to the text in a focused way. Seeking evidence provides a purpose and structure for close reading and, in so doing, leads to more careful consideration of the text than does reading with a less clear aim.

The careful attention that evidence collecting requires provides a payoff in the form of deepened comprehension. Whether pursuing their own learning goals or responding to questions or tasks presented to them by a teacher, students need to pay careful attention to the text. The brain activates while reading, and the brains of successful readers activate in ways different than those of less proficient readers (Wolf 2018). Collecting evidence is one means of forcing the kind of attention and careful reading that can achieve deep understanding.

Beyond the advantage of strengthening reading comprehension, what does the process of collecting and presenting textual evidence do for student readers? When all students in a class are working with the same text and examining it closely, there's an acknowledgement that the text is the locus of learning. It's the basis for analysis and the source of evidence for interpretations. During such undertakings, a sort of leveling of the

learning playing field occurs. With the text at the center of discussion, all readers have potentially equal access to the same body of information, and the inevitable variances in students' experiences and prior knowledge are rendered less relevant. Deriving evidence from the text in a disciplined, focused way thus has the potential to be a great equalizer, allowing students to learn together from the text. Everyone, once shown how to do it (as in the sample close reading of the Declaration of Sentiments previously discussed), can marshal textual evidence in the service of a skilled interpretation of what the text says directly or implies. A disciplined approach to gathering and sharing evidence can also lay the groundwork for the successful writing of arguments (to which we turn below). What's more, being able to locate and present evidence in an organized way is a prerequisite for being justifiably confident in one's positions and an ingredient for successful interactions in civil society. In short, being skilled with textual evidence is a valuable competency for college and career readiness and success as well as for life outside the classroom.

A Case Study: Source-Based Analytical Writing

One activity that unites close reading and textual evidence use is source-based analytical writing. In source-based analytical writing, students read closely a source text (or texts) and produce a clear and cohesive response that makes use of evidence from the text(s) to support argumentative claims or informative/explanatory points.

A sharp instructional focus on source-based analytical writing helps integrate reading and writing in authentic ways. Such a focus also helps prepare K–12 students to successfully meet the demands of early postsecondary education. In reviewing the literature on first-year college writing instruction, Bosley notes that “recent studies have demonstrated that [first-year college-level] student writing is often hindered by a shallow understanding of sources and have suggested that students need explicit instruction in active reading in order to construct and express their own arguments” (2016, 77). Studying the expectations for student writing held by college faculty at a regional, Midwestern campus of twenty thousand students, Brockman et al. found that “regardless of genre . . . participating faculty generally agreed that writing assignments are based on reading and designed to help students learn class material,” that “at least at our institution . . . faculty surveyed expect students to be able to read closely and accurately about an unfamiliar topic in an assigned scholarly or professional journal, book chapter, or website,” and that “to do this well, students must be able to figure out an author’s main point, consider how the author uses supporting evidence, and discern ideological bents and biases” (2010, 44–45). Brockman and her colleagues contrast

this college-level writing with some kinds of high school assignments, “which often ask students to brainstorm, freewrite, or otherwise reflect thoughtfully about a familiar topic or past experience, or that ask students to do library or Internet research to support long-established personal beliefs about a given topic” (45).

One form of source-based analytical writing common in postsecondary education is rhetorical analysis (Brockman and Taylor 2016; Graff 2010), and numerous institutions provide extensive resources to students on how to conduct such analyses (e.g., University Writing Center, Texas A&M University, n.d.; Howe Center for Writing Excellence, Miami University, n.d.). When students analyze a source text rhetorically, they pay attention to the information and ideas the author conveys but focus primarily on the hows and whys of the author’s craft: how—and how skillfully—the author uses evidence, reasoning, stylistic and persuasive techniques, and the like to accomplish a purpose, such as to convince, to effect change, or to inform. The student writer’s analysis centers on a detached evaluation of the effectiveness or persuasiveness of the source text rather than on personal reflection or reaction, summary of the source’s informational content, or assertions in support of or opposition to the author’s claims, points, or perspective. Graff succinctly defines rhetorical analysis as “examining not only *what* authors communicate but also for *what purposes* they communicate those messages, what effects they attempt to evoke in readers, and how they accomplish those purposes and effects” (2010, 376; emphasis in original).

Like a few other common college-level writing assignments they studied, Brockman and Taylor found that rhetorical analysis has value because it is an authentic task, forces the student to “recursively and intentionally delay ‘thesis making’” (thereby avoiding the short-circuiting of thinking that happens when students reflexively jump to and defend an assertion they already accept), compels multiple close readings of the source, and draws on analytical tools developed in class (2016, 164). The above features, the researchers note, reflect and encourage the kind of writing and analysis college instructors expect to see from their students:

These initial “academic moves” require intellectual risk taking—far more than starting the writing process by “taking a stance” on making a peanut butter and jelly sandwich or “arguing” that three differences exist between the written and film version of *To Kill a Mockingbird* . . . In turn, the overall shape of the emerging college-level papers is inherently different from that of a five-paragraph essay. Most obviously, content matters. It. Really. Matters. We’ve all heard anecdotes of students being encouraged to “plug in” fictitious facts or imaginary data to demonstrate a generic, all-purpose ability to support claims with concrete evidence, but this approach would never be rewarded in college-level courses in which the substance of the

College and Career Readiness

College Board’s 2019 National Curriculum Survey Report offers clear indications that close reading and evidence use are important college and career readiness prerequisites. The sample of 1,377 postsecondary faculty in English, social science, and science gave a grand mean importance rating of 3.77 (on a four-point scale, with 4 being “very important”) to reading closely to identify explicitly stated information in a text and a 3.74 rating to reading closely to draw reasonable inferences and conclusions from a text. They also gave a rating of 3.36 to citing the textual evidence that best supports a given claim or point and a rating of 3.22 to analyzing data displays (e.g., graphs, tables, charts) to synthesize information in the graphic with information conveyed in words.

For more information on College Board’s national curriculum survey and its results, see the general introduction to this collection.

student's thesis and content wins the day. Further, the supporting evidence is unlikely, in effective essays, to take the shape of three distinct reasons or elements, each one limited to a single paragraph and arranged in ascending or descending order of importance. (164)

Similarly, Graff (2010), after introducing a rhetorical analysis project in an upper-level college composition class intended for prospective teachers, found that the approach tended to subvert formulaic approaches to writing and to promote the sort of meta-awareness of writing strategies that enables students to apply what they've learned about writing in English/composition classes to a range of situations, such as writing in other disciplines.

Implications/Practical Applications for Instruction

CLOSE READING AND TEXTUAL EVIDENCE

Close reading takes time, both to plan and execute—time that secondary teachers, especially teachers working outside of the field of English language arts, may feel they can't spare. On the balance between depth and breadth, close reading is decidedly on the side of depth. Teachers of history/social studies, science, arts, and technical subjects may understandably worry not only that engaging in reading and writing work will take away time from imparting essential content but also that such work lies outside of their domain or expertise; as a consequence, they may default to the position that this kind of careful reading and writing is the ELA teacher's task. That, however, would be a disservice to both their discipline and their students. Close reading can give students access to content in the disciplines that otherwise a teacher may only be able to convey to students via lecture or PowerPoint. Teach students how to read within a discipline, and those students can gain knowledge from substantive works on their own, compounding the work a teacher alone can do and supporting students' independence.

What's more, ELA teachers have their own content to teach and standards they need to have their students meet. They, too, have a corpus of works and ideas they want and need to teach. And they themselves aren't necessarily equipped to address close reading and the underpinnings of how to read for evidence in disciplines outside of ELA. Each domain has its own ways of building knowledge and making arguments, and while each discipline values evidence, the nature of what counts as evidence and how evidence is used can vary from discipline to discipline. (For a detailed treatment of disciplinary literacy, see chapter 5.)

It makes considerable sense, therefore, for teachers to share this work, both for the sake of student learning and to ensure the transmittal of core ideas in each subject. One solution is to systematize sharing, making the

burden of close reading lighter for each teacher while ensuring that all students receive a steady diet of close reading activities. After all, it's the students, and presumably not the adults teaching them, who need lots of exposure to the skills, knowledge, and habits of mind close reading fosters. Further lightening the burden is the fact that close reading is work to be done in a focused way, not engaged in constantly. No text of any significant length is equally complex or demanding throughout, nor is all content worthy of deep analysis. If all teachers in, say, a high school devised a schedule in which each classroom would engage in close reading for a few days a month (e.g., history/social studies during the first week of a month, English the second and fourth, history/social studies the third, and technical subjects or arts electives on occasion), all students would continually engage in close reading. They'd also learn how skilled close reading and evidence gathering differ across disciplines while being exposed to the types of texts used in postsecondary classrooms. Moreover, these students would encounter some of the seminal writings of each corpus in a way that would deepen their understanding of the subjects they're studying, standing them in good stead for their post-high school lives, a time when the vast majority of what people read is informational text, not literary works (e.g., Ha 2016).

Leading students successfully through close reading takes training, particularly for those secondary teachers faced with students who don't yet have grade-level reading and writing abilities and may even be lagging in the areas of productive speaking and listening. In many settings, teachers may have more students who aren't yet at grade level than students who are. Regular close reading is a great remedy, but providing access to it for students who might be coming to English from another language base or supporting students who are reading years behind grade level requires focused work from teachers.

A number of excellent free resources for teacher self-study and classroom close reading activities are available. The following are some solid sources, all free for downloading and use without restriction:

- Sample close reading lessons focused on complex texts at a variety of grade levels can be downloaded from Achieve the Core (https://achievethecore.org/category/411/ela-literacy-lessons?filter_cat=700).
- A collection of "mini assessments" to test students' ability to read closely with grade-level complex texts is also available at Achieve the Core (<https://achievethecore.org/category/415/ela-literacy-assessments>). Several of the mini assessments use the same texts as the close reading lessons.

- Achieve the Core also provides a framework with guidance for teachers on how to introduce close reading into their classrooms and develop their own close reading lessons (<https://achievethecore.org/page/2539/framework-for-preparing-implementing-and-assessing-close-reading-lessons>).
- Learning for Justice has an open-access library of texts and accompanying lesson frames on a wide variety of civil rights topics (<https://www.learningforjustice.org/classroom-resources>). Materials are available for all grades.
- A group of Kentucky teachers has developed text sets to build student background knowledge on frequently taught works (<https://kentuckytextsets.weebly.com/high-school.html>).
- CommonLit offers literary passages for close reading as well as accompanying resources (<https://commonlit.org>; free registration required). The site is unusual in that it has excerpts from well-known works of literature.

While these resources provide a starting place, self-study is optimally supplemented by professional development with instructors experienced with close reading who can model the technique and help teachers implement it in their classrooms.

SOURCE ANALYSIS

History/social studies, science, and ELA teachers, in particular, need to think through how to help their students become skilled at analyzing text sources for rhetorical and argumentative features such as author's intent, reasoning, evidence, and stylistic and persuasive elements. Although regularly engaging in close reading will help students develop some of this discernment, specialized skills by discipline still need to be directly taught to students who may never have been exposed to these concepts.

The following resources are among the many useful starting points for teachers wanting to learn more about how to teach source analysis to their students:

- Among the resources Carleton College's history department maintains for students is a detailed examination of how to analyze primary sources (<https://www.carleton.edu/history/resources/history-study-guides/primary/>). The document contains a number of good filtering questions intended to help students examine such sources rhetorically and historically.
- "What Do Students Need to Know About Rhetoric?" is an article authored by Hepzibah Roskelly and hosted by College Board (<https://apcentral.collegeboard.org/pdf/ap06-englang-roskelly-50098.pdf?course=ap-english-language-and-composition>). While centered

on the demands of the AP Language and Composition exam, the article provides an overview that's broadly useful for English or history/social studies teachers.

- Cornell University Library's "Critically Analyzing Information Sources: Critical Appraisal and Analysis" takes students through a set of considerations and questions designed to promote examination first of an information source itself and second of the content of the source (http://guides.library.cornell.edu/critically_analyzing). It's practical and straightforward.
- The previously cited resources from Texas A&M University (<http://writingcenter.tamu.edu/Students/Writing-Speaking-Guides/Alphabetical-List-of-Guides/Academic-Writing/Analysis/Rhetorical-Analysis>) and Miami University (<https://miamioh.edu/hcwe/handouts/rhetorical-analyses/index.html>) offer student-friendly guides to rhetorical analysis.

Conclusion

The topics in this chapter overlap considerably, and regular practice with each promotes the development of the others. Close reading is both a valuable skill and a process. If done consistently in the social learning way outlined here, it's also a tool to address the matter of equitable access to rich, grade-level text for all students. That learning process consists largely of asking and answering questions about what the text says, how it says it, and why the author says it. Asking and answering these questions requires collecting evidence that resides within the text. The ability to present that collected evidence in thoughtful ways, such as through source-based analytical writing, is one trait that distinguishes better readers from those who only know how to read superficially. Source analysis in the service of developing a solid argument is a skill that translates well to academic, career, and civic applications across a lifetime. ❖

Appendix

THE DECLARATION OF SENTIMENTS (SENECA FALLS CONVENTION)

1 When, in the course of human events, it becomes necessary for
2 one portion of the family of man to assume among the people of
3 the earth a position different from that which they have hitherto
4 occupied, but one to which the laws of nature and of nature's God
5 entitle them, a decent respect to the opinions of mankind requires
6 that they should declare the causes that impel them to such a
7 course.

8 We hold these truths to be self-evident: that all men and women are
9 created equal; that they are endowed by their Creator with certain
10 inalienable rights; that among these are life, liberty, and the pursuit
11 of happiness; that to secure these rights governments are instituted,
12 deriving their just powers from the consent of the governed.
13 Whenever any form of government becomes destructive of these
14 ends, it is the right of those who suffer from it to refuse allegiance
15 to it, and to insist upon the institution of a new government, laying
16 its foundation on such principles, and organizing its powers in
17 such form, as to them shall seem most likely to effect their safety
18 and happiness. Prudence, indeed, will dictate that governments
19 long established should not be changed for light and transient
20 causes; and accordingly all experience hath shown that mankind
21 are more disposed to suffer, while evils are sufferable, than to right
22 themselves by abolishing the forms to which they are accustomed.
23 But when a long train of abuses and usurpations, pursuing
24 invariably the same object, evinces a design to reduce them under
25 absolute despotism, it is their duty to throw off such government,
26 and to provide new guards for their future security. Such has been
27 the patient sufferance of the women under this government, and
28 such is now the necessity which constrains them to demand the
29 equal station to which they are entitled.

30 The history of mankind is a history of repeated injuries and
31 usurpations on the part of man toward woman, having in direct
32 object the establishment of an absolute tyranny over her. To prove
33 this, let facts be submitted to a candid world.

34 He has never permitted her to exercise her inalienable right to the
35 elective franchise.

36 He has compelled her to submit to laws, in the formation of which
37 she had no voice.

38 He has withheld from her rights which are given to the most
39 ignorant and degraded men—both natives and foreigners.

Appendix (continued)

40 Having deprived her of this first right of a citizen, the elective
41 franchise, thereby leaving her without representation in the halls of
42 legislation, he has oppressed her on all sides.

43 He has made her, if married, in the eye of the law, civilly dead.

44 He has taken from her all right in property, even to the wages she
45 earns.

46 He has made her, morally, an irresponsible being, as she can
47 commit many crimes with impunity, provided they be done in
48 the presence of her husband. In the covenant of marriage, she is
49 compelled to promise obedience to her husband, he becoming, to
50 all intents and purposes, her master—the law giving him power to
51 deprive her of her liberty, and to administer chastisement.

52 He has so framed the laws of divorce, as to what shall be the proper
53 causes, and in case of separation, to whom the guardianship of the
54 children shall be given, as to be wholly regardless of the happiness
55 of women—the law, in all cases, going upon a false supposition of
56 the supremacy of man, and giving all power into his hands.

57 After depriving her of all rights as a married woman, if single, and
58 the owner of property, he has taxed her to support a government
59 which recognizes her only when her property can be made
60 profitable to it.

61 He has monopolized nearly all the profitable employments, and
62 from those she is permitted to follow, she receives but a scanty
63 remuneration. He closes against her all the avenues to wealth and
64 distinction which he considers most honorable to himself. As a
65 teacher of theology, medicine, or law, she is not known.

66 He has denied her the facilities for obtaining a thorough education,
67 all colleges being closed against her.

68 He allows her in church, as well as state, but a subordinate position,
69 claiming apostolic authority for her exclusion from the ministry,
70 and, with some exceptions, from any public participation in the
71 affairs of the church.

72 He has created a false public sentiment by giving to the world a
73 different code of morals for men and women, by which moral
74 delinquencies which exclude women from society, are not only
75 tolerated, but deemed of little account in man.

Appendix (continued)

76 He has usurped the prerogative of Jehovah himself, claiming it as
77 his right to assign for her a sphere of action, when that belongs to
78 her conscience and to her God.

79 He has endeavored, in every way that he could, to destroy her
80 confidence in her own powers, to lessen her self-respect, and to
81 make her willing to lead a dependent and abject life.

82 Now, in view of this entire disfranchisement of one-half the people
83 of this country, their social and religious degradation—in view
84 of the unjust laws above mentioned, and because women do feel
85 themselves aggrieved, oppressed, and fraudulently deprived of their
86 most sacred rights, we insist that they have immediate admission to
87 all the rights and privileges which belong to them as citizens of the
88 United States.

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CHAPTER 3

The Importance of Vocabulary and Knowledge in Comprehension

By David Liben

David Liben is a national literacy expert who led schools and taught for over three decades before turning to support publishers and teachers in the equity work that undergirds college and career readiness standards. He helped synthesize the research behind the Common Core State Standards (CCSS) as well as the text complexity measurement work published in appendix A of the CCSS.

Introduction

The roles of vocabulary and knowledge in students' reading comprehension have long been overlooked in practice despite extensive research attesting to their importance. Instructional focus has instead been on the teaching and learning of discrete skills and strategies, often out of context, with the unrequited hope that they would transfer from one text to the next. Skills and strategies do indeed have a role to play in increasing students' reading comprehension, but their value pales in comparison to that of vocabulary and knowledge.

Failure to understand and act on this fact renders many students unprepared for college and workforce training as they depart high school. In particular, students from families with lower levels of formal education and students whose first language isn't English frequently enter K–12 schooling with less knowledge of words, less academic

domain knowledge, and less general knowledge of the world than do their peers (Garcia 2015). As we'll see, word, domain, and world knowledge are essential to proficient reading comprehension, increasingly so as texts become more complex in higher grades. Our failure to address this situation is one of the primary causes of the continuing gap in performance between struggling readers and their classmates who are able to access readings at or above their grade level.

Reading comprehension, in short, is fundamentally not a skill that transfers from one text to the next. This is so primarily because of the variable demands different texts place on readers' vocabulary and knowledge. This chapter will build an understanding of the centrality of vocabulary and knowledge to students' academic success and share some ideas for how best to expand both, with a focus on reading.

Proficient Reading Comprehension Isn't a Skill

Typing, welding, and playing chess are among the many activities we commonly think of as skills. In the normal course of events, practicing any of these translates to increased proficiency, and that proficiency transfers to various settings and situations where that activity is performed. If you can type on one keyboard, you can, with minimal adjustment, type on most others. If you can weld metal shelving successfully, there's a good chance you can use welding to repair a hole in a car's exhaust system. If you can play chess at a local club, you can play chess equally well at a friend's house.

Some foundational aspects of reading, most notably decoding, are similarly skill based and transferable. Decoding—accurately and quickly recognizing a word you know in print—is trainable and broadly applicable. Once students can decode, they can recognize known words in any legible font and in both upper- and lowercase letters; they can even decode nonwords that follow regular phonetic patterns they've mastered (e.g., *quape*, *tranging*, *cround*). Once students reach a certain level of decoding skill and reading fluency (the ability to read aloud with accuracy, reasonable speed, and appropriate expression—for proficient readers, usually around sixth grade), they can swiftly decode and smoothly read most texts aloud (highly technical or archaic ones excepted). Reading aloud smoothly means students will likely “read in their head” at an appropriate rate and pronounce most words correctly whether or not they know the meaning.

By contrast, reading *comprehension*, the point of learning how to read, isn't a transferable skill. Being able to comprehend *Cat in the Hat* doesn't mean you can comprehend *Beloved*, *Silent Spring*, or science articles from *Nature*.

Why not?

A typical sixth grader who decodes accurately without hesitation and reads fluently at grade level could likely accurately read aloud the sentence *His bearing was as malicious as his words were spiteful* but with little if any comprehension. Similarly, a typical eighth grader who decodes well and reads fluently would still likely not comprehend the sentence *The adverse feedback loop, in which losses by fiduciary lenders lead to tighter credit availability, which then leads to lower spending by households and businesses, has begun to slow*. For typical sixth graders, little or no understanding of the words *bearing*, *malicious*, and *spiteful* (even if pronounced correctly aloud or in their head) would make comprehension of the first sentence difficult if not impossible. For most eighth graders, lack of knowledge of the banking system or macroeconomics would make comprehension of the second sentence similarly difficult or impossible.

Vocabulary

The relationship between vocabulary and reading comprehension has been understood for nearly a century (Whipple 1925). Jeanne Chall, a prominent Harvard literacy researcher working in the late twentieth century, observed that vocabulary is, in fact, so strongly correlated with reading comprehension that there exists no real need for separate comprehension assessments (Chall and Jacobs 2003). Decades of subsequent research have affirmed a close connection between vocabulary knowledge and reading comprehension skills (see, for example, Nation 2009 for an overview). This association has been found in beginning readers (e.g., Silva and Cain 2015), elementary school students (e.g., Quinn et al. 2015), middle school students (e.g., Lawrence et al. 2019), secondary school students (e.g., Ahmed et al. 2016), students with disabilities (e.g., O'Connor 2014), second-language learners (e.g., Masrai 2019), and readers of nonalphabetic languages (e.g., Dong et al. 2020).

In 2002 Isabel Beck, Margaret McKeown, and Linda Kucan introduced the notion of dividing up all words and phrases in English into three tiers as a way to create priorities within vocabulary instruction. In this scheme (Beck, McKeown, and Kucan 2013), tier one words and phrases (e.g., *family*, *fun*, *games*, *table*, *cracker*) are basic vocabulary and are commonly learned by children through everyday discourse. Though young students won't necessarily learn all tier one words and phrases at the same rate, they'll learn almost all of them sooner or later. Tier three words and phrases (e.g., *membrane*, *perimeter*, *manifest destiny*, *checks and balances*, *metaphor*) are used less frequently, and seldom in everyday conversation, and are generally specific to particular domains of knowledge (e.g., biology, geometry). Thus, they tend to appear in texts of only certain subjects, such as *tectonic* in geology texts (though tier

three words and phrases sometimes “jump domains,” as in *The election results signaled a tectonic shift in voter attitudes*). Tier two words and phrases (e.g., *influence, produce, variety, exclusive, particular*) are likely to appear in a wider variety of texts than are tier three words and phrases and, unlike their tier one counterparts, appear with increasing frequency the more sophisticated that text gets. Tier two words and phrases don’t have a home in any one academic subject since they occupy texts universally. While subject area teachers are eager to teach the tier three words and phrases that are the province of their disciplines (since these words and phrases often name the concepts in their fields) and while tier one words and phrases tend to be acquired through everyday discourse, tier two words and phrases are in danger of being left unattended, the responsibility of no one. Before the advent of college and career readiness standards, which shone a spotlight on the centrality of vocabulary and called out the special place of tier two (“general academic”) vocabulary in students’ K–12 and post–high school success, teachers tended to assume their students already understood the meaning of words and phrases in this category. If teachers thought about tier two words and phrases at all, they probably underestimated the frequency with which such vocabulary appears in the texts they assigned and failed to grasp the disproportionate role these words and phrases have in conveying texts’ meaning (Snow 2010; Adams 2009). Tier two words and phrases had been the orphans of secondary school instruction.

Vocabulary shortcomings don’t affect all students equally. Lily Wong Fillmore, who spent her career studying English language acquisition at the University of California, Berkeley, has frequently noted that while nobody is born fluent in academic English, children from well-educated families learn much of it at home from being read to, an advantage that accelerates as these children gain proficiency in reading and start to read broadly on their own (Urrutia, Elliott, Fillmore, and Calderón 2013; see also Stanovich 1986; Cunningham and Stanovich 1998). Teachers working in low-income settings, for example, might recognize the truth of this observation in their bright, hard-working students who have the motivation to enroll in advanced classes but struggle mightily in part because they don’t possess the tier two vocabulary to understand even the questions on standardized prompts.

HOW TO TEACH VOCABULARY, WITH PARTICULAR ATTENTION ON TIER TWO WORDS AND PHRASES

Vocabulary can be learned directly and indirectly. Direct vocabulary instruction can involve teacher-led lessons on words and phrases found in texts that students are reading as well as exercises, activities, and games that introduce words and phrases distinct from those in assigned texts. Direct instruction might involve the use of vocabulary workbooks or

standalone vocabulary programs, such as *Wordly Wise*, a series popular in private schools. Indirect learning of new academic words and phrases happens when students independently acquire the meaning through context, primarily during reading on their own or listening to text read aloud. The known words and phrases surrounding an unfamiliar term are the contextual clues used by students to start to ascertain the meaning of the unknown word or phrase. In order to maximize vocabulary growth, a combination of direct and indirect acquisition is needed. This is so for a number of reasons, but the primary one is that students need to both broaden and deepen their vocabularies.

Breadth of vocabulary refers to the number of words and phrases in students' lexicons, more specifically the words and phrases whose meaning students have anywhere from a general sense to a full understanding of. When people refer to "vocabulary instruction," they're typically talking about expanding breadth. *Depth of vocabulary*, on the other hand, pertains to how much students know about a given word or phrase. This includes the extent to which students know what cognitive psychologists refer to as the *senses* a word or phrase possesses. The word *admit*, for example, has numerous senses: *Texas was admitted to* (allowed into) *the Union*; *he admitted* (conceded) *his error*; *the patient was admitted* (accepted into the hospital) *for treatment*. Depth of vocabulary also pertains to knowledge of various dimensions of a word or phrase: its morphology (affixes, roots, inflections, derivations, and compounds), orthography (spelling), phonology (pronunciation), part(s) of speech, and etymology (origin).

Breadth and depth of vocabulary are both important to understanding why, say, an author chooses one word or phrase over another. Why, for example, might an author have written *She **admitted** her error* as opposed to *acknowledged*, *confessed*, *proclaimed*, or *came clean about*? Examining an author's word choice requires a combination of attention to context and reasoned speculation about authorial intent. The skill of analyzing word choice rhetorically can best be taught to those students not yet possessing a nuanced grasp of words and phrases through practice in close reading. Depth of vocabulary knowledge could, for instance, grow out of a group discussion about an author's word choice in a given instance. Although students who come to the discussion with broader and deeper vocabularies would have an initial advantage, the social nature of the classroom exchange means that students starting with less knowledge would learn about alternative word/phrase choices and what distinguishes related words and phrases from one another via the discussion itself. Whatever their initial vocabulary knowledge levels, all students would benefit from the activity of placing the focal word or phrase in a network of related words and phrases conveying (to continue our earlier example) the various ways in and degrees to which individuals address fault through word choice (and word choices not made).

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A series of seminal studies in the mid- to late 1980s and early 1990s (Nagy, Herman, and Anderson 1985; Nagy, Anderson, and Herman 1987; Anderson and Nagy 1993) addressed the question of how many words students know. Out of this work came the finding that typical students over the K–12 span were learning between two thousand and three thousand words a year, and many students significantly more. Yet even the conservative rate of two thousand words a year would be substantially beyond what students could learn from direct instruction during school. This body of work also showed that students starting off with greater stores of vocabulary learned more words each year than those students starting off with smaller vocabularies. This pattern continued through high school, contributing to a widening gap in reading scores—an instance of the so-called Matthew effect in which advantage accumulates over time (Stanovich 1986). Given the instructional demands in the school day, there’s not enough time for direct vocabulary instruction to significantly narrow this gap; as a result, indirect vocabulary learning must play an important role.

Since such learning takes place primarily through reading, it’s worth asking how much reading students should do. Despite research on the importance of students reading, we have none on how much is needed to achieve proficiency. There are clues from practice, however. Students in honors and other advanced classes in high school read far more in all their classes than do students in lower-track classes (Mayer, LeChasseur, and Donaldson 2018). Honors/advanced students also have greater breadth of vocabulary than do their peers (Cunningham and Stanovich 1998; Stanovich 1986). Their advanced-course participation is made possible by greater capacity for reading and richer vocabularies; in turn, success in these challenging courses accelerates these students’ academic advantages—another instantiation of the Matthew effect. These students also do better on college readiness assessments as well as in college itself (Cromley and Azevedo 2007; Mayer, LeChasseur, and Donaldson 2018; Stanovich 1986; Oakes and Guiton 1995; Slavin 1990).

My many years observing classrooms give additional clues to the reading students in general should be doing to be geared toward K–12 and postsecondary success. In social studies classes, honors/advanced students read a combination of textbooks, secondary sources, and primary sources. In science, they read a mix of research, textbooks, and lab instructions. In English, they read full-length works, likely in conjunction with literary criticism and literary nonfiction essays. These practices clearly provide a substantial range as well as volume of reading, which add considerably to students’ knowledge and their ability to access more texts in these domains. It’s these honors/advanced students, too, who are disproportionately admitted to selective colleges, score higher on admission exams, and get better grades. Students in lower tracks, by contrast, tend to receive essential information via slideshow presentation

Digital SAT Suite Connections

Vocabulary is a critical component of the digital SAT Suite Reading and Writing section. The section’s vocabulary questions tightly focus on the meaning and use of tier two (“high-utility academic”) words and phrases—the powerful, versatile vocabulary that’s critical for unlocking the meaning of texts (especially complex texts) across the curriculum and for college and career readiness and success more generally. Across the section, students may be asked to determine the meaning of a tier two word or phrase in the context in which it appears, use the tier two word or phrase that’s most appropriate for a given context, or both.

The digital SAT Suite Reading and Writing section measures students’ reading, analysis, writing, and language skills and knowledge. While this section isn’t a measure of students’ knowledge in the subject areas it samples—literature, history/social studies, the humanities, and science—it does call on students’ developed abilities to read and comprehend appropriately challenging texts in these areas, to use critical reasoning and analytical skills developed in subject area courses, and to apply their skills and knowledge to answer questions typical of those associated with readings, discussions, and assignments in the various subjects. Knowledge building in the subject areas thus lays the foundation for success on the test section and, more importantly, for the post-high school educational opportunities the section’s requirements mirror.

or video and be assigned fewer readings than students in higher academic tracks. Yet lower-track students would need to read at least a similar volume and range in middle school and high school classes just to keep from falling even further behind.

This, however, is far from our current reality, as two recent studies, on tracking and on quality of assignments, attest. Mayer, LeChasseur, and Donaldson (2018), analyzing how teachers teaching both higher- and lower-track classes treat their students, found that, with exceptions, the teachers set lower expectations for and gave less support to lower- than to higher-track students. Researchers with TNTP, after observing hundreds of classrooms in five school systems, examining around five thousand assignments and over twenty thousand student work samples, and gathering about thirty thousand student surveys, found that “while students succeeded on more than two-thirds of their assignments, they only demonstrated success against the grade-level standards 17 percent of the time on those exact same assignments” because “so few assignments actually gave students a chance to demonstrate grade-level mastery” (2018, 21). Although these circumstances are pervasive, the TNTP researchers found disproportionate impacts on some student groups, including students of color and students from low-income backgrounds. The researchers identified four key resources “at the heart of high-quality academic experiences for students”: “consistent opportunities to work on grade-appropriate assignments,” “strong instruction that lets students do most of the thinking in the lesson,” “a sense of deep engagement in what they’re learning,” and “teachers who hold high expectations for students and truly believe they can meet grade-level standards” (23). Availability of these resources helped all students, the researchers found, but was especially beneficial to students behind grade level, allowing them to make substantial academic gains. However, they note, students of color and students from low-income backgrounds received less access to the key resources, even when prior academic achievement was controlled for. For example, while only 12 percent of classrooms made up of mostly white students had no grade-level assignments at all, 38 percent of classrooms made up of mostly students of color had no such assignments (27). What’s more, the researchers found more within-school variation than between-school or between-district variation in terms of access: “The average classroom in our top quartile for assignment quality, for example, provided students grade-appropriate assignments 49 percent of the time. But *within the same school*, the average bottom-quartile classroom did so only 13 percent of the time” (45; emphasis in original).

As discussed above, direct vocabulary instruction can’t teach students all the words and phrases they need to be successful in K–12 schooling and beyond. Therefore, direct instruction must focus on those aspects of vocabulary that are most productive. Morphology is one such aspect.

Nagy et al. estimated that in the middle grades and beyond, “more than 60% of the new words that readers encounter have relatively transparent morphological structure—that is, they can be broken down into parts” (1989, 279). Cultivating an awareness of morphology would thus clearly support the learning of new words when students read independently. Consider the following sentence from Annie Dillard’s essay “Living Like Weasels”: *It caught my eye; I swiveled around—and the next instant, inexplicably, I was looking down at a weasel, who was looking up at me* (1983, 67; emphasis added). Students who know that the prefix *in-* means “not” and can surmise that the word *explicate* is linked to the word *explain* and—equally important—are in the habit of making such connections would likely be able to figure out the meaning of *inexplicably* on their own.

In addition to morphology, direct instruction should prioritize attention to the words and phrases most academically useful—in particular (1) abstract, multiple-sense words and phrases students are less likely to learn the meaning of on their own (Adams, Bell, and Perfetti 1995; Adams 2010–2011)¹ and (2) words and phrases essential to understanding assigned texts. Over time, as a student is consistently exposed to complex texts, these words and phrases will come to form the student’s own corpus of high-value vocabulary. As each student’s corpus grows, the ability to comprehend complex text will grow along with it.

For more on vocabulary instruction, see “Which Words Do I Teach and How?” from Achieve the Core (<https://achievethecore.org/page/61/which-words-do-i-teach-and-how>). For a free tool to help select high-value words from any text excerpt, see the Academic Word Finder tool, also from Achieve the Core (<https://achievethecore.org/academic-word-finder/>; free registration required to use some features).

Knowledge

During the roughly twenty years since Walter Kintsch (1998) published *Comprehension: A Paradigm for Cognition*, cognitive scientists’ models of reading comprehension have been based on what Kintsch called the *textbase* and the *situation model*. The textbase is the literal understanding of what the text says; the situation model is the deeper,

¹ Victor Kuperman, Hans Stadthagen-Gonzalez, and Marc Brysbaert have demonstrated this empirically by obtaining “age-of-acquisition norms” for tens of thousands of English words. For example, “water” has a mean rating (age of acquisition) of 2.37, while “abstraction” itself has a mean rating of 13.65. The researchers have compiled a page (<http://cr.ugent.be/archives/806>, last updated November 2017) from which the results can be downloaded as a spreadsheet. For the methodology, see Kuperman, Stadthagen-Gonzalez, and Brysbaert. 2012. “Age-of-Acquisition Ratings for 30 Thousand English Words.” *Behavior Research Methods* 44, no. 4 (December): 978–90. <https://doi.org/10.3758/s13428-012-0210-4>. In addition, the Academic Word Finder at Achieve the Core (<https://achievethecore.org/academic-word-finder/>) can identify words from a text at a given grade level using a suite of databases similar to age-of-acquisition databases. Using that tool reveals that abstract words are, in general, associated with higher grade levels.

more complete understanding that comes from the reader integrating background knowledge with the textbase.

For example, a text describing the discovery of a set of fossils with unique body parts could provide information on when and where the fossils were discovered, how old they are, who discovered them, the reaction of other scientists to the discovery, the probable function of the body parts, and the general body plan suggested by the fossils. A reader's mental representation of this information constitutes the textbase. A full understanding—a situation model—would require knowing the role fossils play in evolutionary theory, the significance of a discovery of heretofore unknown body parts, why fellow scientists might react strongly to such a discovery, and some sense of the history of disputes regarding previous fossil finds. This deeper understanding of the subject (the development of a situation model) comes from the integration of background knowledge and information gleaned from the text along with the motivation to reach a full understanding of the new information. Development of the situation model is facilitated by the use of strategies, such as monitoring for comprehension, rereading, asking questions, paraphrasing to verify or cement comprehension, summarizing while reading, and making reasonable "bridging" inferences when the reader notices that meaning is becoming opaque.

Developing a situation model for literary texts works the same way. A memoir of a young man's voyage of self-discovery via a European tour that included seeing productions of Shakespeare plays might briefly describe the plays, catalog the young traveler's reactions to each play, reference the European landmarks the traveler encountered during the journey, and explore the traveler's motivation for undertaking the trip. An understanding of this information at the surface is essential prior to a more complete understanding of the text (and teachers shouldn't assume that all students immediately grasp the basics). A fuller understanding requires having some sense of the place Shakespeare holds in Western culture, being aware of the concepts of self-discovery and coming-of-age journeys, and possessing enough knowledge of Shakespeare's works to see why Shakespeare might be both illuminating and inspiring to a young man. To develop a situation model of the memoir, then, a reader, like the reader of the fossil text, has to integrate textual and background information successfully using various strategies and to remain motivated to do the work required to achieve comprehension.

This meaning-making process takes place at local levels as well as globally; without the requisite knowledge, comprehension suffers (McNamara and Kintsch 1996). Daniel Willingham (2006), a cognitive scientist who studies K–12 learning, offers this example: *John's face fell as he looked down at his protruding belly. The invitation specified "black tie" and he hadn't worn his tux since his own wedding, 20 years earlier.*

A reader unfamiliar with the meaning of *face fell* or *black tie* or how male waistlines tend to expand over the decades would struggle to understand what's happening in this snippet, let alone derive a sense of why John might be feeling dismayed. A student who failed to grasp this small, local corner of a text would find their comprehension deteriorating and their ability to grasp the global meaning of the text curtailed.

Knowledge supports comprehension in a variety of ways: knowledge strengthens readers' ability to generate the inferences from text that lead to high-level comprehension, it enhances readers' ability to combine information from parts of a text (or multiple texts) into a coherent understanding, and it allows readers to integrate textual information with their prior knowledge.

Knowledge can be particularly helpful to less skilled readers. Readers with greater knowledge, regardless of their level of reading proficiency, have to expend less effort to understand a text, which means that less proficient readers can use knowledge to make up for shortcomings in their reading skills, such as low fluency or lack of useful reading strategies. The well-known "baseball study" (Recht and Leslie 1988) dramatically demonstrates this. The researchers found that students in eighth grade with low reading scores but a great deal of knowledge about baseball did as well as students with high reading scores but less knowledge of baseball on a reading comprehension test that had baseball as the subject of each of its passages. The supporting effect of knowledge with any sort of text holds true for both younger and older students (Guthrie, McRae, and Klauda 2007). Concept-Oriented Reading Instruction (CORI), a body of work by John Guthrie and colleagues, has demonstrated that literacy instruction focusing on learning different topics (e.g., habitats, explorers, animal adaptations) supports weaker readers, enhances motivation, and yields greater gains in all students' scores on standardized reading comprehension tests relative to students receiving literacy instruction that doesn't focus on learning different topics (Guthrie et al. 2009).

While knowledge enhances reading comprehension, it's not always a prerequisite; the act of reading itself enhances and expands knowledge. The fossil text discussed earlier may not fully explain how fossils are discovered, but an interested reader without background knowledge of fossil discovery would still gather from the account some idea of how such discovery happens. Similarly, the text's depiction of how scientists responded to the discovery could help illuminate for the less knowledgeable reader how science works and offer insights into the importance of fossils to an understanding of evolution. The text would certainly be easier to process for a student who has relevant background knowledge, but a student sufficiently motivated by the subject and desirous of learning more about it can gather plenty from the text alone.

“ Knowledge can be particularly helpful to less skilled readers. Less proficient readers can use knowledge to make up for shortcomings in their reading skills, such as low fluency or lack of useful reading strategies.”

Further, that student will carry that learning into the next text about fossil discovery or paleontology.

The concept of the situation model and the essential role of knowledge in comprehension are universally accepted by cognitive scientists who study reading (Britton and Graesser 2014). These notions, however, haven't gotten to most educators in a form that allows for powerful classroom application. Although many teachers have a general sense of the importance of knowledge to reading comprehension, they've tended to emphasize *activating* background knowledge instead of *growing* it through reading as described above. This is a problematic framing of the matter, as it can lead to well-intentioned but ultimately unhelpful preteaching activities that can quickly absorb swaths of classroom time and shift the instructional focus away from the rich text that should be the center of attention. Moreover, given that the text, if carefully and closely read, can itself be a source of knowledge, this preteaching deprives students of the opportunity to grow knowledge from reading. Finally, undue emphasis on the need to build background knowledge prior to reading may also lead teachers to lower the text complexity levels they expose students to on the grounds that students simply don't know enough to handle challenging readings and that it would be too difficult to impart that knowledge to them. In short, teachers who aren't conscious of how to seize opportunities to grow new knowledge through reading are, in a scenario that plays out daily in many high school classrooms, likely to shortchange their students by keeping them from appropriately challenging text and inhibiting them from acquiring knowledge from text.

Implementation Advice

A key instructional implication is that teachers need to find ways to integrate series of conceptually cohesive texts on a topic into instruction as early and as often as possible in the K–12 continuum. Landauer and Dumais (1997) have developed a computerized model of reading that predicts vocabulary growth based on the relationship between words and topics in texts. The model shows that word growth through reading a series of texts on a topic increases the breadth and depth of students' vocabularies as much as four times more than would engaging in readings that jump from topic to topic. Independent of that work, Cervetti, Wright, and Hwang (2016) gave one group of students six texts on the topic of birds and another group six texts of equal complexity on six separate topics. The researchers embedded the same tier two words and phrases in each set of texts. Tests of word learning were then administered to both groups. Results showed that the students who read the set of texts on birds learned significantly more of the embedded tier two words and phrases than did their counterparts. In addition, their newfound vocabulary knowledge persisted over months, whereas the knowledge of the meaning of the fewer words and phrases

College and Career Readiness

Strong evidence for the importance of vocabulary to postsecondary readiness and success can be found in data from College Board's 2019 National Curriculum Survey Report. The sample of 1,377 postsecondary faculty in English, social science, and science gave a grand mean importance rating of 2.99 (on a four-point scale, with 4 being "very important") to a subset of skill/knowledge survey items associated closely with the meaning and use of words and phrases in context. This sample also gave high ratings to a number of individual survey items related to vocabulary: 3.30 to determining the meaning of words and phrases using context clues, 2.96 to determining how word choice or language patterns shape meaning and tone in text, 3.40 to ensuring precision of language, 3.13 to establishing and maintaining an appropriate style and tone for task, purpose, and audience, and 2.75 to using various sentence structures to achieve particular rhetorical effects, such as emphasis.

For more information on College Board's national curriculum survey and its results, see the general introduction to this collection.

attained by their peers deteriorated over the same follow-up period. The researchers concluded that the enhanced knowledge of the topic built up over the course of reading the six texts on a single subject supported greater vocabulary growth. It's important to note that the bird texts the researchers used were conceptually cohesive: rather than employing six random texts on birds, the researchers began with an introductory text that described types of birds and followed up with various texts explicating specific subtopics (feathers, reproduction, nest building, migration, and conservation).

Possibly as a result of this research and possibly because college and career readiness standards have emphasized knowledge building, the concept of text sets has recently gotten a good deal of attention. Among the free resources available for teachers is a project hosted by the Digital Public Library of America (<https://dp.la/primary-source-sets>) that makes available a searchable database of collections of primary source documents. These documents can be used to supplement course textbooks, with the textbook providing an overview of a topic and the primary sources providing more nuanced, specific, and detailed views. For example, a history textbook chapter on the aftermath of the U.S. Civil War could serve as a good grounding for a text set on the Freedmen's Bureau or the Fifteenth Amendment, either of which, in turn, could provide a more textured view of the specific topic than could the textbook alone. Similarly, learning the basic rock types and their origins from an Earth science textbook would directly support the study of a text set on the geology of any region from Newsela (<https://newsela.com/text-sets/>; free registration required). Another free resource site is CommonLit (<https://commonlit.org>; free registration required), which has high-quality texts and a focus on literary works frequently taught in secondary grades along with questions and prompts aligned to college and career readiness standards.

Videos, informational graphics, and other nonprint texts can profitably be included in sets along with print texts. Text complexity should be taken into consideration as well when teachers construct or find sets. Texts can be arranged coherently and with texts of lesser complexity early in the sequence supporting later, more complex texts, or texts can be at a single complexity level accessible to most students, with supports provided for weaker readers. (For a fuller treatment of text complexity, see chapter 1.) Text sets can be incorporated into any subject area. For examples of text sets and more detail on how to create them, see "Text Set Project: Building Knowledge and Vocabulary" from Achieve the Core (<https://achievethecore.org/page/2784/text-set-project-building-knowledge-and-vocabulary>).

A full-length nonfiction text on a topic can provide the same benefit as a conceptually cohesive text set, yet the former is rarely used in

general-track classes. The chapters in such a text are designed to be conceptually cohesive and function analogously to the separate pieces of a text set. Incorporating full-length nonfiction (or other types of full-length works, such as historical fiction) into courses can greatly increase subject knowledge and vocabulary gains whether the works are studied in class or assigned as independent reading (Landauer and Dumais 1997; Cervetti and Hiebert 2015).

Volume of reading is itself a consideration. Reading extensively maximizes increases in the words and phrases a reader knows—the breadth dimension of vocabulary acquisition discussed at the outset of this chapter (Cunningham and Stanovich 1998). Though any reading is valuable for vocabulary growth, readings focused on a single topic, as discussed above, enhance vocabulary growth, an efficiency that should be taken advantage of whenever possible. Deepening students' word sense and awareness of how words work (depth of vocabulary) is best approached through close reading (the subject of chapter 2).

Words and phrases differ in how hard they are to learn. Concrete words (*fortress*, *canister*, *ballast*) can be taught by analogy and mastered quickly. Biemiller (2010) discusses the concept of “drop-in words,” words in a reading that aren't necessarily essential to understanding the text but that can be taught with a quick thirty-second explanation. These words tend to be concrete, name known concepts, or have synonyms many students likely already know, so they're easy additions to vocabulary even though they're sometimes esoteric, such as *preclude* (stop from happening, prevent) and *erratic* (changeable, unreliable). Biemiller's research supports the efficiency of this approach as a way to rapidly grow vocabulary. He attributes the “stickiness” of words learned in this way to the availability of a straightforward definition and the way in which the new word is wrapped in a context that makes sense of the meaning once students are informed of the definition. Teachers can find it valuable to get into the habit of “dropping in” definitions for newly encountered words as a matter of course in their classrooms.

Over the years, teachers have developed a variety of ways to directly teach vocabulary. A good source that has collected many of these methods and offers guidance on how and when to use them is the vocabulary resource section of Achieve the Core (<https://achievethecore.org/page/974/vocabulary-and-the-common-core>).

Of the techniques discussed in this chapter, the use of text sets represents the most substantial shift in practice, as it involves gathering and purposefully arranging conceptually cohesive texts of varying complexities or at a single, median level on a single topic. But it's work worth doing, as it has clear payoffs in terms of subject matter mastery and vocabulary acquisition. Quick vocabulary coaching, such as Biemiller's approach, is comparatively effortless once a teacher learns to

spot good opportunities and cultivates the habit of mind to intervene in this high-impact way.

The Common Core State Standards' emphasis on tier two vocabulary has increased attention given to vocabulary instruction in elementary and middle school, though whether this has yet escalated to high school instruction is not as clear (Swanson et al. 2016). For the most part, this emphasis has involved direct instruction of vocabulary; indirect acquisition through a significant volume of reading hasn't gotten the attention it deserves because the value of acquiring knowledge itself hasn't gotten the attention it deserves (Cervetti and Hiebert 2015). A high volume of reading, whether achieved via text sets, full-length nonfiction, textbook use, or a combination, merits more attention, as regular reading serves the dual purpose of growing knowledge and maximizing vocabulary growth. Because of this double payoff, and because the research implications aren't as well known, indirect vocabulary acquisition through a substantial volume of topically connected reading has gotten the bulk of the attention in this chapter relative to direct instruction. The latter topic is addressed in some detail in chapter 2, on close reading and source analysis.

Conclusion

Vocabulary and knowledge are both essential ingredients of reading comprehension. The size of students' vocabularies and their stores of general knowledge are neither fixed nor inevitable; they are, in fact, highly mutable. The introduction of instructional practices such as the use of text sets and full-length nonfiction combined with shifts in practice involving the deliberate teaching of words and phrases via close reading and casual interjection can make classrooms places where students increase their knowledge of words and of the world and become stronger readers. But there has to be a conscious decision on the part of teachers and developers of instructional materials for this shift in practice to happen.

Failure to address gaps in students' vocabulary and knowledge, particularly for students from low-income and ethnic minority families, which generally have lower levels of formal education and/or whose members are still learning English, is one of the primary reasons for the persistence of and even increase in the gap between proficient and nonproficient readers as students move into higher grades. The consequences of inaction are lower levels of K–12 achievement and lower rates of preparedness for postsecondary education, which in turn create a need for expensive and, at least in traditional forms, often ineffective remedial/developmental classes (U.S. Department of Education, Office of Planning, Evaluation, and Policy Development 2017; Xu 2016). These consequences, which fall disproportionately on certain groups of students, are ones that our nation can no longer afford and should no longer tolerate. ❖

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CHAPTER 4

Conventions of Standardized English

By **Amanda J. Godley**

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Introduction

Standardized English is the variety of English most valued in academic and professional settings (Beason 2001; O'Neill 2018). Although there's some variation in the grammatical forms (such as passive voice) and levels of formality preferred in different academic disciplines and workplace settings, decades of research have shown that effective use of Standardized English is a fundamental expectation in academic and professional settings. The term *Standardized English* refers to the spoken and written language varieties that are viewed as most prestigious in the United States and that are expected in most institutional contexts, such as government and schools. The *conventions* of Standardized English are the patterns, or "rules," of grammar, punctuation, capitalization, and spelling that are generally accepted in the present day.

However, the conventions of Standardized English aren't just about rules and "correctness." They also contribute to clear and effective communication. For instance, in Joseph Williams and Joseph Bizup's well-known book on writing, *Style: Lessons in Clarity and Grace* (2017),

readers are taught to put their most important ideas and “actors” in the subjects of their sentences and to vary sentence length using subordinate clauses for rhetorical effect. Having a language to talk about grammatical concepts such as these can help students become aware of the conventions of Standardized English in different disciplines and make deliberate, well-informed choices about how to use language for clear and effective written and spoken communication. Thus, understanding and controlling for the conventions of Standardized English to accomplish specific purposes and to reach intended audiences are valuable academic and professional skills that contribute to college and career readiness.

Overview of Chapter

This chapter will share the following research-based recommendations for teaching the conventions of Standardized English:

- Students benefit from exposure to clear and precise terminology when learning about the conventions of Standardized English grammar, punctuation, capitalization, and spelling.
- Instruction on conventions should begin with an understanding and appreciation of the many varieties, or dialects, of the English language that exist in addition to Standardized English.
- Students’ learning about and application of conventions don’t follow a linear trajectory.
- Effective teaching about the conventions of Standardized English must value and build on students’ home languages and dialects.
- The conventions of Standardized English should be taught as tools for clear communication and effective rhetorical choices.
- The conventions of Standardized English should be taught through authentic communicative activities.

Terminology

It’s hard to talk about language, conventions, mechanics, usage, and grammar without explaining exactly what those terms mean. As mentioned, the term *Standardized English* refers to the variety of English preferred in academic and professional settings. Other terms used for this variety of English are *Standard English*, *Mainstream American English*, and *the language of wider communication*, but this chapter uses *Standardized English* to more clearly convey the sense that what counts as “standard” or “correct” is always evolving as the opinions and judgments of editors, teachers, style guides, and the general population change across time.

Although what's considered Standardized English in spoken language may differ across geographic regions, the conventions of *written* Standardized English, particularly in academic settings, are fairly consistent. It's helpful to distinguish between spoken and written Standardized English because their conventions differ in important ways. First, there's no punctuation or spelling in spoken Standardized English. Thus, some student errors in written Standardized English, such as run-on sentences, may be caused by confusion with spoken language (Bartholomae 1980; Krauthamer 1999). Second, especially in academic writing, authors are more likely to use particular grammatical features of Standardized English, such as nominalization (noun forms of verbs, adjectives, or adverbs, such as "invasion" [from "invade"]) and embedded clauses (clauses within main clauses that add detail and information to the sentence) in order to condense and connect ideas. Such grammatical features aren't as widespread or valued in everyday spoken English (Schleppegrell 2004).

The terms *conventions*, *usage*, *grammar*, and *mechanics* are also useful to discuss when teaching about Standardized English. As mentioned, the term *conventions* refers to commonly accepted ways of using a language that can change over time. For instance, "they" is now commonly accepted as a singular nongendered pronoun even though its use as a singular pronoun was considered an error for many decades. The term *usage* is closely related to *conventions* but more specific because it describes the way that language patterns are used and accepted in a particular community or setting. Mary Schleppegrell (2004), for instance, coined the term "the language of schooling" to refer to the usage, or patterns, of language valued in academic settings and to contrast those patterns with those of everyday spoken English. Finally, *grammar* refers to the structure of a language, including the organization of words, clauses, and phrases, while *mechanics* refers to the accepted patterns, or "rules," for capitalization, spelling, punctuation, and symbols.

Terms such as *conventions*, *usage*, and *effective communication* can help teachers convey the changing nature of Standardized English more accurately than can terms such as *proper English*, *correct English*, and *rules*. *Conventions* and *usage* also reflect a descriptive view of Standardized English rather than a prescriptive one. Prescriptive views of language are based in a static view of English as having just one "correct" variety and as being governed by a prescribed set of rules—even when those rules are rarely adhered to in practice. One example of a prescriptive rule is "Don't split an infinitive"—a directive that's regularly broken in written Standardized English and whose violation is rarely viewed by readers as an error (Beason 2001). Descriptive views of language, on the other hand, acknowledge that what counts as acceptable or effective Standardized English changes over time and is determined by how real people use and respond to language patterns.

Thus, descriptive views of Standardized English seek to convey current uses of and perspectives on language conventions rather than a static and potentially outdated vision of what the conventions of Standardized English “should” be.

Varieties of English

In discussions of grammar and conventions, it’s also helpful to distinguish Standardized English from *vernacular* or *nonstandard dialects*. All languages, including English, encompass multiple varieties, or *dialects*. The term *dialect* refers to the patterns of language used by a particular group with a shared regional or social affiliation. We all speak a dialect even if we’re unaware of it. The terms *vernacular dialect* and *nonstandard dialect* help distinguish other language varieties from Standardized English, the most prestigious variety, but the use of those terms shouldn’t be taken to imply that these language varieties are less grammatical or logical than Standardized English. Some well-researched vernacular dialects in the United States include Appalachian English, African American English, and Chicano English.

Even though some people look down on vernacular dialects, it’s important to note that linguistic research demonstrates that *all* dialects follow grammatical patterns, even though the patterns may be different from those of Standardized English, and that all dialects are equally capable of conveying ideas. Vernacular dialects are used by award-winning authors such as Harper Lee, Sandra Cisneros, and Toni Morrison to express ideas, characters, and settings in vivid and effective ways.

Furthermore, as the K–12 student population in the United States grows more linguistically and culturally diverse, it’s important that educators appreciate and build on the varieties of English spoken by their students. The dialects that students use are closely tied to their cultural, familial, regional, and racial/ethnic identities and thus must be respected and valued by educators (Godley and Reaser 2018). Furthermore, distinct varieties of English are used across the world, not only in countries that are commonly viewed as English dominant (such as the United States, Canada, Australia, New Zealand, and the United Kingdom) but also in countries throughout Asia, Africa, the Caribbean, and the Middle East. These varieties of English, called *World Englishes*, develop their own conventions, vocabulary, pronunciation, and grammatical patterns (Larsen-Freeman 2018). There are numerous varieties of World Englishes, such as Nigerian English, Singaporean English, and Jamaican English, to name just three that are widely recognized.

“As the K–12 student population in the United States grows more linguistically and culturally diverse, it’s important that educators appreciate and build on the varieties of English spoken by their students.”

The Development of Students’ Understanding of the Conventions of Standardized English

Students’ developing knowledge of and ability to apply the conventions of Standardized English rarely follow a simple, linear path. As students progress through their schooling, academic expectations increase and the language of academic texts becomes more complex. Because of this, seemingly straightforward grammatical concepts, such as *verb*, actually turn out to have multiple facets and applications that can’t all be taught at once. In elementary school, teaching about verbs might focus on developing students’ narrative writing by imparting lessons on Standardized English subject-verb agreement (*he says, they say*) and the use of verbs more descriptive than forms of “to be” (*is, are, was*). In high school, however, the concept of *verb* becomes more nuanced and difficult to apply. Students are expected to use more modal verbs (*may, could*) as they qualify their claims and explanations in documents such as lab and research reports. Conventions of subject-verb agreement also get more challenging to apply as high school students’ written sentences grow longer through the use of embedded clauses and descriptive phrases. These longer and more detailed sentences reflect the kind of elaboration expected in college writing (e.g., Purdue University College of Liberal Arts, n.d.) and in some career areas, such as science (e.g., Newell, n.d.), but the subjects and verbs in these sentences are often separated by many words and phrases. As a result, students may start making new kinds of subject-verb agreement errors. Such errors shouldn’t be seen as a lack of knowledge of conventions but rather as indicators of student development and opportunities to explain how a convention or concept is applied in more complex texts and contexts or in a particular discipline.

In general, teachers should begin by assuming that there are logical reasons behind the errors students are making. When students make an error, they may, for example, be overgeneralizing a pattern in Standardized English (such as the use of –s endings to indicate plurals) or applying patterns of spoken language, vernacular varieties of English, or languages other than English to their academic writing. David Bartholomae offers the following helpful advice:

Error analysis begins with a theory of writing, a theory of language production and language development, that allows us to see errors as evidence of choice or strategy among a range of possible choices or strategies. . . . [W]e can begin in our instruction with what a writer *does* rather than with what he fails to do. (1980, 257–58; emphasis in original)

This kind of formative assessment can help teachers explain the conventions of Standardized English in ways that build on students’

existing knowledge of language and that directly address the source of students' misunderstandings.

It can also be helpful to borrow a concept from the field of language learning and distinguish between students' *errors* and *mistakes*. Errors result from students' lack of knowledge of a grammatical or usage pattern, while mistakes result from students' imperfect application of this knowledge (Ellis 1994). Viewed this way, errors and mistakes call for different pedagogical responses. Errors are best addressed by instruction and teachers' explanations of the underlying grammatical or usage pattern, while mistakes can be addressed by directing students' attention to the mistake, developing students' awareness of why and when the mistake occurs, and teaching application strategies without unnecessarily explaining the underlying concept. For instance, many students who make apostrophe mistakes in the words *its* and *it's* understand the underlying concepts of contractions and possessives. If a teacher's formative assessment of students' knowledge demonstrates that students understand these concepts, a full explanation of contractions and possessives may not be necessary and may even waste valuable instructional time; instead, urging students to be aware of and to practice proofreading strategies aimed at helping them recognize and correct these mistakes is more likely to foster students' development as writers.

Also important to students' developing understanding of the conventions of Standardized English are explicit discussions about the circumstances in which the use of written or spoken Standardized English is to be expected. Research has shown that students aren't always aware of the classroom activities or communicative situations in which teachers, college instructors, and employers expect the use of Standardized English (Godley and Escher 2012). Students develop their ability to "read" situations for language expectations when teachers discuss directly with them why, for instance, instructors might expect them to observe the conventions of spoken Standardized English in a formal presentation but not in an inquiry-based discussion or why instructors might expect written Standardized English in literary analysis essays but not in dialogues in a fictional narrative.

Finally, there are some concepts of grammar, usage, and mechanics that should be taught to students because they're foundational to learning the conventions of Standardized English and those of other language varieties. An understanding of these concepts can support students' academic language development in all their subjects and throughout their schooling (Derewianka and Jones 2016). Concepts such as *subject*, *verb*, *phrase*, and *clause* are conceptual building blocks for learning about conventions of grammar and punctuation. For instance, understanding what a clause is relies on an understanding of subjects and verbs since a

clause is a group of words with a subject-verb relationship. Understanding types of sentences (such as simple, complex, and compound) and sentence boundaries (such as where to place periods to avoid run-ons and fragments) requires an understanding of different types of clauses and the conventions for combining them into sentences. Many punctuation rules are also built on conventions concerning how we order, distinguish, and use different kinds of clauses and phrases. Hence, it's difficult for students to understand and apply conventions of comma usage, for example, without first being able to recognize clause and phrase boundaries. Note that this chapter isn't advocating for concepts such as *subject*, *verb*, *clause*, and *phrase* to be taught in isolated grammar lessons, all at once, or without assessing students' existing knowledge of them. Rather, its aim is to illustrate the importance of a logical, research-based sequence of concepts related to grammar and other conventions that builds on students' previous knowledge and supports students' understanding and application of the conventions of Standardized English across disciplines and situations (Gebhard and Graham 2018; Jones, Myhill, and Bailey 2013; Moore and Schleppegrell 2014).

Building on Students' Home Languages and Dialects

Decades of research have shown that valuing, discussing, and building on students' home languages and dialects benefit their language and literacy learning (Heath 1983; Lee 2007). Conversely, telling students that the nonstandard varieties of language they're using are wrong or improper can hinder students' language and literacy learning. Two approaches have been found to be beneficial for building on students' home language varieties in order to teach the conventions of Standardized English: contrastive analysis and discussions of language variation, expectations, and attitudes.

CONTRASTIVE ANALYSIS

Contrastive analysis refers to the comparison of specific patterns in two languages or dialects. Studies have found that contrastive analysis approaches can lead to more frequent and accurate use of the conventions of Standardized English in academic writing by students who speak vernacular dialects and multiple languages (Fogel and Ehri 2000; Hudgens Henderson 2016; Sweetland and Wheeler 2014). Students might, for instance, compare verb tense markers or patterns of negatives in Appalachian English ("I don't have none") and Standardized English ("I don't have any"), inductively generating descriptions of the grammatical patterns in each dialect.

Digital SAT Suite Connections

Rhetorically effective language use and the conventions of Standard English are important areas of emphasis on the digital SAT Suite Reading and Writing section.

When answering certain questions in the Expression of Ideas content domain, students must read and analyze a bullet-list series of sentences (propositions) on a topic and determine how information from those sentences should be combined into a rhetorically effective sentence that meets a specified writerly aim, such as introducing the accomplishments of an individual to an audience unfamiliar with that person's work. The sentences contain facts, figures, examples, and other kinds of information on a topic, and while all the information is accurate and at least broadly relevant, some of it may not be helpful for meeting the writerly goal specified in the question. After reading and analyzing the sentences, students must choose the sentence among the provided answer choices that best meets the stated goal. All the answer choices consist of conventionally standard and complete sentences, so the focus in answering this type of question is squarely on students' ability to make effective language choices for purpose and audience.

The Reading and Writing section also includes a content domain devoted to questions requiring students to demonstrate their command of core conventions of Standard English sentence structure, usage, and punctuation. All such questions are set in context, and none require students to simply recall or rote apply these conventions.

DISCUSSIONS OF LANGUAGE VARIATION, EXPECTATIONS, AND ATTITUDES

Students' understanding of how language varies by setting, audience, and purpose can also be strengthened by drawing on students' personal experiences with language variation, expectations, and attitudes. Heath's seminal book, *Ways with Words* (1983), describes how a science teacher teaching students from two communities who spoke distinct vernacular dialects exposed her students to various ways of expressing ideas about weather, soil, and plants, including the "ways with words" used by local farmers speaking vernacular dialects, the local press, and academic texts. Heath describes how the class discussed these different ways with words and the purposes and audiences motivating them. When students wrote their own scientific reports, they had a better understanding and made more deliberate use of the conventions of Standardized English that they were expected to use. Identifying the multiple language varieties that students use, read, or hear and discussing these varieties' purposes and audiences are helpful strategies for teaching the conventions of Standardized English to all students. For instance, comparing the grammar and mechanics, intended audience, and purpose of everyday texts such as text messages to those of academic texts can build students' meta-awareness of how to adjust their language in different contexts.

Lisa Delpit's pioneering article "The Silenced Dialogue: Power and Pedagogy in Educating Other People's Children" (1988) also presents numerous examples of teachers talking to their students about the language varieties they use in their own communities and families and about "codes of power," the conventions of Standardized English expected in most academic and workplace settings. Delpit argues that we do a disservice to students when we don't explicitly teach about these codes of power and when and how they're used. Importantly, Delpit and other scholars emphasize that explicit discussions of language varieties and language expectations must be paired with discussions about the power structures, such as classism and racism, that have throughout history made some varieties of English more valued than others in mainstream institutions such as school. One literary example of the relationship between language varieties and power structures can be found in Harper Lee's *To Kill A Mockingbird* when Jem and Scout—white, upper-class children—express surprise and dismay that Calpurnia, their black housekeeper, speaks differently at their house than she does at her black church. Such moments in literature can provide rich opportunities to discuss systems of power such as racism, differing attitudes toward language, and varying expectations for language in different settings.

Analyzing "grammar rants" in the press, such as newspaper columns, can also raise students' awareness of how power helps determine acceptable usage and conventions. As Lindblom and Dunn (2006) note, "A

grammar rant from a prominent cultural figure highlights the central point of our analysis: Whether we like it or not, powerful people make value judgments about other people’s intelligence based on language use” (72). Lindblom and Dunn suggest that students investigate the author’s views on language, intelligence, region, race/ethnicity, and class and whether the rant reflects a prescriptive or descriptive perspective on language. Such analyses, Lindblom and Dunn argue, can help develop students’ awareness of audience expectations, the subtleties of language, and current debates surrounding conventions and usage.

Some students, particularly those who speak vernacular dialects, are already aware of value judgments based on language use and may have experienced linguistic prejudice firsthand. Acknowledging such experiences and having honest conversations about commonly held expectations for language use in academic and professional settings promote students’ understanding of Standardized English and its use. Even students who haven’t experienced linguistic prejudice benefit from learning about current, real-world attitudes toward and expectations for the conventions and use of Standardized English.

Teach Conventions as Means of Clear Communication and Effective Rhetorical Choice

As we hope this chapter has made clear, instruction on the conventions of Standardized English should be focused on more than just “correctness”; it should be aimed at teaching students to become more effective communicators in academic, professional, and other settings. In fact, findings from over fifty years of research have shown that traditional methods of teaching grammar and other conventions, which focus on correctness, don’t improve students’ academic writing (Andrews et al. 2006; Hillocks 1986). Ineffective traditional methods include memorizing definitions of parts of speech and punctuation “rules”; circling parts of speech and correcting errors on worksheets; undertaking group activities such as Daily Oral Language and Daily Language Practice; and asking students what “sounds right” or “sounds better” in academic texts (Dyson and Smitherman 2009; Godley, Carpenter, and Werner 2007). These methods not only fail to improve students’ use of Standardized English conventions but also may impede students’ literacy learning by taking up valuable class time.

The alternative is to teach the conventions of Standardized English as tools for clear communication and for effective rhetorical choice (what’s sometimes called “author’s craft”). A growing number of recent studies have shown that these approaches further students’ development of academic reading and writing skills as well as their meta-awareness of

“Instruction on the conventions of Standardized English should be focused on more than just “correctness”; it should be aimed at teaching students to become more effective communicators in academic, professional, and other settings.”

how grammar and mechanics construct meaning (Gebhard and Graham 2018; Moore and Schleppegrell 2014; Williams 2004). These approaches require communicating specific learning goals to students, such as “Analyze the verbs that Harper Lee uses to contrast the characters of Atticus Finch and Sheriff Heck Tate in the scene with the rabid dog,” rather than general directives, such as “Learn about verbs.”

CLEAR COMMUNICATION

Because the presentation of information in academic texts is intended to be compact and precise, clearly conveying the relationship between ideas within a single sentence or between sentences is critical. The conventions of Standardized English contribute to the clear communication of complex ideas and relationships. One key way that writers and speakers convey these relationships is through the precise use of *transitions* and *connectives* such as *however*, *then*, and *because*. “Macbeth killed the king *because* he went crazy” and “Macbeth killed the king, *and consequently* he went crazy,” for example, offer two very different interpretations of Shakespeare’s play. Studies have shown that teaching students about transitions and connectives can improve reading comprehension and academic writing by helping students understand and convey the relationship between ideas in the academic texts they read and write (Moore and Schleppegrell 2014).

However, as with other conventions, the use of transitions and connectives differs across academic disciplines and *genres*. Genres are types of communication with specific purposes and conventions. Common academic genres include lab reports, mathematical explanations, persuasive speeches, and literary analysis essays. Every academic discipline has its own set of commonly used genres, and each genre is characterized by particular grammatical patterns. In science, for example, the relationship between ideas is often expressed with connectives such as *as a result*, *however*, and *so*. In history, however, textbooks often use verbs in place of connectives to indicate relationships between ideas, which can make reading difficult. Schleppegrell (2013) shares the following textbook passage to illustrate this point: “During the 1860s and 1870s, cattle ranching boomed. The destruction of the buffalo and removal of Native Americans to reservations emptied the land for grazing cattle” (37). The cause-and-effect relationship between these two sentences (which could be expressed as “Cattle ranching boomed in the 1860s and 1870s *as a result of* the European settlers’ displacement of Native Americans and destruction of the buffalo”) must be inferred because it’s not stated explicitly. Further complicating matters is the fact that the cause-and-effect relationship portrayed is between two abstract forces (*destruction/ removal* and *ranching*) rather than between humans (*settlers* and *Native Americans*), obscuring issues of agency and power in the text’s portrayal

of this historical period. Noticing grammatical patterns in the ways relationships between ideas are represented in a particular academic discipline, such as history, can help students analyze the implicit and explicit relationships valued in that discipline. It can also help students compose and edit their own discipline-specific writing, such as historical research papers, making it more likely that their ideas are clearly conveyed to the reader and that their use of conventions of Standardized English follows the expectations of that discipline. (For a deeper examination of the topic of disciplinary literacy, see chapter 5.)

Additionally, a number of studies have demonstrated how professional and academic readers perceive writers when they make errors involving the conventions of Standardized English grammar, punctuation, capitalization, and spelling. Beason (2001) and others have found that particular errors of written Standardized English cause academic and professional readers to view the writer as hasty, careless, or unskilled while other errors are ignored or viewed as insignificant. Features of vernacular dialects, particularly ones associated with verb patterns, are judged the most harshly, reflecting widespread negative attitudes toward such dialects. Faulty sentence structures that interfere with clear communication, particularly fused sentences, also cause academic and professional readers to form negative opinions about writers. Other errors that are viewed by professionals and instructors as most bothersome include tense switching, lack of parallel structure, and missing commas when these three types of errors interfere with readability or clarity of communication (Gray and Heuser 2003).

This body of research has implications for both teachers and students. For teachers, the results suggest that editing academic writing for the conventions of Standardized English is an important skill for students to learn, as it enables them to convey to their audiences that they're careful, considerate, well-informed writers. Successful editing, however, can be difficult to teach. The same studies described above found that college instructors are quite inconsistent in the errors they notice and respond to in students' writing. This can give students mixed signals about which conventions of Standardized English they should focus on while editing. The studies recommend that teachers decide on a system for providing consistent written feedback on students' errors that is both developmentally appropriate (see "The Development of Students' Understanding of the Conventions of Standardized English," above) and not overwhelming for students. For instance, teachers might identify and provide explanations pertaining to only the two most serious or frequent errors in each piece of writing. Students can then keep track of these errors in their own "conventions log" and be expected to adhere to those conventions of Standardized English in their next draft or next paper (Ferris 2011).

Whatever system a teacher chooses, it should be clearly communicated to students and should include formative assessment that distinguishes between errors and mistakes. If a deviation from written Standardized English reflects the student's lack of knowledge of the underlying convention of grammar, usage, or mechanics, marking the error won't be sufficient; the teacher must also provide explicit instruction on that convention. On the other hand, if the deviation is simply a mistake, the student will likely benefit from explicit instruction in editing and proofreading strategies, such as awareness of one's own frequent mistakes, reading a paper from end to beginning, and asking a skilled writer for help. One way that teachers can differentiate errors and mistakes is by highlighting all inaccuracies in written Standardized English conventions on students' drafts and asking students to self-correct everything that they can. Features that are successfully self-corrected are likely mistakes, while those that aren't corrected properly are likely errors and require teacher explanations.

These studies also suggest that students be made aware that the purpose of editing and proofreading extends beyond being "correct" to building a productive relationship with the reader. Students benefit from discussions of the kinds of errors that are bothersome to academic and professional readers and the reasons behind readers' negative reactions, whether those reasons involve impaired readability, assumptions about the author's knowledge or attention to detail, or stereotypical language attitudes. Since research demonstrates that features of vernacular dialects are judged most harshly by academic and professional readers (even though, as we've noted, such dialects follow their own grammatical patterns), we return to Lisa Delpit's (1988) point that educators must explicitly teach Standardized English "codes of power" while also conveying to students that negative judgments of vernacular dialects are rooted in historical power structures such as classism and racism and that all varieties of English should be respected and valued.

RHETORICAL CHOICES

Students can also be taught the conventions of Standardized English through examining the rhetorical choices that authors make. For example, the concept of parallel structure can be taught as a tool to analyze Mark Antony's funeral oration in Shakespeare's *The Tragedy of Julius Caesar*. This legendary speech begins, "Friends, Romans, countrymen, lend me your ears. I come to bury Caesar, not to praise him" (3.2.82–83). The elements "friends," "Romans," and "countrymen" exemplify parallel structure, the repetition of a grammatical construction (here, a series of nouns). As part of a lesson on the speech, students can be told that parallel structure conveys the sense that each idea in the series carries equal importance. Armed with that knowledge, students could be asked to analyze why Shakespeare might have begun Antony's speech with

College and Career Readiness

Evidence from College Board's 2019 National Curriculum Survey Report provides strong indications of the importance of rhetorically effective language use and command of the conventions of standard written English to high school students' college and career readiness. The sample of 1,377 postsecondary faculty in English, social science, and science gave a grand mean importance rating of 3.01 (on a four-point scale, with 4 being "very important") to a subset of skill/knowledge survey items associated closely with the conventions of Standard English grammar, usage, and punctuation. This sample also gave high ratings to a number of survey items related to rhetorically effective language use: 3.40 to using language precisely, 3.13 to establishing and maintaining style and tone, and 2.75 to using various sentence structures to achieve particular rhetorical purposes, such as placing emphasis on the main rather than a secondary point.

For more information on College Board's 2019 National Curriculum Survey Report and its results, see the general introduction to this collection.

such a construction. More complicated examples of parallel structure and even common errors of parallelism can be included in such a lesson, but the main focus of instruction should be on the rhetorical effect of parallelism. The instructional approach illustrated here emphasizes the connection between grammar and meaning and presents a convention such as parallel structure as a stylistic choice made by a skilled author to make a point.

Students can also expand their own stylistic range by learning to vary sentence structure for rhetorical effect (Williams and Bizup 2017). Sentence-combining activities, which teach students to meld simple sentences into more complex ones, have been shown to improve students' command of sentence structure as well as overall writing performance (Saddler and Graham 2005). Sentence-combining activities merge the teaching of rhetorical choice and conventions by demonstrating how various grammatical constructions and forms of punctuation can be used to convey different meanings. In sentence-combining activities, students are presented with model sentences and then practice writing sophisticated sentences of their own that make use of various transitions and connectives (such as *but*, *therefore*, and *since*), clauses (such as embedded clauses), sentence structures (such as compound and complex sentences), and punctuation marks (such as dashes, commas, and semicolons) in order to condense information and convey subtleties of meaning. Sentence-expanding activities, a variation of sentence combining, ask students to add detail to their sentences by adding specific grammatical constructions such as prepositional phrases and relative clauses. These instructional approaches have been shown to improve students' control of conventions, expand their stylistic repertoires, and enhance their academic writing (Evans et al. 1988; Graham and Perin 2007).

Similarly, lessons on the conventions of grammar and punctuation can guide students to consider the rhetorical effect of long and short sentences and to practice varying sentence length in their own writing. Annie Dillard's *Pilgrim at Tinker Creek* provides rich examples of short sentences that convey surprise and action as well as longer sentences that convey rich description. To take one example:

This looking business is risky. Once I stood on a humped rock on nearby Purgatory Mountain, watching through binoculars the great autumn hawk migration below, until I discovered that I was in danger of joining the hawks on a vertical migration of my own. I was used to binoculars, but not, apparently, to balancing on humped rocks while looking through them. I staggered. (1974, 23)

The passage above begins with a sentence of five words, moves to one of thirty-nine, and ends with one of two. After discussing how the length and structure of Dillard's sentences affect them as readers, students could

use Dillard’s writing as a model for revising the sentences in their own essays for greater impact.

Rhetorical perspectives on conventions of Standardized English such as the ones discussed above can help students understand when it’s effective to “break the rules” of prescriptive grammar (for instance, by starting a sentence with a coordinating conjunction such as *and*) and why skilled authors strategically flout such rules. However, Adam Lefstein (2009) cautions that students must also be taught the purposes for using particular grammatical features in particular disciplines or texts; if they’re taught simply to vary their grammar and language to keep their writing “interesting,” they may actually become more confused about how to make effective language choices. In other words, as they learn to make a broader range of rhetorical and grammatical choices in their writing and speaking, students also need to consider purpose and context. Long sentences with complicated grammatical relationships and embedded clauses might be effective for explaining the results of an experiment in a written report, but in a speech on the same topic such choices would likely confuse the audience. The concept of *genres* can be used to address the potential confusion Lefstein cautions us about. Knowing the genres that are specific to each discipline and the conventions of these genres can help students recognize language expectations and patterns within specific academic disciplines and texts and make language choices that are purposeful and effective (Derewianka and Jones 2016).

Teaching Conventions through Authentic Communicative Activities

Authentic communicative activities include reading, writing, listening, and speaking tasks that focus on conveying a message to a real audience for a specific purpose. Literacy research has found that students are more engaged, motivated, and aware of their language choices when tasks include audiences other than their teachers and classmates and when the goals of the tasks are personally meaningful to students. Authentic communicative activities also provide effective and engaging opportunities to teach about the conventions of Standardized English and to develop students’ meta-awareness of language choices.

In their recent study of the positive effects of contextualized grammar instruction, Susan Jones, Debra Myhill, and Trevor Bailey emphasize that a contextualized approach to grammar builds on authentic communication through writing, an understanding that grammar is part of that communication, and students’ literacy experiences:

Firstly, *writing is a communicative act* supporting writers in understanding the social purposes and audiences of texts and how language creates meanings and effects; secondly, *grammar is a*

meaning-making resource: supporting writers in making appropriate linguistic choices which help them to shape and craft text to satisfy their rhetorical intentions; and finally, *connectivity*, supporting writers in making connections between their various language experiences as readers, writers and speakers, and in making connections between what they write and how they write it. (2013, 1245; emphasis in original)

Building on this perspective, Jones, Myhill, and Bailey studied the effect of contextualized, embedded grammar instruction on the writing development of approximately 750 high school students from 25 schools who either received grammar instruction embedded in writing instruction or additional reading and writing instruction rather than grammar instruction. The contextualized grammar instruction included lessons such as how to use short sentences and fragments for emphasis in narrative writing and how to use modal verbs to convey degrees of certainty in argument writing. The students who received contextualized grammar instruction as part of their writing instruction demonstrated significantly more growth in their academic writing than those who didn't. Jones, Myhill, and Bailey's study provides strong support for teaching grammatical patterns and conventions as tools for communication.

One effective instructional sequence for teaching the conventions of Standardized English through authentic communicative activities is known as the teaching-learning cycle (Derewianka and Jones 2016). In this sequence, students learn about grammatical patterns in a specific genre by (1) building background knowledge of the genre, its audience, and its purpose; (2) engaging in collaborative, student-centered investigations of language patterns in authentic texts; (3) constructing model texts in the genre in collaboration with peers and the teacher in order to practice applying key patterns of grammar and mechanics to academic writing; and (4) independently composing texts in that genre. Gebhard and Graham (2018) demonstrate how this teaching-learning cycle helped middle schoolers, both native speakers of English and English learners, develop disciplinary literacy and critical awareness of language conventions in science writing and persuasive letters. In an environmental studies unit that focused on the decline of the local bat population, these students analyzed the cohesive devices, verbs, and subjects of clauses in documents written by the U.S. Fish and Wildlife Service. Later, students applied the patterns they'd observed to their own letters to local government officials about the local bat population. Analyses of student writing and peer review comments demonstrated students' awareness of the language patterns that would make these letters stronger: using clear referents for readability and cohesion, eliminating personal pronouns in order to sound more objective, and using logical connectives (such as *because*, *although*, and *if . . . then*) to build a persuasive argument. Students in the study used the knowledge they'd gained about usage and conventions in these science texts to

comprehend challenging scientific explanations, write cogent letters to government officials, and reflect critically on the tone and purpose of the official letters they received in response.

Both of the examples above demonstrate how lessons on the conventions of Standardized English can be integrated into authentic communicative tasks and into teachers' regular instruction. By analyzing the patterns of grammar and mechanics typical to a specific academic genre, developing a meta-language to talk about these patterns, and applying these patterns to their own writing or speaking, students develop an understanding of Standardized English that supports their disciplinary learning and communication skills.

Final Thoughts

Teachers as well as students benefit from viewing the conventions of Standardized English as tools for clear and effective communication in academic and professional settings rather than simply as rules. This descriptive, communicative perspective on Standardized English changes the teacher's role from being a judge of whether prescriptive rules of grammar have been followed to being a co-investigator of patterns of conventions and usage in different academic subjects and genres. It also provides teachers with a more productive answer to the student question "Why do we have to know this?"

Because effective instruction in the conventions of Standardized English requires clear explanations of grammatical concepts, teachers' background knowledge of grammar, conventions, and usage is important. However, since much of our knowledge of these aspects of language use is unconscious, particularly for native speakers of English, few teachers or professors can articulate every rule, pattern, or concept. Teachers should consult a variety of usage guides and online resources in order to obtain multiple perspectives on issues of conventions and to choose the explanations of grammar and mechanics that are best for their students and most closely aligned with teachers' learning goals for reading, writing, listening, and speaking. Developing students' awareness and command of the conventions of Standardized English is beneficial to their future academic and professional pursuits and, as this chapter has shown, this work can be undertaken in creative, engaging ways. By teaching conventions of Standardized English as meaningful and useful, we can empower students to succeed in college, the workplace, and beyond. ❖

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CHAPTER 5

Disciplinary Literacy

By Cynthia Shanahan and Timothy Shanahan

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Introduction

In 2000, *The Atlantic Monthly* printed a previously unpublished fragment of Vladimir Nabokov's writing: a fictional memoir, or "meditation." It began with a description of the dearth of published information about Russian butterflies and moths during the early twentieth century and how butterfly enthusiasts of the time yearned for such a catalog. It seemed then like it would take a miracle for such a work to appear. Below is an excerpt from that piece. What stands out to you as you read?

And that miracle dawned in 1912 with the appearance of my father's four-volume work *The Butterflies and Moths of the Russian Empire*.

... I personally belonged to the category of *curieux* who, in order to acquaint themselves properly with a butterfly and to visualize it, require three things; its artistic depiction, a compendium of all that has been written about it, and its insertion within the general system of classification. With no words and no art, without a penetrating and

synthesizing process of thought, for me a butterfly would remain incomplete. Only one thing could wholly replace these three demands: if I had caught it myself, if the expression of the given specimen's wings corresponded to the individual particulars of a familiar habitat (with its smells, hues, and sounds) where I would have lived through all that impassioned, insane joy of the hunt, when as I climb the rock, my face contorted, gasping, shouting voluptuously senseless words. (2000)

What's interesting about that reading exercise is that what information one attends to is determined by whether the reader is, say, a historian, a scientist, or a literary critic. Historians might be interested in how much of the story, if any, is based on genuine historical events and concerns. For instance, was there actually a dearth of published information about Russian butterflies and moths in the early twentieth century, and did something like the "miracle" the narrator mentions really happen? Scientists, on the other hand, might focus on Nabokov's depictions of butterflies (e.g., graphic, textual, classificatory) and his discussion of a butterfly's adaptation ("the given specimen's wings corresponded to the individual particulars of a familiar habitat"). And literary critics might be caught up in the emotive language used to describe a butterfly hunt ("impassioned, insane joy") or the relationship between father and son implied in the text.

These differences result because disciplinary experts read with a disciplinary lens, a lens that determines the importance of information to them. This chapter explores these differences and why students should become sensitive to how disciplinary experts read and to the special texts characteristic of each discipline.

Of course, most scientists and historians, or the experts in many other fields, would likely not read Nabokov's fiction as part of their work. This is because experts in disciplinary fields read and write different *kinds* of texts. Texts in history, science, mathematics, and literature contain particular kinds of information and are structured in specialized ways, employ different language conventions, use graphical information differently, and so on. These text differences exist because various fields of study have different purposes, pose different questions about the world, set about to answer those questions with different methods, rely on different kinds of evidence, and evaluate claims and arguments differently. We define *disciplinary literacy* as the specialized reading and writing approaches that disciplinary experts have tailored to the purposes, methods, and content of their respective disciplines.

Educators often confuse disciplinary literacy with "content area reading." They aren't the same thing, however. When it comes to instruction, disciplinary literacy aims to apprentice students into the specialized literacy practices of each of the disciplines—practices usually only

developed by those immersed in the creation of knowledge in the disciplines. Content area reading, by contrast, focuses on improving students' general reading skills or abilities or in developing study habits that could be used across subject areas. Disciplinary literacy promotes the idea of reading and writing like the experts in a given field do, while content area reading tries to develop a set of useful study techniques (e.g., SQ3R, KWL). Disciplinary literacy and content area reading both have a role to play in education, but the focus of this chapter is on disciplinary literacy.

This chapter will focus on disciplinary literacy in history, science, and literature. Those are not the only fields of study that employ specialized texts or that have developed unique approaches to reading and writing. However, a focus on them makes sense because high school students are required to take courses in each of those disciplines, many states require that students learn those disciplines' specialized reading and writing practices, and research has focused heavily on identifying the special ways of reading and writing in those disciplines.

Why Disciplinary Literacy Matters

As students advance through school, the texts they read become more specialized. A second grader's social studies textbook is different from a high school junior's history book, and young children's science texts are akin to their social studies books in a way not true of high school texts in the same subjects. To read these more specialized texts properly—in ways that would lead to sophisticated interpretations appropriate to those disciplines—students need to approach them with a knowledge of a discipline and its purposes, content, and methodologies.

The term *content knowledge* refers to an awareness or understanding of information on a particular topic. Knowing the distinction between *meiosis* and *mitosis*, that the Great Depression began in 1929, and that *Narrative of the Life of Frederick Douglass, an American Slave* was one of three autobiographies written by this magisterial author, orator, and activist are all examples of content knowledge. It's important that students learn some of the facts and information (content knowledge) produced by the disciplines. However, other kinds of knowledge matter too.

Students should also develop knowledge of a discipline. This *disciplinary knowledge* encompasses an awareness of a discipline's purposes and methodologies: how and why experts do their work, what constitutes a reasonable claim, and how one can appropriately refute such claims. In a history class, it may be important that students learn what the Battle of the Bulge was (a German offensive during World War II) and some facts about it (e.g., the Germans were defeated). But disciplinary knowledge leads students to search for the causes of the battle, to ask why it was

“Disciplinary knowledge encompasses an awareness of a discipline’s purposes and methodologies: how and why experts do their work, what constitutes a reasonable claim, and how one can appropriately refute such claims.”

considered so significant, or to question the particular interpretation of it in the text they're reading. Students need to gain both content knowledge and disciplinary knowledge; they need to know not only the whats but also the whys and hows of a discipline.

It's this disciplinary knowledge that underlies a discipline's literate practices, and students must have such knowledge if they're to read and write appropriately within a discipline. Disciplinary knowledge includes an understanding of how a field creates, communicates, and evaluates information. Knowing about the discipline can help students understand whether a given text is important and, if it is, what in it is essential. Often students asked to highlight the important information in a text—a popular content area reading strategy—end up underlining nothing or everything because they lack the disciplinary insights that would allow them to distinguish the vital from the incidental.

Students who recognize what's important in a history (e.g., who the author is, historical figures' intentions) or science text (e.g., what processes are involved in mitosis or chemical reactions) are better able than their peers to separate wheat from chaff. Disciplinary awareness can help students identify and evaluate the evidence in written arguments. Experimental evidence, for instance, is especially important in arguments in science but not so much in history. Students can use knowledge of a discipline to determine the voice to adopt in writing, how to use the technical vocabulary of a field, and so on in ways consistent with the core beliefs, values, and practices in that field. Accordingly, literacy instruction with disciplinary texts should be closely aligned with the mores, normative standards, traditions, skills, and social discourse practices of the disciplines.

As different as the various disciplines and their specializations may be, one thing remains the same: experts in all fields read and write. Experts in scientific and other technical fields, for example, spend substantial amounts of time reading and writing (Kwon 2017; National Science Foundation 1976; Tenopir, King, and Bush 2004). Scientists read journal articles, review research literature, make grant applications, collaborate through email exchanges, create detailed records of experiments in laboratory notebooks, write journal articles and research reports, and engage in dozens of other daily reading and writing tasks in their work routines. It's fair to say that one couldn't participate in science successfully without the ability to read well and with great stamina and to communicate in writing in ways characteristic of science. Given the ubiquity of reading and writing within the disciplines, it seems only right that schools not only have students read and write throughout the curriculum but also give them explicit guidance in the special text features and ways of reading and writing specific to various fields of study.

One reason students struggle in college, the workplace, or the military is lack of sufficient literacy skills. Because so many students are underprepared, a high percentage of them require remediation in college, with about 40 percent of first-year postsecondary students nationwide requiring remedial support in reading or writing (Bautsch 2013). The National Assessment of Educational Progress (NAEP) reports that only 37 percent of twelfth graders taking the 2019 NAEP Reading assessment scored at or above the proficient level in reading (National Center for Education Statistics, n.d.). Especially worrying is that proficiency in literacy in the United States is highly unequal: according to 2018 data from the Programme for International Student Assessment (PISA), the gap in reading scores between students in the top and bottom quarters of the economic, social, and cultural status index in the United States was larger than that in all but two countries where it was measured (Schleicher 2019).

According to NAEP, the problem isn't one of basic literacy. Nearly all students in the United States are able to read and write: they can sign their names, decode and understand simple messages, and the like. What's missing is the ability to read complex texts in sophisticated ways and to communicate complicated ideas subtly and persuasively—outcomes more likely to be accomplished through a disciplinary literacy approach than one aimed at trying to teach general reading comprehension or writing skills.

The rest of this chapter will focus on explaining the differences among three disciplines with regard to texts and literate practices, the specific benefits of disciplinary literacy instruction identified in instructional research, and recommendations for teaching disciplinary literacy. This content is outlined below.

- A. Portraits of literacy in history, science, and literature help us understand the differences in these disciplines.
 - 1. Each discipline has a special way of creating, communicating, and evaluating knowledge based on its purposes and methods.
 - 2. Each discipline's content knowledge is different too.
 - 3. Accordingly, texts and writing in the disciplines differ.
 - 4. Reading is also done differently in each discipline.
- B. Teaching students how to read and write disciplinary texts can improve comprehension.
- C. Teachers can help students read in the disciplines by
 - 1. making discipline-appropriate texts available,
 - 2. requiring students to read those texts,
 - 3. linking this reading (and writing) to inquiry work,
 - 4. providing explicit instruction in discipline-specific text features and formats,

5. providing explicit instruction in discipline-based strategies and approaches,
6. teaching the nature of argument and evidence use in the disciplines, and
7. developing rich content knowledge in the disciplines.

Disciplinary Literacy Portraits

This section provides descriptions, or portraits, of how experts in history, science, and literature create, communicate, and evaluate knowledge and how these differences give rise to unique literacy practices. These portraits are derived from studies of experts (e.g., Bazerman 1985), expert-novice comparisons (e.g., Wineburg 1991; Wineburg 1998; Rouet et al. 1997), expert-expert comparisons (Shanahan and Shanahan 2008; Shanahan, Shanahan, and Misischia 2011), and functional linguistic analyses of disciplinary texts (Martin 1993; Veel 1997; Wignell 1994).

We acknowledge the hazard of overgeneralizing from these data to the practices of various subdisciplines or specializations within a discipline. Science, for example, includes the branches of biology, physics, and chemistry as well as subdisciplines such as microbiology, physiology, and botany. Each may have its own unique qualities not entirely captured here. Additionally, the studies are all based on small sample sizes, so they may not reflect the full range of literate practices evident among experts in a discipline. Given this, teachers are advised to reflect thoughtfully about the practices within their own discipline. Still, the discussion of the disciplines provided here should prove illuminating.

HISTORY

Creating, communicating, and evaluating knowledge. Students often believe that historians simply chronicle historical events, recording what happened in the past completely, objectively, and accurately (and, too often, boringly). Historians, on the other hand, are aware that this isn't possible. They make informed judgments about what occurred in the past by relying on what's survived, the so-called historical record—documents, artifacts, newspaper articles, interviews, letters, pictures, and so on—along with what's been written previously by other historians. These sources, as one can imagine, often contradict each other. Historians seek to develop interpretations of events based on existing evidence and informed by their own perspective, the latter of which is used to determine which parts of the record to depend on and how much weight such evidence should bear. An account of the civil rights movement by Rosa Parks, who refused to surrender her bus seat in spite of segregationist law, would be quite different from one by “Bull” Connor, who ordered such protestors fire hosed. And, in part because they have more information about and more perspective on the movement than

was available when it was taking place, historians would write about these events differently now than they would have in the 1950s or 1960s. Historians grapple with various, often fragmentary records and the accounts of other historians, trying to determine what happened, what was significant, what motivated actions, what actions caused which outcomes, what the competing goals of the various participants were, and so on. Historians create interpretations based on evidence, distinguishing on the basis of informed judgment which factors led to or caused which outcomes and which relationships were strictly sequential (one factor following another but not leading to or causing another). In other words, historians strive for plausible and cohesive interpretations—not the truth per se.

Historians also know that the interpretations they create about the past may be ephemeral. Interpretations shift continually when new evidence comes to light or new explanations are proposed. Christopher Columbus has been characterized variously as a brave and noble explorer who discovered the New World, an evil villain who enslaved and destroyed a native population (based on an account of atrocities written a century later), and a product of his time (if he hadn't landed on those islands, someone else would have). History, in one historian's words, is "the reconstruction of past events, through a dialogue between surviving evidence about the past and existing analytical, theoretical, and political concerns in the present" (Leinhardt, Stainton, and Virji 1994, 8). Because of these shifting interpretations, historians look at their work as a never-ending argument—and that's the appropriate stance readers should take when reading history.

Historians employ *interpretive frameworks* as lenses to guide their analyses. These frameworks may be societal (e.g., social class, race, gender), institutional (e.g., slavery, despotism, economics, religion), or philosophical (e.g., the "great man in history" vs. "grassroots" history) in nature. When studying the civil rights movement, a historian with a "great man" bent might focus on Martin Luther King Jr., whereas a historian with a "grassroots" perspective might emphasize the teens who protested at segregated lunch counters. These lenses privilege some evidence over others. Historians also look for connections across perspectives. Some, for example, have argued that the birth of the Republican Party, a political event, was influenced by the Second Great Awakening, a religious movement (Spoehr and Spoehr 1994).

Historians demonstrate that they appreciate the inherent interpretive problems they face by interrogating their sources. Is there language in the text that betrays a particular bias or stance? What's known about the author or the reason the text was written? To whom is the author speaking? In addition to evaluating perspective, historians assess the quality of evidence. Evidence that's corroborated is usually considered

more trustworthy (and of higher quality) unless the corroboration comes from the same standpoint as the original evidence (e.g., from a political figure and that figure's own aide).

Content knowledge. To historians, content knowledge consists of what they know about past events. Historians are interested in particular questions about those events: What happened? What was significant? How did things change over time? What were historical actors' motivations? What was the philosophical and moral context of the time? What were the causes and the effects? What patterns are similar across time and place? (Southern 1953; Ashby and Lee 1987; Ashby 1993; Shemilt 1987; Lee and Ashby 2001; Levstik 2002)

Historians engage in research to answer these questions, and the answers become the content of history. Take, for example, a U.S. history class taught at a major university by a Pulitzer Prize-winning author, a class one of us spent an extended time observing. The author taught events chronologically, but the order of events wasn't the most significant thing he wanted to convey. He had a cause-and-effect hypothesis that throughout the course he kept returning to. In other words, he was making a claim and using details about the past as his evidence. It was this claim and supporting evidence that the students were supposed to learn, but most focused on the details alone. An understanding of the discipline was needed for them to realize that the historian's interpretive lens was worthy of attention and something to add to their content knowledge.

Texts. Historians rely on all kinds of texts, conventional and otherwise, in their study of history. These texts consist of artifacts (e.g., tools), legal documents (e.g., census reports, legislative bills), newspaper articles, films, interviews, photographs, maps, memoirs, and on and on. These are all part of the evidentiary basis of their work.

How do historians write about their interpretations of the past? Functional linguists provide us with insights into *what* and *how* historians write. Megill (1989) discusses three kinds of writing: recounts of the past (narratives or accounts), explanations of the past (reasons why certain events happened), and arguments or justifications (historical arguments that include claims, reasoning, and evidence). In middle school social studies and high school history textbooks, one finds numerous examples of recounts (*In 1492, Columbus sailed the ocean blue*) and explanations (*Three factors entered into President Roosevelt's decision*), but explicit arguments and justifications are rare. The claims may be implicit within the narratives and explanations rather than stated overtly. Historians may write this way in an attempt to keep the text cohesive, to avoid controversy, or because they may not feel the need to justify their reasoning since history is always an interpretation. At any rate, implicit argument is the convention. Students who lack disciplinary sophistication, however, may not view such texts as interpretations but instead as immutable truth.

What do historians put into their accounts of the past? Histories depict time, place, manner, actors, goals, processes, and cause (Fang and Schleppegrell 2010). Historians also attribute agency and offer judgments and interpretation. For example, consider this sentence:

After the successful Montgomery bus boycott, the Civil Rights Movement became emboldened in its quest for equality, and Martin Luther King felt ready to head it, founding the Southern Christian Leadership Conference and becoming its first president.

The author discusses time (*after the bus boycott*), actors (*the Civil Rights Movement, King*), a goal (*equality*), and processes (*founding the Southern Christian Leadership Conference*). The text implies a causal relationship between the success in Montgomery and King’s later actions. King’s inner thoughts (*King felt ready*) are surmised, and he takes on agency as he impels the movement forward.

In summary, historians ask historical questions. Using various interpretive lenses, they draw on evidence from the historical record and the accounts, explanations, and arguments of other historians, evaluate that evidence, and use that which they deem credible to create answers to those questions—interpretations of the past. These interpretations are communicated through recount, explanation, and argument.

Reading. The important point, in terms of disciplinary literacy, is that historians read in ways consistent with how knowledge is created and communicated in their discipline. In a study of how historians and high school students read historical documents, Wineburg (1991) identified three processes common among the former but absent from the latter. Historians *sourced*; they noticed who an author was and tried to determine perspective by evaluating the text’s language and content (e.g., Shanahan and Shanahan 2008; Shanahan, Shanahan, and Misischia 2011). For instance, historians look for words that betray ideology (such as a text referring to the U.S. Civil War as the “war of Northern aggression”) or the inclusion or exclusion of particular events from an account. The historians also *contextualized*; they thought about the era in which a document was written, the document’s purpose and audience, and what other events were happening then. Contextualizing also requires sensitivity to particular fallacies, such as presentism (viewing past events through our current moral and philosophical lens) and pastism (portraying the past as superior to present times). Finally, historians *corroborated*; they compared texts to determine areas of agreement, omission, and difference.

Historians place what they read into political, religious, economic, social, and other categories and are adamant about the need for multiple perspectives on every event. According to historians, history can never be understood from a single document or perspective. Accordingly, historians read everything critically—including the graphics. Sourcing

“Historians read in ways consistent with how knowledge is created and communicated in their discipline.”

isn't just a reading strategy for historians; it's a way of intellectual life (Wineburg and Reisman 2015).

The reading practices of historians arise from how they create and critique knowledge. It follows that if we want students to engage in such practices, it's necessary for them to understand what historians do, how historians do what they do (disciplinary knowledge), and the kinds of products that result (content knowledge).

SCIENCE

Creating, communicating, and evaluating knowledge. Scientists try to describe the workings of the natural world. They're aware of the fallibility and limitations of their methods and results. Their scientific knowledge of the world depends on the accuracy of measurements, what they observe or fail to observe, their theories, and so on. Scientists attempt to create organizing principles about the way the world works, but these principles are inventions, not reality itself. What scientists understand today may not be what they understand in the future. As instrumentation becomes more accurate, as more is observed, and as hypotheses are borne out or falsified by research, scientists revisit and redetermine their conclusions. They engage in arguments based on scientific evidence within the community of scientists and in the public arena (such as arguments about the effects of certain diets on our health).

Historians and scientists think differently about their fields. We speak of "scientific progress" but not "historical progress." Scientists believe that as they engage in research, they become more knowledgeable about how the world works. They know, for example, more about the mechanisms underlying the growth of cancer cells today than they did fifty years ago and believe that they will learn even more about those mechanisms in the future.

Scientists engage in different kinds of research than historians do. Historians study events after they occur, but scientists can observe events as they occur, and they can often produce the circumstances they want to study. With experiments, they can control extraneous factors in ways that allow them to focus on a variable of interest. They strive for objectivity by determining what would count as a significant finding before they start an experiment. Even their observations must follow rigorous rules to ensure accuracy. Whereas the goal of historians is to posit *plausible* interpretations of the past, the goal of scientists is to use scientific results to *predict*, with a degree of confidence, what will happen in the future in circumstances similar to the experimental ones. Physicists, for example, have to be confident enough in their knowledge of the physical world to determine the trajectory of rockets or the amount of weight a bridge will bear.

Though scientific knowledge is subject to change, it may take decades to do so. Along the way, scientists distinguish between phenomena that continue to correspond to their predictions and those still open to question (Driver, Newton, and Osborne 2000). Generally, scientists have more confidence in the knowledge they create than do historians.

Content knowledge. The content knowledge of many sciences is classificatory (including information put into hierarchical form), definitional, and process oriented. Biologists, for instance, place life-forms into a hierarchy of kingdom, phylum, class, order, family, genus, and species and describe the characteristics of life within and across those categories. Chemists identify substances, determine those substances' atomic structures, describe their characteristics, ascertain how they're implicated in various scientific processes, and note their interactions with other substances. Other scientists define and describe the phases within processes such as the life cycle of an insect, the water cycle, and meiosis and mitosis.

How do scientists convey these descriptions? A universal quality of scientific knowledge is how amenable it is to depiction in multiple forms. The water cycle, for instance, can be described in words, conveyed in diagrams such as flowcharts, and summarized in a series of mathematical or computational formulas that allow prediction. Depictions of science information are always varied:

... [W]e use language [in science] only in coordination with many other modes of semiotic representation: visual images, diagrams, graphs, mathematical formulas, and the semiotics of artifacts, apparatus, and the meaningful activities of using them. Scientific communication and scientific literacy are fundamentally multimodal. (Lemke 2004, 1)

Scientists depict knowledge multimodally because they believe that the abstract knowledge they create cannot fully or accurately be described in words alone. That belief is part of their *disciplinary knowledge*.

Texts. The nature of scientific texts mirrors the nature of scientific inquiry. When scientists write their observations, descriptions of experiments, proposals for research, explanations of scientific principles for lay readers (e.g., science textbooks), and so on, the language and structure used embody scientific notions of objectivity, multimodality, process, hierarchy, and so on.

Science uses a particularly noun-centric language: approximately 60 percent of the words in science text are nouns (Biber and Gray 2016). This plays out in various ways. For instance, scientists, in an effort to communicate more efficiently, often string nouns together to create new categories of focus (e.g., *monkey cortex* instead of *the cortices of monkeys*, or *pressure hose* instead of *hoses used to increase pressure*); this kind of linguistic compression not only increases concision but also

“ When scientists write, the language and structure used embody scientific notions of objectivity, multimodality, process, hierarchy, and so on.”

often places higher demands on readers to possess and use relevant prior knowledge; most readers likely will understand what a hose used to increase pressure might be, but the term *pressure hose* could, in the abstract, refer to, say, a hose that reduces pressure or to one that is itself under pressure (Biber and Gray 2016). Scientists also nominalize verbs and other parts of speech more often than do experts in other fields of study. *Nominalization* refers to the transformation of verbs, adverbs, and adjectives into nouns. For example, science transforms the verb *distill* into the noun *distillation*, which converts a specific action into a general, abstract, and objectified process (Halliday and Martin 1993). Noun phrases in science are particularly long and complex because of nominalization and the use of phrases instead of adjectives to modify or describe their subjects. For instance, look at the subject of this sentence:

The solar wind, a stream of charged particles flowing outward from the Sun, creates a bubble-like region in the interstellar medium known as the heliosphere.

The subject is thirteen words long. The appositive describing the solar wind pushes the verb farther from the simple subject than is typical in sentences in most other forms of writing. To read sentences such as the example above, one would have to break down the phrases, which contain specialized vocabulary, and connect those phrases with the verb appropriately. It's the noun-centric nature of scientific writing that many people think of when they describe such writing as dense.

Science texts also frequently use passive voice, minimizing the role of intention in causation. In history, one is concerned with intentionality—the goals of the players. But in science, causation doesn't rely on intention. Atoms don't intend to move, but they do, at least under certain conditions. Because scientific processes don't depend on human intentions, science adopts a language that's careful to keep the focus on the processes as opposed to the humans who are studying those processes (Fang and Schleppegrell 2010). In scientific writing, then, one is more likely to see *The proportion of men in the sample was shown by a random effects analysis not to be significantly related to gender* than *We conducted a random effects analysis that showed that the proportion of men in the sample was not significantly related to gender*. In the former, the analysis and the outcome are foregrounded; in the latter, the scientists who conducted the study are.

Scientists value precision. Without precision, there can be no replication, and the whole idea of science is to create knowledge that can be replicated no matter what various scientists' beliefs or ideologies may be. Thus, when scientists explain their research in writing, they describe their methods and measurement techniques minutely, and their results include the degree of certainty that results will recur in similar situations and the extent to which results can be generalized. The whole point of this is to

ensure that the claims a scientist makes can be substantiated by redoing the same experiment or carrying out the same observations.

Scientists also strive for stability and recoverability of scientific vocabulary. For this reason, they make heavy use of Greek and Latin combining forms, prefixes, and suffixes in the construction of the words they use to describe phenomena. For example, even scientists unfamiliar with the process of eutrophication could get some sense of its nature from the knowledge that *eutrophos* means “well nourished” and *-tion* signals that the word is a noun. (Eutrophication of, say, a pond describes how a pond has become well nourished by nutrients and minerals, usually due to agricultural runoff, to the point of having excessive algae growth.)

Several other features of science text have been identified, including the specific ways they present the classification of information (Halliday and Martin 1993) and the highly structured formats of research reports (Bazerman 1988; Berland and Reiser 2009; Cavagnetto 2010; Driver, Newton, and Osborne 2000). Science texts, on the whole, are dense, highly structured, technical, abstract, objective, and multimodal. These characteristics make special demands on readers who seek to understand science from reading.

Reading. Scientists read differently than both novices and experts in other disciplines do. It’s true that there are likely to be variations in how scientists from various specializations read since subfields often have unique purposes and methods of research. For example, physicists attempt to solve problems, while botanists focus on the identification and classification of phenomena. Nonetheless, those scientists who have been studied (e.g., physicists, botanists, chemists) engage in enough common practices to justify the generalizations made here.

Researchers have studied the differences in how physicists and novices approach problems. A novice might view a given problem as being about its context (e.g., baseball or race cars), while to the physicist it’s about Newtonian physics. Novice readers interested in whether pitchers in baseball can really throw a curveball aren’t likely to view the issue as one of force and drag or as an example of Magnus effects; their efforts to answer such a question would typically have a lot more to do with the particulars of baseball than with the application of concepts and processes previously identified by physicists. (As it happens, baseballs do curve, but so do all spinning objects moving through air or liquid.) Physicists view knowledge hierarchically—with general principles and abstractions (e.g., the type of problem) at the top of the hierarchy and specific details (e.g., the speed of the baseball) at the bottom—and use the hierarchy to solve problems, drawing from general principles. Novices, on the other hand, focus mainly on lower-level information (Giere 1994; Snyder 2000).

Physicists (like other scientists) draw on different kinds of knowledge when they read: knowledge of the content of physics, promising lines of research in the field, and research methodology. Because they approach reading from such a rich knowledge base, they engage in reading as a dynamic enterprise, especially when they're interested in the topic. In fact, an important part of their reading activity is deciding what's interesting and worthwhile to read (Bazerman 1988). Physicists' stance toward a text, once selected, varies based on their prior knowledge of the topic. If they know something about the topic, they read the text critically, evaluating methods, explanations, and conclusions. If, on the other hand, they know little about a topic, they seek out trustworthy sources and adopt more of a learning mode than a critical one.

Chemists have been shown to do something similar. Shanahan, Shanahan, and Misischia (2011) found that chemists relied on their knowledge of the research in their field, including who produced a given text, which lab produced it, and the year the text was written, to determine whether a particular study was worth reading. But once this selection had been made, they consciously set that source information aside so they could be appropriately critical of the information in the study itself. They reported that they read texts conveying information on previously unfamiliar topics in a relatively uncritical fashion, focusing more on learning from than arguing with the texts, since their selections tended to contain scientific information corroborated by multiple studies. They emphasized the particular importance for students of science of reading to learn and the need for students to have authoritative and up-to-date science texts to read. This stance was vastly different from that of historians (Shanahan, Shanahan, and Misischia 2011), who argued for exposing students to multiple texts, including contradictory texts, to encourage criticality in students from the beginning.

Readers of science must also learn to evaluate multimodal information. A study of geologists, for example, detailed their understanding arising from data presented in multiple forms, such as charts and diagrams as well as sentences. Geologists, like other scientists, translated information from one mode to another (Lemke 2004).

In addition, it's important to know that scientists don't read linearly—that is, from the beginning to the end of a text—but instead jump around in a text to gain an understanding of the information. They may read the results and then jump back to the methods to figure out how those results were obtained. Additionally, the multimodal nature of texts requires that science readers examine a graphic and then reexamine it after reading a verbal description of the same data.

In summary, although scientists share much in common with experts in other fields, a closer look reveals important differences in purpose, methods, and levels of confidence in the conclusions they reach.

Digital SAT Suite Connections

The requirements of literacy in the disciplines deeply inform the passages and questions on the digital SAT Suite's Reading and Writing section. Test passages, which are either written specifically for the text or, in the case of literature, excerpted or lightly adapted from previously published sources, reflect the demands of reading and writing in the disciplines of literature, history/social studies, the humanities, and science. Science and social science passages, for example, may discuss hypotheses, methodology, data, results, conclusions, or implications and may be accompanied by informational graphics (tables, line graphs, or bar graphs) that display associated data and otherwise complement the information and ideas conveyed in words. As much as possible, questions in the Reading and Writing section ask students to respond in ways appropriate to the various disciplines—for example, by locating and interpreting data in science or social science informational graphics and by considering relationships, motivations, and word choice in literature passages.

Additionally, scientists' efforts at objectivity and precision and the ubiquity of multimodal representations in their texts also distinguish science. These unique features of scientific endeavor and communicative practices direct scientists' approach to reading.

LITERATURE (ENGLISH)

Creating, communicating, and evaluating knowledge. Instruction in English classes is typically more explicit about reading and writing than is the case in the other fields described thus far since works of literature—literary texts—themselves constitute the fundamental “knowledge” of the field. Scientists write about the worldly phenomena they examine, and historians about historical events, but English professors and literary critics write about texts themselves. Authors of literature, in turn, create texts from their imagination and memories, so they don't necessarily have to deal with real people, situations, or events. An author can assume any perspective simply by selecting a particular narrator; that narrator doesn't have to be the author and can even be intentionally unreliable. What such authors create isn't “knowledge” as we commonly think of it in other fields. Literature provides insight into the human condition, often through the creation of imaginary worlds. Because of this, arguments about literature's meaning that take place in English studies are often based on the readers' ideological stances.

A literary critic interprets literature based on traditions of interpretation. Someone with a New Criticism stance believes literature should be read with no heed to the author or the context in which the work was written. What the text means is in the text itself, and a close reading will reveal that meaning (a stance promoted by the Common Core State Standards). Someone with a reader response stance, by contrast, downplays what's in the text in favor of the connections and reactions of the reader to the text. And someone with a scholastic stance pays more attention to the biographical or historical contexts that gave rise to the text than would readers with either of the other two stances.

To illustrate the point, consider Robert Frost's “Stopping by Woods on a Snowy Evening.” People with a New Criticism stance might seek clues to the poem's meaning in word choice (“dark and deep”) or repetition (“and miles to go before I sleep”) or by considering the clashing moods expressed (“of easy wind and downy flake” versus “but I have promises to keep”) (1969). Advocates of reader response, by contrast, might try to remember a time when they were in the woods at night or some other winter scene, perhaps a winter holiday, and might feel a pang of regret thinking of a time when the weight of responsibilities overwhelmed their sense of enjoyment. Scholastic readers might, in addition to the poem, read Frost's letters to determine what was going on in his life at the time he wrote the poem and from this conclude that the poem is a meditation on suicide.

There are, of course, still other interpretive traditions. One could give the text a Marxist, feminist, Christian, or Freudian read as well. These interpretive theories serve the same role that plausibility and predictability do in history and science: they provide sets of rules or guidelines that determine which interpretations are sound or reasonable.

Content knowledge. The relevant content knowledge for literature is knowledge of human motivation, emotion, and relationships with the world (e.g., humanity, nature, god). That’s why literary interpretation may change across a lifetime of experience; new insights and possibilities emerge. There are, however, also tools that literary critics use to guide interpretation—for example, knowledge of metaphor, figuration, and rhetorical patterns. Learning to use these tools is part of learning the discipline.

Texts. Literary texts feature moral and philosophical content about the human experience often framed by archetypal topics such as coming of age or humanity against nature. In narratives, characters in a particular setting are confronted by situations—political, economic, religious, or social—via the plot that are challenging (create conflict) and that they must work through (reach resolution on). The way characters resolve conflicts (shown by their actions and psychological states) illuminates themes about the archetypal topic (Kelly 1991).

In both narratives and poetry, authors use imagery (description, metaphor, simile, figuration), symbolism, irony, satire, and rhetorical structures and patterns (parallelism, understatement, exaggeration, repetition, allusion) to offer insight into the characters, plot, conflict, and resolution and to help illuminate thematic content.

Authors of narratives or poetry provide insight into meaning in the way they portray the narrator’s perspective. For example, the narrator of a piece of literature could be first, second, or third person; omniscient, objective, limited, or unreliable. A first person narrator could be a protagonist, a witness, or a reteller. There could even be multiple narrators. All these options and more are ones authors use to convey meaning or to express their claims (themes) about the human condition.

Reading. Experts and novices both derive meaning from a character’s goals, thoughts, and actions, the arc of a story, and the connections that can be made from the work of literature to the human experience. When literary experts read literature, however, they try to construct more abstract or universal interpretations than novice readers typically do (Zeit 1994). For example, a student might tell us that a given story is about a boy who lost his dog, whereas a literary expert might conclude it’s about the yearning people have to return to innocence. Experts are also more likely than novices to ground their interpretations in the language and structure of the text (not just in the details of the plot), make

“When literary experts read literature, they try to construct more abstract or universal interpretations than novice readers typically do. Experts are also more likely than novices to ground their interpretations in the language and structure of the text, make connections within and across texts, and situate their interpretations in literary theory.”

connections within and across texts, and situate their interpretations in literary theory (Goldman, Britt, et al. 2016).

When analyzing a poem, experts might read it multiple times, attending to the way the poem is structured, noting linguistic elements, thinking about the author’s use of poetic conventions, and alluding to other works of literature, whereas novices tend not to approach a poem in these ways (Peskin 1998). Experts engage in similar practices when reading other kinds of literature (Hillocks and Ludlow 1984). To experts, interpreting literature is analogous to solving a puzzle. They bring all their knowledge of the field to the solution process, look for patterns, consider and test out alternative possibilities, home in on surprises or points of confusion, and engage in conversations about meaning with their peers. They might engage in a scholastic read—bringing to bear information from outside the text, such as an author’s biographical information or information about the time period in which the work was written—or consult past interpretations in the writings of literary critics (Rainey 2015). When experts make arguments about literature, they assert claims about such matters as theme, language, structure, connections to other texts, ideology, and texts’ role in or positioning with regard to political or social movements. Furthermore, critics can explain their interpretations using theoretical, philosophical, personal, and experiential lenses (Goldman, Lawless, et al. 2016).

In summary, experts read literature by drawing on their knowledge of how the field creates, communicates about, and evaluates literature. Because they know how meaning is put into literary texts, they know what approaches are needed to get meaning from them. They know how to have conversations and to construct formal arguments about meaning and the author’s craft because they have knowledge of the kinds of elements in literature that one can evaluate.

The Benefits of Disciplinary Literacy Instruction

Disciplinary literacy is a relatively new field; the term has only been in use since the mid-1980s. Since the field’s emergence, most studies have been descriptive, highlighting the practices of experts and providing functional analyses of disciplinary texts. Studies of instruction—of how to teach disciplinary literacy effectively—have only recently begun to appear. Nevertheless, there’s mounting evidence showing that teaching students some of the unique reading and writing approaches associated with the disciplines can enhance both subject matter learning and literacy achievement.

So far, the majority of these instructional studies have taken place in the field of history/social studies. Researchers, using both qualitative and

experimental methods, have found that teaching students to read with a historical lens can enable them to learn historical information, critically think about such information, interpret history from available documents and artifacts, communicate their interpretations in writing, and garner other learning benefits.

Hynd, Holschuh, and Hubbard (2004), for example, have demonstrated that college students can be taught to source information, contextualize it, and corroborate it with information from other sources when reading historical accounts and to engage in other types of historical reasoning that promote a complex understanding of past events. The students in that study also began to take on the idea of history as interpretation, and this new (to them) way of reading history led to heightened motivation. College students aren't the only ones who can profit from such history-specific instruction. Fifth graders, too, have been shown to be able to use historical reasoning as they read (VanSledright 2002a, 2002b). After a year of discipline-based teaching, these students learned "how to make sense of historical documents as evidence, identify the nature of the documents as sources, judge the reliability and perspective of those documents, and corroborate details across accounts in order to construct evidence-based assumptions" (VanSledright, 2002b, 131). In another study, struggling middle school readers successfully learned to corroborate information across texts (Wolfe and Goldman 2005). Another group of middle school students who were taught historical reasoning strategies wrote more accurate and persuasive historical essays than did control group students (De La Paz 2005). Teaching various historical reasoning skills (e.g., sourcing, corroboration, causal analysis) led high school students to comprehend better (Reisman 2012) and to write better essays and historical arguments (De La Paz et al. 2012; De La Paz et al. 2017; Monte-Sano 2011; Wissinger and De La Paz 2016). A study of the work of students in a high school world history class across a year of history reading and writing instruction (Shanahan et al. 2016) chronicled a progression from naïve to discipline-based reasoning, not only in terms of the use of sourcing, contextualization, and corroboration across multiple documents but also with respect to notions of cause-effect and chronology, change over time, significance, historical claims and evidence, and critique and evaluation as well as use of historical frameworks. Together, these and other studies across a variety of grade levels demonstrate that students can learn to use discipline-based strategies in history and that this instruction has a positive impact on students' history knowledge while enhancing their ability to interpret historical documents and to write historical accounts and arguments.

Instructional studies of disciplinary literacy in science paint a similar picture. As mentioned, an important aspect of science reading (and learning) is the sense one must make of multiple representations of scientific phenomena (e.g., text, graphical elements, formulas). Teaching

students to translate information from one form to another—say, from text to graphic or from graphic to text—can have a positive effect on students' ability to write about scientific information (Moje et al. 2010; Textual Tools Study Group, University of Michigan 2006). Instruction in the coordination of multimodal science information not only improves the target skill but also helps raise achievement on state language arts, reading comprehension, and biology tests (Greenleaf et al. 2011). Researchers have also studied how to improve students' ability to engage in scientific writing. Hand, Wallace, and Yang (2004) found that the use of the Science Writing Heuristic, an approach that provides students with a template for linking evidence and claims in science lab reports, improved students' ability to write an explanation of a science topic relative to those students who simply wrote a traditional lab report before writing the explanation. Other studies of the Science Writing Heuristic have had similar results (Akkus, Gunel, and Hand 2007; Burke, Greenbowe, and Hand 2006; Rudd et al. 2001). Goldman, Lawless, et al. (2016) determined that teaching biology students to read multiple texts, including multimodal representations, led to improved biology test performance and deeper learning of science content. Together, these studies suggest the benefit to students provided by instruction focused on the disciplinary characteristics of science.

The evidence from instructional studies of literary reading and writing suggests that teaching students to use the technical tools employed by literary experts improves students' ability to engage in the interpretation and critique of literature. Studies have found that teaching symbolism improves adolescent students' interpretations of poems and their enjoyment of poetry (Peskin, Allen, and Wells-Jopling 2010; Peskin and Wells-Jopling 2012). Teaching students to understand irony leads to better performance in interpreting both ironic and nonironic meanings in other poems (Smith 1989). Teaching students to understand unreliable narrators helps students be more skeptical of the information they obtain from those narrators (Smith 1992). Teaching students to adopt some of the discourse practices of expert literary readers helps them progress to more sophisticated understandings of literature (Lee 1995). All these studies point to the power of teaching students to read literature like a literary critic.

Recommendations for Instruction

There are two basic approaches one can take to disciplinary literacy in subject matter classes. One would be for teachers to supply students with texts used in a discipline and to provide explicit instruction in the application of specific discipline-based literacy practices. A second would be more immersive, in which students are engaged in the inquiry work of a discipline and taught approaches to literacy as opportunities emerge from such work. For example, students might prepare for a chemistry lab

by reading past work on the properties of a specific gas and then carry out a controlled experiment with that gas. Then the students would try to describe that experimental work in a manner that was replicable or to report the results to a lay audience.

Both of these approaches have merit. We encourage teachers to initiate students into the work of the disciplines; students can create, communicate, and critique information as apprentices. However, we caution that not everything students are supposed to learn about a subject can be learned “hands-on.” Not all chemistry can be learned from lab activity, and it’d be burdensome to try to re-create all of the field’s hard-won knowledge in brief lab assignments using relatively unsophisticated equipment. Gathering information from textbooks and other written sources, not only in science but also in history, mathematics, and other subject matter classes, is a major source of learning in postsecondary education and career.

To successfully introduce students to disciplinary literacy, it’s essential that teachers make disciplinary texts available to students and that students be required to read these texts. Teachers also should link reading and writing to disciplinary inquiry, provide guidance in the interpretation of particular text features, and teach discipline-appropriate reading strategies. Finally, students must come to understand the nature of argument and evidence in the disciplines. The remainder of this chapter will expand on these recommendations.

TEACHERS SHOULD MAKE DISCIPLINE-APPROPRIATE TEXTS AVAILABLE

Students can’t learn to read within a particular discipline without access to the appropriate texts. Appropriateness varies by discipline. Take textbooks, for example. Although historians don’t oppose history textbooks, they insist that the study of history is inherently a study of multiple perspectives. Thus, the use of a single textbook misses a fundamental point of history. If a textbook is to be used, so should primary source materials, the argumentative writings of historians, and perhaps another textbook. A good part of the work in history class should be devoted to engaging in historical inquiry with sets of primary sources on the same topic in order to give students experience in trying to sort out perspectives and evaluate plausibility.

By comparison, scientists are much more supportive of the idea of a single authoritative account of science knowledge. The accuracy and currency of this information is essential, however. Scientists are less interested in guiding students through critical analysis of text than in ensuring that students develop a coherent understanding of current scientific information, whether presented in a textbook or some other source (e.g., internet site, science magazine, journal). Of course, science

texts, regardless of source, should present students with information in a multimodal format (e.g., text, informational graphics, mathematical/computational elements).

In English class, whether one uses a literature textbook or not is irrelevant. It's the literature that matters, and it doesn't matter whether that literature is taken from an anthology, presented in a series of individual novels or collections of short stories, or found in a first edition. Examples of literary criticism appropriate to a literature class are also not format dependent.

Text availability is important, but it will only support disciplinary literacy to the extent that the texts are appropriate to the purposes and methods of the discipline. The content of texts must meet the demands of the curriculum, of course. However, within the parameters of content appropriateness, texts should include the specialized text features of the discipline and be appropriate for disciplinary reading. For instance, students won't be able to read multimodally, the way scientists read, without texts that contain scientific prose, informational graphics, and mathematical/computational elements that address the same phenomena. Unfortunately, some textbook publishers at times use science graphics more to decorate pages in order to interest students than to communicate scientific insights about a concept or process.

Similarly, students won't be able to weigh multiple perspectives in a history class unless the texts they read offer a range of perspectives concerning historical events. A high school world history teacher one of us worked with made text choices with disciplinary literacy in mind. As she mapped each unit of instruction in her curriculum for the year, she put disciplinary literacy concepts on one axis and her lessons and text choices on another. As she completed her plans, she ensured that there was a progression from the introduction of a literacy concept to a fuller realization of it as the year unfolded. Since she wanted students to source and contextualize, she had students read disparate accounts of Columbus's "discovery" of the "New World" at the beginning of the school year. The contradictory texts concerning Columbus's journey led students to recognize that there are different viewpoints about the past. This realization led them to consider who had written the accounts and when they were produced. The teacher gave students a heuristic for sourcing that reminded them to look at the author, the time period, the intended audience, and the purpose of the writing as they read each new text. Although students used the heuristic perfunctorily at first, the teacher immersed the class in discussion of how an understanding of the authors' varied experiences and differing historical contexts could offer insight into the reasons for the differences in the accounts. As the year progressed, she varied the roles of authorship and context. For example, she provided students with texts by the same person but written at different points in time or aimed at different audiences. Her selection

College and Career Readiness

Higher education faculty expect students to have already acquired certain disciplinary literacy skills and knowledge before entering postsecondary education, according to data from College Board's 2019 National Curriculum Survey Report. The sample of 1,377 postsecondary faculty in English, social science, and science gave high to relatively high mean importance ratings to students' ability to read and understand texts of various types and contents associated with particular disciplines: 2.62 (on a four-point scale, with 4 being "very important") for history/social science texts, 2.70 for natural science texts, 3.15 for textbooks, 2.76 for scholarly research, 2.88 for primary historical sources, and 3.15 for data displays.

For more information on College Board's 2019 National Curriculum Survey Report and its results, see the general introduction to this collection.

of texts and their arrangement across a school year ensured that her students' ability to source and contextualize increased in sophistication (Shanahan et al. 2016).

STUDENTS SHOULD BE REQUIRED TO READ DISCIPLINARY TEXTS

That students should be required to read texts in the disciplines may seem obvious, and yet, in years of classroom observations, we've repeatedly noted a pattern in middle school and high school subject matter classrooms: because students may have difficulty reading classroom texts, teachers often try to convey the content without texts. Heavy reliance on lecture, demonstration, teacher explanation, and the like may be sufficient to convey the information, but the less literary, historical, or scientific reading that students are engaged in, the less college and career ready they're likely to be.

This practice of skirting the text reduces students' ability to engage in disciplinary-specific reading independently as well as the likelihood that they'll gain either an awareness of the nature of argument in the various disciplines or a full appreciation of particular aspects of disciplinary practice that are dependent on literate practices. Watching a film, say, can be an enriching literary experience, but it shouldn't supplant the reading of literature. Taking part in labs is important in science, but it's not sufficient to develop a full understanding of the scientific method or to obtain current knowledge of the scientific world. Students should spend a significant amount of time reading disciplinary texts.

READING AND WRITING SHOULD BE LINKED TO THE INQUIRY WORK IN A DISCIPLINE

The literate practices of a discipline derive from the discipline's purposes, methods of inquiry, avenues of communication, and notions of quality (critique). It follows that for students to learn to read and write in a discipline, their instruction should expose them to all these elements. Content knowledge is an important part of the curriculum but so is an understanding of the kinds of work that produce such knowledge. Otherwise, students won't understand the context for the approaches they're taking to reading and writing, which definitely puts the cart before the horse. Engagement in inquiry allows students to feel invited into a discipline and may provide them with motivation to persist in the face of challenging content.

At least part of the time, then, students should be involved in projects similar to those that take place in the disciplines themselves. In history, students can search for and evaluate multiple sources on a topic to produce their own interpretations of a contested historical event, be required to adopt a particular lens (e.g., political, economic, social) to reinterpret an event, make evidence-based claims grounded in an

interpretation, and so on. In science class, students can read the relevant scientific information on a phenomenon, form their own hypotheses, write proposals for research to test their hypotheses, engage in the research, and report on the findings using a standard research article protocol, including multimodal scientific explanations, for either a lay or scientific audience. In literature, students can learn to make an interpretive claim about a work of literature backed by textual evidence, to critique an author's craft, to read relevant metasources (e.g., professional critiques, author biographical material), to write a scholarly interpretation of a piece of literature, and to compare several pieces of literature thematically—that is, engage in the work of the literary critic. From these sorts of engagements, students are given the opportunity to learn the reason they read and write in the ways used in the discipline.

TEACHERS SHOULD PROVIDE EXPLICIT TEXT-FEATURE INSTRUCTION AND GUIDANCE

Functional linguists have identified differences in texts from various disciplines. Disciplinary texts draw on the traditions of communication practiced by experts in given fields. Even the way textbooks are structured varies across subjects. Although most modern textbooks—even at elementary levels—include such features as headings, subheadings, and graphics, there are important differences in how textbooks in various disciplines structure and present content. History textbooks, for example, may present information chronologically by era, addressing all social, economic, and political information relevant to a particular era at once, or they may present information thematically, with different chapters addressing social, economic, and political issues and the content of each chapter arranged chronologically. Explanations of historical actors' motives and goals, cause-effect relationships, and other factors may be interspersed within an unfolding narrative or explanation ("there were three reasons why") and not highlighted as claims but presented as accepted fact. The graphical information in histories tends to be ancillary to the text—often doing nothing more than repeating information from the text—and can be examined before or after the text sections are read.

Students usually are presented with more than history in a social studies class. Geographical text may be included as part of an overarching historical presentation (e.g., maps showing the placement of troops in battle, the changing boundaries of states, or the movement of peoples), or geography may get more direct attention as a subject of study, often in connection with concepts in sociology and other social sciences. In any event, maps, unlike many other graphics included in histories, tend to be like the graphics in science, communicating both independent and overlapping information. Most economics graphics tend to be similar to the multimodal presentations of science, conveying the results of various

systematic studies. Civics may deal with information more akin to that found in the study of law than of history, with a heavy emphasis on such areas as legal procedures (e.g., how a bill becomes law) and court rulings (e.g., *Brown v. Board of Education*). Civics text may include graphics that repeat textual information (though sometimes more cogently than text, such as a diagram used to illustrate the process of enacting a law) or are mainly incidental, such as a photograph of the swearing in of Supreme Court Justice Thurgood Marshall.

Science textbooks are almost always multimodal, and their graphical elements need to be read reciprocally with the accompanying textual information. It's not always the case, however, that a graphical element will be aligned on the page (or screen) with the associated text, so a reader may have to go back and forth across pages (or scroll up and down) to make the necessary connections. Many modern science textbooks include pedagogical devices, such as brief definitions of technical vocabulary in the margins aimed at supplementing the extended explanations provided in the main discourse.

The texts of literature—short stories, poems, essays, plays, novels—have their unique structures and formats as well. Literary texts—except graphic novels and children's books—rarely are illustrated, nor do they contain informational graphics. Illustrations in literary works are, in fact, often frowned on by authors and literary scholars alike (Sacks 2013), as they may impose certain interpretations on readers. If students have seen a film or theatrical version of a work or if there are illustrations in a piece of literature, however, students need to learn how to manage them (e.g., how to see a story with fresh eyes after having viewed a movie version).

Teachers shouldn't assume that because students are reading a disciplinary-appropriate text they recognize its unique features or know how to make sense of them. For example, without teacher guidance, students won't necessarily know to read past the ends of certain lines in poetry to parse them meaningfully, nor will they automatically move back and forth between words and graphics in a science text. Explicit guidance and direction are needed if students are to reach a level of proficiency with such text features.

TEACHERS SHOULD PROVIDE EXPLICIT INSTRUCTION IN APPROACHES AND STRATEGIES

Reading approaches and reading strategies aren't the same thing. A disciplinary expert *approaches* a text within a framework of disciplinary knowledge (or a habit of mind) and with a particular purpose. These guide the way the expert reads. Wanting to understand who the author is and in what context a text was written are elements of an approach to text that historians take. A *strategy*, on the other hand, is a set routine that's applied to the reading of a text. For instance, SOAPStone is a strategy

used in many history classes to promote sourcing and contextualization. The acronym stands for **S**peaker, **O**ccasion, **A**udience, **P**urpose, **S**ubject, and **T**one, and students are asked to list these elements prior to and during reading. This strategy can be used in a perfunctory way. That is, students can merely list these elements without giving them much thought as they move through the text. If, however, students approach a text in history with the mind-set of a historian, they'll think deeply about how the elements addressed by the strategy shape the message, allowing them to determine perspective and potential bias. The SOAPSTone strategy, then, is best used as a reminder to novices to think about author perspective and context as a historian would. The basic point is that strategies are only effective if they're used thoughtfully, and they're more likely to be used thoughtfully if students are used to reading with the fundamental mind-set of the discipline.

To summarize some disciplinary *approaches* we've previously discussed, we note that whereas historians always seem to approach what they read with skepticism (regarding a particular text as if it were a potentially contestable argument), scientists aren't so consistently critical. For scientists, their stance depends on what they're reading and how much they already know about the topic. They approach research on topics of which they have great knowledge quite critically, expecting proper adherence to experimental methodology, comparing research methods and findings discussed in the text to those from their own work, and gauging the probability of replication. On the other hand, when they know relatively little about the topic but trust the authority or veracity of what they're reading, they engage in a more uncritical "reading to learn" mode. Literary experts approach texts without having to vet the extent to which something is true. They read more aesthetically—to infer meaning, detect themes, analyze characters, reflect on author's craft, and so on—and in a manner based on their interpretive stance (e.g., New Criticism, reader response). Teachers can help students adopt these and other approaches to reading through discussion and a careful arrangement of readings and assignments.

Specific reading strategies can be useful in subject matter classes as well as long as they're implemented in ways that adhere to these principles:

1. **Strategies should have a disciplinary focus.** Students might be asked to make a vocabulary notebook to facilitate their learning and use of the technical terms of a given subject, but that strategy would be too general to provide maximal support of disciplinary learning unless students are taught what kind of vocabulary to include or the nature of the definitions that should be recorded. In history, for example, it'd be wise to record not just what a word means but also the point of view it suggests. For example, there's a nontrivial difference between "revolution" and "movement." Which of those words is used in a text says something about the author's interpretive lens. In

science, it'd be prudent for students to depend on a science dictionary to identify the definition of a given word or phrase since general dictionaries may omit technical definitions or conflate everyday and specialized meanings. In literature study, students might benefit from organizing focal words conceptually into categories (e.g., words and phrases for describing characters, relationships, and emotional states). In other words, a vocabulary notebook will be more useful if the strategy reflects an appropriate disciplinary focus.

Of course, some strategies have an inherent disciplinary focus, such as identifying themes for literary works by tracking a character's arc of development or creating a table that identifies and organizes chemistry information (e.g., substance, properties, process, interaction, atomic weight). Timelines are particularly useful for contextualization in history. Teachers should either adopt such discipline-specific strategies or tailor existing content area reading techniques to the needs of a given discipline; if a given generic strategy can't be made to fit the discipline in a way that reinforces and extends students' understanding of the discipline, perhaps it isn't worth instructional time.

- 2. Strategies should help students solve problems with the text(s) they're reading.** One-size-fits-all strategies can be problematic, as they may shift instructional focus away from a discipline-based text or assignment. Why engage students in a generic K-W-L (Know, Want to know, Learned) strategy, for instance, when the goal of the lesson is to get students to explain a scientific process multimodally? It'd be better to expose students to expert multimodal text in science, model how to construct a multimodal scientific explanation, and guide them in translating scientific information from one mode to another—a task much more in line with scientific process. In the latter case, the instructional goal, the text, and the strategy are aligned, and all are in accord with the literate practices of the discipline.
- 3. The strategy shouldn't be the point of the instruction.** Students are in content area classes to learn the subject matter in ways that honor disciplines' ways of creating, communicating, and evaluating knowledge. Strategies, if used judiciously, can help novices engage in practices that allow them to learn content in discipline-relevant ways. Teachers, though, need to be careful to frame any strategy with reference to the discipline and the content. Once students demonstrate that they're successfully adopting an appropriate disciplinary approach, it's useful to fade out the explicit use of the strategy or strategies used to promote that approach. It can also be useful to vary the form that a particular strategy takes. For example, earlier we noted that one discipline-based strategy for identifying and organizing chemistry information is presenting students with a table to fill out. However, students could also be given a series of questions to

answer in preparation for a discussion or a template for summarizing the same information in paragraph form. The point is that the strategy isn't the point; the underlying approach to thinking is. Changing the format the strategy takes can help prevent students from being captured by the strategy and make it easier for them to recognize the underlying principle. Too often, students are evaluated on strategy use rather than content or approach, misleading them as to what learning is truly about.

TEACHERS SHOULD TEACH THE NATURE OF A DISCIPLINE'S ARGUMENT AND EVIDENCE

Argument is at the heart of all scholarly endeavor. However, as already discussed, the disciplines ask different questions, make different claims, rely on different kinds of reasoning and evidence to determine the veracity of those claims—and even differ in how they cite that evidence. Because of the centrality and variability of argumentation, it's important that students learn to engage in argumentation in discipline-based ways. To do this, however, they need to read and critique arguments written by others. Textbooks aren't enough. As noted, many textbooks hide the argument and presentation of evidence.

In science, students might read research studies as arguments, noting the claims (hypotheses) that are made and the methodological steps used to provide evidence for (or against) them. In literature, arguments about meaning or an author's craft are available in the form of literary criticism, with evidence coming either directly from the text or from other scholarship (e.g., the study of an author's letters or oeuvre). Historical arguments about the past and their evidentiary basis (e.g., documents, artifacts, writings of other historians) are common in the essays and books of historians.

Students also need to practice writing arguments through scaffolded practice that includes teacher modeling as well as whole-class, small-group, and individual practice. Writing is typically a challenge for students, so it might be useful to provide students with templates and rubrics when they begin the process of writing disciplinary arguments and then remove these scaffolds as students become more proficient. In addition, teachers should have essay assignments in mind for each unit of study. Students should be informed of this essay task at the beginning of a unit so that as they read, take notes, and engage in other classroom activities (e.g., labs, debates), they can be preparing to write the essay while they're learning the associated content.

In a history class, for example, a teacher might want students to write a change-over-time essay, which requires students to understand a set of characteristics of both an earlier and a later period and then compare and contrast those characteristics to determine what changed and what led

“The disciplines ask different questions, make different claims, rely on different kinds of reasoning and evidence to determine the veracity of those claims—and even differ in how they cite that evidence. It's important that students learn to engage in argumentation in discipline-based ways.”

to the changes. The teacher would share the topic for the essay (e.g., how the civil rights movement developed from the 1950s to the 1960s) with students. The students would then determine what characteristics they were going to compare and contrast and take notes describing those characteristics as they read various texts about that era in U.S. history. Finally, they would produce an essay in the form of a historical argument, complete with historical evidence. For instance, a student could write that the movement seemingly became less local in the 1960s, providing examples of how early on the movement had been focused on particular communities or specific local issues (e.g., the Birmingham bus boycott, the Greensboro lunch counter sit-ins) but over time shifted focus to the nation as a whole and to federal issues (e.g., open housing legislation, voting rights, marches on Washington).

STUDENTS SHOULD DEVELOP READING ABILITY ALONG WITH CONTENT AND DISCIPLINARY KNOWLEDGE

Content knowledge and knowledge of (and the ability to use) the methods and approaches of a discipline are what distinguish experts from novices. These two elements are reciprocal. Disciplinary knowledge allows readers to approach texts in ways that enable them to gain content knowledge; content knowledge, in turn, helps readers understand what the discipline is all about. As disciplinary and content knowledge grow, readers engage in more efficient practices while reading, addressing issues, and solving problems in the discipline and, consequently, become more invested in and motivated to learn the material (Alexander 2003). Subject matter teachers possess extensive content knowledge, and they're right to emphasize it heavily in their teaching, but it's also essential that they help students gain a deep understanding of from whence this knowledge comes—how it's created, communicated, and evaluated within a field of study. Students need to learn to adopt the habits of mind and the literate practices of the disciplines. Only with a firm grasp of those habits and practices will students be truly college and career ready.

Last Words

This chapter defined and explained *disciplinary literacy* and explored the reasons why instruction in disciplinary literacy is necessary (if not sufficient) to make students college and career ready. It provided literacy portraits of expert practices in history, science, and literature, exploring those disciplines' goals and methods, texts, and literate practices and the connections among them. Finally, it put forth evidence showing the efficacy of instructional practices aimed at developing disciplinary literacy insights and practices among students and made recommendations for teaching disciplinary literacy.

It's often assumed that reading and writing are the province of English language arts teachers. However, it should be evident from the

information provided here that ELA teachers can't possibly grasp all the nuances of discipline-based reading and writing practices in the many subjects students must study; what's more, they have their own disciplinary teaching to do in literature. ELA teachers don't usually spend considerable time reading science or history, and even those who do so for leisure aren't likely to have sufficient background knowledge concerning the inquiry approaches and content of these fields of study to prepare students for the fields' demands. Subject matter teachers, by contrast, do have a strong grasp of their content and at least an implicit understanding of the goals and practices of their disciplines. Their role in the shared enterprise of literacy instruction isn't to teach basic skills and knowledge associated with reading and writing (and communicating in other ways) but rather to guide students to negotiate those features and formats specific to the texts of particular content areas and to induct students into the literate practices and principles of the disciplines they teach. ❖

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The Immense Potential of English Learners and Their Realization of College and Career Readiness

By Susan Pimentel

After leading the development of the Common Core State Standards for English Language Arts and Literacy, Susan Pimentel joined Understanding Language at Stanford University, an initiative dedicated to promoting the development of students' English language proficiency and disciplinary knowledge simultaneously within the context of college and career readiness demands. In that capacity, she coauthored Realizing Opportunities for ELLs [English Language Learners] in the Common Core English Language Arts and Disciplinary Literacy Standards with George Bunch and Amanda Kibler. She also facilitated the expert team that created the English Language Proficiency Development Framework, designed to assist states with their development of English learner proficiency standards. Describing herself as still very much a learner in this field, Pimentel has focused her recent work on promoting the simultaneous learning of English, learning in English, and cultivation of home languages so that ELs can realize their full potential.

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Introduction

English learners (ELs) account for 10.2 percent of the K–12 enrollment, or five million students, in U.S. schools (National Center for Education Statistics 2022). Any discussion about the education of ELs in the United States must begin with an acknowledgment that they represent a diverse population. Most are children of parents who hail from Latin America and Asia, with Mexico being the leading country of origin. From newcomers to those born in the United States, they're heterogeneous in terms of their age, grade level, English proficiency, literacy level, and time in the United States. The terms *incipient* bilinguals, *ascendant* bilinguals, and *fully functional* bilinguals highlight the distinctions among students from these different backgrounds and reflect the need for instruction to flex in order to reflect and build on what knowledge and experiences students bring to the classroom (Valdés et al. 2005).

With the advent of the Common Core State Standards and other sets of high-quality college and career readiness standards, the challenges all ELs face in school have intensified. Such standards demand that all students—ELs included—engage in increasingly sophisticated language and literacy tasks in order to acquire and demonstrate knowledge and skills required for college and workforce training. These standards articulate high expectations for students: accessing complex texts, constructing cogent, well-supported explanations and arguments, pinpointing central points formulated by speakers, elaborating on ideas generated from peer discussions, assembling and testing a range of claims, and strategically implementing procedures to solve problems, to name just a few requirements. In short, the need to provide ELs with opportunities that simultaneously promote the development of language *and* disciplinary knowledge has never been greater.

It's no exaggeration to say that districts and schools undercut their best intentions by embracing an approach toward EL instruction that undermines the twin goals of learning English and attaining college and career readiness. In the view of EL scholar Lily Wong Fillmore, traditional EL instruction is characterized by "a lot of attention and energy focused on turning ELs into English speakers, and not nearly enough on educating them" (2010, slide 11). The attention put on creating students who are fluent speakers of English neglects the deeper need for ELs to *understand* what they're reading and learning. This neglect, Fillmore believes, is tied directly to unexamined assumptions that educators have too long accepted in EL instruction. The biggest problem has been the use of texts (and accompanying tasks) that are adapted for ELs—often "so greatly simplified" that they don't offer access to the English that ELs are supposed to learn. What ELs need instead "are authentic and age appropriate texts" that they learn how to navigate "with appropriate

instructional support from teachers who know how to support language development” (slide 17).

A solution to the failure of the traditional approach to preparing ELs for college and careers comes into focus when we examine the sequence of instruction schools conventionally provide to ELs. EL experts such as Fillmore decry the penchant of schools to make learning English a bridge ELs must first cross before they’re allowed to take part in grade-level core disciplinary classes in science, math, history/social studies, technical courses, and even English language arts. Because many ELs never achieve the elusive goal of perfect English fluency, too many are denied the rich academic experiences and language found in such classrooms—precisely the kind of experiences and language that contribute so heavily to college and career readiness. To be sure, EL experts don’t suggest that incipient bilinguals with little understanding of English be flung willy-nilly into challenging core classes without the benefit of English instruction or support; instead, their position is that once ELs reach a moderate level of English language proficiency—ascendant bilingualism—they ought to have the same access as their native-English-speaking peers to rigorous mainstream disciplinary classes so they can *simultaneously* build their knowledge base and conceptual understanding (buttressed with supports) and nurture their budding English language competence.

(Re)Envisioning EL Education

ELs face the double-barreled challenge of learning enough of a second language (English) to participate successfully in grade-level academic classes and gaining the disciplinary knowledge and skills they need to be prepared for college and careers enmeshed within that second language. The challenge is not insurmountable, however, as proven by the fact that many students who enter school as ELs attain English proficiency and learn academics, are reclassified as fluent, make good grades, and graduate high school with their postsecondary ambitions intact (Saunders and Marcelletti 2013; Kieffer and Thompson 2018). But neither is the challenge inconsequential: Despite years of schooling, substantial numbers of students who begin school with an EL designation aren’t reclassified and too often don’t complete high school. Their graduation rate—67 percent in 2015–16—is nearly 20 percentage points lower than the overall high school graduation rate (84 percent in 2015–16) (U.S. Department of Education, n.d.). Even if they can complete high school, many don’t develop adequate levels of linguistic and academic skills to secure their futures. These students score 36 points lower in reading than their non-EL counterparts in fourth grade and almost 44 points lower by eighth grade (Office of English Language Acquisition 2016). Many will leave school not being college and career ready and will struggle to fully participate in the economic and social opportunities otherwise available

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to them (National Academies of Sciences, Engineering, and Medicine 2017).

Also distressing is the fact that while multilingual learners begin their school careers with a potent linguistic asset—knowledge of another language—it can atrophy or fail to develop commensurate with their age when that language isn't used regularly in school (or promoted at home) (National Academies of Sciences, Engineering, and Medicine 2017). Well-founded concerns exist that too many ELs (currently and formerly designated) lose a great deal of their productive home language ability by the time they graduate from U.S. high schools. And is it any wonder? Psycholinguistic expert François Grosjean (2012) recounts the history of bilingualism in the United States as one that “has traditionally been transitional—a passage, over one or two generations, from monolingualism in a minority language to monolingualism in English.” While the costs of failing to address achievement gaps and graduate fully biliterate students from U.S. schools are borne most plainly by ELs themselves, there are broader economic and social losses for the nation as well.

Studies point to the damaging consequences of shielding students from core academic classes (Walqui et al. 2010; Olsen 2010). This approach has stranded large numbers of ELs for years—many for six years or more—on the plateau of “insufficient English proficiency” as measured by state reclassification tests, thus denying them access to rigorous mainstream core classes because they haven't yet reached full or native-like English proficiency. The consensus of experts is that annual reclassification assessments meant to gauge ELs' English proficiency should be viewed with a degree of caution and concern (National Academies of Sciences, Engineering, and Medicine 2017). They're imperfect. They're inadequate. They're single on-demand measures—inconsistently applied within and across states—that carry high-stakes eligibility consequences for ELs.

Scores of ELs find themselves marginalized academically, tracked into low-level EL-only “sheltered” or remedial-level core classes, and locked into language intervention classes for much of the school day, ostensibly to boost their English learning. They spend most of their days sequestered among other learners of English. This debilitating cycle of students not being exposed to disciplinary content and experiencing only English taught in isolation from its academic uses perpetuates itself. When ELs are in courses that lack academic rigor, they don't learn how English is authentically encountered in disciplinary classrooms and therefore are unable to meet the standards in English fluency needed for reclassification. Their lack of proficiency in academic language and literacy, in turn, denies them opportunities to advance to the higher levels of academic course work they need to meet the standards in English. And

on it goes. Indeed, too many ELs wind up *losing* ground as they move up the grades until college or workforce training is out of reach because they can't earn the high school credits they need (Olsen 2010).

There are, however, promising alternatives, backed by sound theory and research on language development and learning, that point the way to better outcomes for ELs. An alternative approach (alluded to above) insists English learning and academic instruction go hand in hand instead of proceeding sequentially. Modern theories and research on first- and second-language acquisition show that learning a language is an essential tool for connecting disparate pieces of knowledge and is therefore inseparable from actually gaining knowledge. Recently dubbed "language as action," this approach, in a classroom context, involves ELs engaging in a range of meaningful academic activities that encourage language growth in the various school disciplines (van Lier and Walqui 2012; Bunch, Kibler, and Pimentel 2012). Said another way, linguists have found that students learn language best in the context—and communities—in which it's used. What constitutes "language" shifts in academic contexts depending on who's using it, how it's being used, what's being communicated, and for what purpose. Academic language development grows from engaging with, reflecting on, thinking about, investigating, discussing, and writing about topics and concepts that appear in authentic disciplinary texts and through authentic instruction in the disciplines (Baker et al. 2014; National Academies of Sciences, Engineering, and Medicine 2017). ELs, therefore, will only learn and become fluent with the English used in academic contexts through authentic experiences in core disciplinary classrooms.¹

Closing the achievement gap and giving ELs genuine opportunities to meet the demands of college and workforce training requires that educators take a broader view of EL instruction by creating parallel opportunities for ELs to cultivate their home language(s), advance in English proficiency, and pursue grade-level English language arts and additional discipline-specific course work. What's not yet clear is the best mix of these three and how to pull it off so that the simultaneous learning *of* English, learning *in* English, and nurturing home languages complement and reinforce each other productively (Claude Goldenberg, private correspondence, January 2019).

Three Tenets of Excellence²

The means for simultaneously promoting the development of language and disciplinary knowledge can be encapsulated in the following three

¹ These same principles apply regarding high-quality opportunities for students to develop academic uses of their home language and literacy.

² These tenets build directly from Stanford's "Understanding Language" resource. See Stanford University Graduate School of Education (2013).

"tenets of excellence" for EL instruction, each of which is discussed in turn.

1. Instruction that's effective for native English speakers—academically rigorous, grade-level instruction in core classes—is also the foundation of sound instruction for ELs (Goldenberg 2013).

Like other students, ELs need to learn more than English to prepare themselves for postsecondary success. Learning English must be a partner in learning the practices, skills, and knowledge contained within academically rigorous grade-level content area classes; the two sets of abilities are symbiotic and should be codeveloped instructionally. The best way for ELs to build complex language and literacy practices, skills, and knowledge is through complex content learning (Doherty et al. 2003; Fillmore and Fillmore 2012) rather than a strict language-before-content sequence.

While it may seem counterintuitive to have ELs engage in content before they have high levels of English language proficiency, studies show that by participating in meaningful grade-level activities as part of mainstream instruction in the subject areas, ELs who have a modicum of English proficiency have the potential to learn not only the target content but also the particular ways in which language and literacy are used for different audiences and purposes in different disciplines (Baker et al. 2014; National Academies of Sciences, Engineering, and Medicine 2017). With proper supports, detailed in tenet #2 below, ELs can build expanded language repertoires and engage productively in the kinds of literacy practices called for by college- and career-readiness standards while still absorbing the content.

Two important provisos must be kept in mind when adopting this approach: First, ELs must be allowed to engage using English that's still under development. Sounding like a native speaker of English shouldn't be a prerequisite for inclusion. Second, ELs need and deserve early and ample targeted language instruction to ensure long-term academic success. Specific time must be set aside for English language development (ELD) instruction in which teachers group ELs by language proficiency (but *only* for those classes) and in which ELs receive language practice—conversational and more specialized—so they can participate fully in disciplinary classes (Saunders, Goldenberg, and Marcelletti 2013). Systematic instruction is especially crucial for ELs who are least proficient in English.

2. Targeted supports are essential to provide ELs with productive opportunities to access rigorous core content (Bunch, Kibler, and Pimentel 2012).

Within mainstream classes, temporary instructional supports (e.g., scaffolds) can bridge learning gaps and make grade-level content comprehensible for ELs. Such supports help students reach higher levels of comprehension and skill acquisition than they would without assistance and are designed to lead to students taking charge of their learning (Bunch, Walqui, and Kibler 2015). Crucially, scaffolding should supplement and not supplant core instruction. As EL scholar, curriculum developer, and teacher professional development leader Aída Walqui puts it, “Rather than simplifying the tasks or the language, teaching subject matter content to ELs requires amplifying and enriching the linguistic . . . context” (2006, 169). Because scaffolds should always be limited to “just-enough, just-in-time” support, teachers must both plan ahead to anticipate the needs of their EL students and be prepared to adjust, transform, swap out, or dismantle the scaffolds at any given moment as the developing situation warrants.

Several key literacy supports have proved effective in providing ELs with productive opportunities to access grade-level content across the curriculum and develop academic English as part of subject matter learning (Baker et al. 2014; National Academies of Sciences, Engineering, and Medicine 2017). They include

- providing ELs with regular opportunities to negotiate meaning from grade-level complex texts (i.e., texts that meet grade-appropriate expectations) and grade-level activities across the curriculum by integrating into instruction supports that help ELs make the content comprehensible;
- providing daily opportunities for ELs to collaborate and discuss course content with their peers—opportunities anchored in topics present in the texts they’re reading and the grade-level content they’re learning—in order to build confidence with newly acquired skills and knowledge;
- engaging in intense vocabulary instruction as part of subject matter learning, including instructional conversations in which teachers draw ELs’ attention to important words, phrases, and clauses in the texts with which they’re working; and
- providing regular, structured writing opportunities anchored in content to extend and solidify EL learning.

These supports are specifically designed to assist ELs in disciplinary settings (and are discussed in greater detail in the next section). As noted above, it’s essential that ELs have dedicated language classes offered by linguistic specialists as extra support for academic success. Such classes need to be sensibly scheduled so that students don’t end up double-booked and thereby miss out on chunks of academic content (Olsen 2010).

3. ELs bring with them considerable resources, including knowledge of a home language(s) and culture(s), that should be leveraged for English acquisition, learning more broadly, and graduating fully functional bilingual students (National Academies of Sciences, Engineering, and Medicine 2017).

Instructing students in their home languages is politically charged in some sectors, but a large body of evidence indicates that investing time and resources to cultivate students' home languages has inherent advantages. Having a clear statement of philosophy that "recognizes the nexus among students, their languages, cultures, immigration, and home and community experiences" is essential to establishing the right tone for English learner practices and promoting culturally responsive learning environments (Council of Chief State School Officers 2019, 5).

Knowing and being literate in two (or more) languages offers students considerable cognitive, cultural, and economic rewards—and is the global norm (Goldenberg 2013; Goldenberg and Wagner 2015). Such benefits include, among others,

- enhanced working memory, improved abstract, symbolic representation skills, and improved ability to plan and think flexibly (Adesope et al. 2010; National Academies of Sciences, Engineering, and Medicine 2017);
- several positive sociocultural effects on intergroup relationships between native English speakers and ELs (e.g., a reduction of prejudice and stereotyping) and improved self-esteem of ELs (Genesee and Gándara 1999); and
- numerous employment and promotion opportunities, including an increased probability of obtaining a higher-status job and higher annual earnings (Bialystok 2011).

There's also clear evidence that tapping into ELs' first language literacy can confer many advantages in their acquisition of English literacy (Dressler and Kamil 2006). For example, teaching students to read in their home language has been shown to promote higher levels of reading achievement in English. ELs benefit in a host of other ways from their knowledge of a home language, enhancing fine-grain abilities such as interpreting metaphors and performing intraword segmentation as well as broader skills such as English speech discrimination and production (e.g., accents, pronunciation, manners of oral expression) (August and Shanahan 2006). Research shows that ELs perform better on tests measuring comprehension, reading, spelling, and vocabulary when their home culture and language are valued and incorporated into academics (Doherty et al. 2003). Conversely, ELs suffer academically when schools ignore their upbringing or, worse, devalue it or view it as an impediment or a liability; doing so can rob ELs of their self-respect and sense of

self-efficacy as well as diminish their motivation to learn and even to stay in school (National Academies of Sciences, Engineering, and Medicine 2017).

Teachers can capitalize on the home language of ELs to boost their acquisition of English, activate their knowledge of the world, and enhance their comprehension and communication processes. By these actions, teachers acknowledge to ELs (and others) the inherent cognitive and economic advantages of ELs' knowledge of another language (August, Fenner, and Snyder 2014; Francis, Lesaux, and August 2006). ELs can, for example, bring to bear conceptual knowledge they developed in their first language to their disciplinary studies. ELs often also have a heightened awareness of grammatical functions and effects as they develop and use more than one language. ELs who speak a first language that shares cognates with English—Spanish is a major one—can also apply first-language knowledge to acquiring a second language.

There are several approaches mainstream teachers can adopt. At critical points during lessons in core classes, home languages can be tapped to help facilitate knowledge acquisition by ELs (Bunch, Kibler, and Pimentel 2012; Goldenberg 2013). For example, to prepare for a lesson, ELs can research the unit topic or read (or listen to) in their home language the text that they'll be reading in class. The teacher (or specialist who knows the home languages) can also preview lesson content with ELs. During the lesson, teachers can encourage ELs to discuss and clarify their ideas about texts or topics under study in their home language with fellow speakers before being asked to express those ideas in English. As the lesson proceeds, the teacher (supported by a language specialist when possible) can provide brief explanations of the text in the home languages of ELs, offer ELs bilingual glossaries, and encourage ELs to write or conduct research in their home language before they're asked to explain their understanding in English. Also, classrooms and libraries can be outfitted with books from ELs' home languages. The bottom line is clear: the more the home languages of ELs are developed and validated, the more positive the outcomes for ELs (Olsen 2010).

The need to focus on ELs' home languages translates into a critical need for many more highly qualified ELD and bilingual certified teachers who can support the transfer of literacy skills from their home languages to disciplinary discourse patterns in English.³ As defined by the Council of Chief State School Officers' 2019 report, "highly qualified" means teachers who have, among other characteristics, "completed required coursework in English language development," "strong content

“ Teachers can capitalize on the home language of ELs to boost their acquisition of English, activate their knowledge of the world, and enhance their comprehension and communication processes.”

³ The federal government's Office of English Language Acquisition estimated back in 2010 that 47,000 or more additional ESL and bilingual teachers were needed (Gándara and Escamilla 2017). Almost a decade later, the demand is even higher.

knowledge,” familiarity “with students’ communities,” and “high levels of language proficiency in students’ home languages” (17).

To be clear, promoting the use of students’ home languages isn’t meant to imply that opportunities for students to hear and use English should be restricted; indeed, students can’t learn an additional language without ample opportunities to listen to it, produce it, and engage meaningfully in it.

From Vision to Promising Classroom Practice

In helping ELs meet the dual challenge of acquiring college and career readiness content and learning English, disciplinary teachers should provide robust and varied opportunities for ELs to learn the principal language and literacy practices inherent in their disciplines, thereby enhancing students’ engagement with the rich academic subject matter required by today’s more rigorous state standards (Valdés, Kibler, and Walqui 2014; National Academies of Sciences, Engineering, and Medicine 2017). Disciplinary teachers need to “attend to,” not “teach,” language use in the classroom (Valdés, Capitelli, and Quinn 2018). That translates into teachers alerting ELs to “language usage that is frequent and recurring but may not be immediately noticed” and regularly “providing students with opportunities for ‘real language’ interactions” (Valdés, Capitelli, and Quinn 2018, 22). Disciplinary teachers needn’t concern themselves with correcting errors or explicitly teaching the formal aspects of the English language (e.g., subject-verb agreement, modals, order of adjectives and nouns, conditionals, possessives); language specialists can better handle that instruction. Schools need to reimagine the role of specialists, however, to ensure it supports both conversational or colloquial language (including everyday teacher talk) and the discourse practices required for ELs’ full participation in disciplinary classes (Bunch, Kibler, and Pimentel 2012; Saunders, Goldenberg, and Marcelletti 2013; Bunch, Walqui, and Kibler 2015).

Disciplinary teachers and language specialists must have regular opportunities to collaborate in the design of instruction. Issues related to language acquisition and culturally responsive pedagogy need to be front and center in these collaborations, as do the analysis of student work and the development of robust lessons that align to college and career readiness standards (Goldenberg 2013). One specific area of focus for these collaborative efforts should be the systematic trial of promising evidence-based EL scaffolds. A closer look at how these different kinds of scaffolds operate in the classroom will reveal valuable insights into how they assist EL students in expanding their knowledge base and developing their English language competence. Said another way, we have a distance to go before we know which combination of

“Disciplinary teachers should provide robust and varied opportunities for ELs to learn the principal language and literacy practices inherent in their disciplines.”

instructional approaches in which settings—including approaches yet to be designed—hold the most promise for making sure ELs realize their full potential. In the meantime, at the very least we must strategically provide all promising supports and carefully evaluate their effects on students (Goldenberg 2013). Such supports include the following:

1. Scaffolds that support ELs in negotiating the meaning of grade-level complex texts in core academic classes

Research on the reading of grade-level complex texts by ELs in instructional settings indicates that text simplification is ineffective in promoting comprehension and may even be counterproductive (Bernhardt 2011). “Simplified texts offer no clue to students as to what academic language sounds like or how it works” (Fillmore and Fillmore 2012, 2). Indeed, once vocabulary demands are lowered, the length of sentences shortened, and the syntax and meaning of the passage simplified, the resulting text bears little resemblance to the source material. Complex ideas require complex lexical and grammatical structures and patterns. When teachers give ELs a diet of simple texts to read, students don’t get access to the mature discourse—vocabulary, syntax, and concepts—needed to succeed in college and workforce training. Alternatively, when teachers provide ELs with access to a range of authentic texts that embody various elements of complexity, they achieve at higher levels on both language development assessments and standards-based assessments (Fillmore and Fillmore 2012). As a result of misguided worries that ELs will be frustrated by anything too hard, educators too often persist in denying ELs complex works to read. They want to safeguard ELs against failure in the immediate term without understanding the cost of ensuring it in the long run. (For a fuller treatment of text complexity, see chapter 1.)

How, then, should ELs encounter complex text such that they’ll be successful at negotiating its challenge? A convincing body of research points to an initial overarching scaffolding suggestion of providing ELs with texts that are brief, engaging, and have sufficient heft for thought-provoking discussions (ELICIT Collaborative 2014; Baker et al. 2014). Researchers in the field cite as the best candidates content-rich informational texts in science and history/social studies and narratives with topics that have moral and ethical ambiguity (Beaulieu-Jones and Proctor 2016). Students’ interests, motivations, and prior knowledge can point teachers to excellent text choices and to what pedagogical supports to employ for engaging ELs with complex texts and rigorous tasks (Bunch, Walqui, and Pearson 2014). While student interest often provides a good starting point, the suggestion here isn’t that teachers should limit ELs to their self-defined comfort zones; there are, in fact, ways to build student interest and knowledge across a broader array of topics.

Another scaffolding approach endorsed by EL experts is to provide ELs with auxiliary, more accessible texts (including those in the students' first language) to build their background knowledge of the subject prior to them encountering grade-level complex text: "If the [main] text contains cultural, historical, or thematic information ELs are unlikely to have acquired, they can read short supplementary texts to help them acquire such knowledge" (August, Fenner, and Snyder 2014, 5). Accessing additional resources such as illustrations, photographs, short video clips, demonstrations, and the like is another way ELs can get a leg up on complex, unfamiliar text and engage with content (August et al. 2009; Valdés, Capitelli, and Quinn 2018). The range of above practices can ground instruction, create for ELs a shared experience with their native-English peers (who equally benefit from such practices), and help students make sense of the content. The prework (scaffolding) builds the knowledge and vocabulary necessary to tackle the grade-level complex text, creating "Velcro" in the brain to which new information and ideas can attach. When an anchor text is buttressed with supplementary texts and resources, forming a unit of study organized around a topic of interest, ELs (and native speakers) are more likely to comprehend and engage with the text more thoroughly than if they merely encountered the topic through the complex text alone. (For more on text sets, see especially chapter 3, on vocabulary and knowledge building.)

While text annotations that gloss crucial vocabulary can offer additional scaffolding for ELs, researchers also recommend multiday readings of complex texts—each with a different focus and purpose—as a more robust way to scaffold the reading experience for ELs and provide them with productive exposure to rich text (August and Shanahan 2006). Below is a sample sequence of how ELs could productively engage with a complex text over repeated encounters, couched within meaningful, exciting, and engaging conversations and tasks regarding the central meaning of the text and why students should care about it:

First read: Students listen to a fluent read-aloud of the text by the teacher and follow along in their texts.

Second read: Students answer a series of text-dependent questions that delve systematically into the text, guide them in extracting key ideas and details, and establish whether they're getting the gist of the text.

Third read: Students focus on vocabulary and sections of the text that they didn't understand on previous reads.

Fourth read: Students revisit the text to analyze author's craft and structure and to prepare for writing about the text.

(The close reading paradigm discussed in detail in chapter 2 mirrors the above sequence.) Educators can employ other useful scaffolds, such as having collaborative discussions, developing academic vocabulary, and providing structured opportunities to write (described below) throughout the multiday reads. An example of how learning tasks and lessons within a single unit of topically related material can provide integrated opportunities for ELs (and all students) to engage intensely with complex texts can be found in a unit produced by WestEd for the Understanding Language initiative (Walqui, Koelsch, and Schmida 2012; Kibler, Walqui, and Bunch 2015). The middle school unit *Persuasion across Time and Space: Analyzing and Producing Complex Texts* (<https://ul.stanford.edu/resource/persuasion-across-time-and-space-instructional-unit>) features five multiday lessons that encompass a five- to six-week time frame. Each lesson develops and refines students' understanding of the principles of persuasion, moving from more familiar forms of discourse, such as media advertisements, to progressively less familiar, more complex forms that are historically situated, such as Lincoln's Gettysburg Address and Barbara Jordan's speech "All Together Now." Because each lesson builds on the next rather than consisting of standalone texts and tasks, lessons form a coherent, connected whole that deepens students' knowledge of the topic.

An additional practice—and one that teachers can easily integrate into daily instruction—is called the Juicy Sentence protocol (Fillmore and Fillmore 2012). The protocol began in 2007 as a strategy to jump-start the instruction of ELs in New York City who had stalled at the intermediate level of English proficiency. While the Fillmores didn't conduct formal research on the effectiveness of the approach, schools (lab sites) that implemented the protocol decided to expand its use because of the results officials had observed. These included increased numbers of ELs passing both the New York State English language proficiency test and the Regents global history test as well as the fact that ELs outperformed non-EL students on the ELA test that was given each year at lab sites.

The protocol makes use of the rich, complex, discipline-appropriate texts that ELs and native English speakers are already (or should be) studying in class. From these texts, the teacher each day selects one meaning-rich, syntactically complex sentence—one jam-packed with information and begging for examination and discussion. For ten to fifteen minutes, usually at the start of class, the teacher and students probe the meaning of the words, phrases, and clauses in the "juicy" sentence. Teachers should intentionally select instructional preludes such as this with the larger unit topic in mind so that students are learning content as they get comfortable with the look and feel of complex academic language. Through this daily work, students

develop the skill and habit of breaking down complex sentences and, through that effort, come to understand how to construct their meaning. Students thereby become more proficient at independently unlocking the information and ideas encoded within other syntactically complex sentences they encounter and producing such sentences themselves.

2. Scaffolds that support ELs in accelerating the growth of their oral language facility

Research shows that ELs benefit from multiple opportunities each day to deliberate collaboratively about what they're learning and reading in a range of subject areas (Baker et al. 2014; Beaulieu-Jones and Proctor 2016). Anchoring small-group, collaborative conversations in topics associated with the texts ELs and their classmates are reading and the content they're learning gives all students time to explore and rehearse their thinking—thus allowing them (and ELs in particular) to be more secure when they speak with the larger class. Such conversations maintain a sharp focus on engaging with academic registers beyond the common teacher question–students answer routines (Beaulieu-Jones and Proctor 2016). Through these collaborations, students learn to rely on each other as resources for sense making and language development.

Studies show that if planned well, small-group discussions can deepen ELs' text comprehension and broaden their knowledge base. Instructional conversations are most successful when ELs are encouraged to take part in prolonged oral discourse in which students take turns speaking and building on one another's comments and reflections. Students during these conversations should be allowed to use their home language in combination with English, a practice referred to as "translanguaging" (García 2009).

A related scaffold delves into one of the most common (and first) decisions teachers must make in the classroom: how to group ELs in mainstream classes to process content collaboratively (August et al. 2009). Different language groupings offer different benefits: Heterogeneous language collaborations, in which all students speak English, enable ELs to benefit from hearing the ideas and oral expressions of peers who are native or otherwise fluent English speakers. Alternatively, homogeneous language groupings allow ELs to discuss and clarify their thoughts about content with one another in their home languages, enabling them to gain confidence as they work on tasks teachers ask them to complete in English. There's a third way that leading EL researchers advocate for that builds on the advantages of the other two approaches: student triads (Valdés, Capitelli, and Quinn 2018). In classrooms that enroll ELs at various levels of language proficiency, teachers can form three-person groups consisting of an EL who is less English proficient with two other ELs

with the same home language who are more English proficient—homogeneous language groups with ELs at heterogeneous levels of English proficiency. Working in these triads, students who aren't yet confident English speakers are still able to engage fully in the community of practice as listeners. Triad members who are more proficient in English also can translate (at times) as discussions progress. Asking young people (rather than language specialists) to serve as occasional translators reduces dependency and spurs ELs to persist in listening to—and working to comprehend—spoken English even through frustration.

What follows are some additional field-tested scaffolds for teachers who want to facilitate highly interactive collaborative discussions in which students attend to register and pragmatics (ELICIT Collaborative 2014; Beaulieu-Jones and Proctor 2016).

- Crafting a significant content- or text-based question for which there's no single correct answer but rather multiple well-reasoned ones supportable with textual evidence (For more on the use of textual evidence, see chapter 2.)
- If the discussion is text based, insisting that students have the text they're reading in front of them so that they can refer to it when supporting their ideas (This reinforces the message concerning the importance of textual evidence.)
- Promoting a classroom culture that's welcoming and respectful by creating a set of discussion protocols that build spaces for listening and valuing one another's perspectives and insights
- Beginning with brief discussions (five to ten minutes in length) and then transitioning into longer ones (fifteen to twenty minutes in length) as students become more familiar with how to grapple with the content, respond to their peers, and follow the discussion protocols
- Teaching the language of argumentation to facilitate students taking positions on the texts they're reading (and topics they're studying), presenting evidence, and considering and challenging their peers' perspectives
- Assuming the role of "prompter-in-chief" by stepping in (and out) of discussions as necessary—ensuring that students understand and stay focused, encouraging them to construct longer and deeper responses than they might otherwise offer, and pulling back and letting them manage the discussion as they gain experience

3. Scaffolds that support ELs in expanding their vocabulary

Not surprisingly, research is emphatic regarding the benefit of engaging ELs in intense, explicit vocabulary instruction—especially in tier two (general academic) vocabulary (Beck, McKeown, and Kucan 2013)—over the course of multiple lessons (Baker et al. 2014). ELs

have been shown to improve their vocabulary knowledge and reading comprehension skill from repeated exposures to new vocabulary through diverse interactions over as short a span as fifteen or eighteen weeks (Carlo et al. 2004; Lesaux et al. 2010). Successful approaches for vocabulary instruction enable students to come to know words and phrases through the discovery of their literal meanings as well as their connotations, syntactical uses, and morphological structures. Such understanding, in turn, provides students with the skills to learn new words and phrases on their own and to acquire the knowledge contained in texts that use academic vocabulary.

What follows are some tried-and-true vocabulary methods that research shows teachers can use as scaffolding in conjunction with the texts students are reading (Carlo et al. 2004; Gersten et al. 2007; Vaughn et al. 2009; Lesaux et al. 2010; Baker et al. 2014).

- Focusing on tier two words and phrases in context. Teachers should select a small number of high-value words and phrases from grade-appropriate texts (including those in core content areas) that ELs are already reading to serve as the focus of instruction for several lessons. The words and phrases should be essential for understanding the reading as well as ones that students will frequently encounter in the text or along their educational journey. (For a detailed discussion of tier two words and phrases, see chapter 3, on vocabulary and knowledge building.)
- Focusing on everyday words and phrases that are central to the core content of texts. ELs may not yet have encountered certain words and phrases that native speakers have learned through everyday speech (what Beck, McKeown, and Kucan [2013] refer to as tier one words and phrases). Everyday words and phrases could pose barriers to comprehension and deserve attention, especially when such words and phrases are essential to understanding the texts ELs are reading.
- Providing student-friendly dictionaries. In contrast to standard dictionaries, student-friendly dictionaries take pains to avoid defining one unfamiliar word (e.g., *vociferous*) in terms of other unfamiliar words (*crying out noisily*) and instead provide useful context (*People who are vociferous speak with determination because they want their views and beliefs to be heard*).
- Focusing attention on prefixes and suffixes. Many studies point to the value of teaching ELs how to use word parts to discern word meanings independently. Like knowing how to use contextual clues, such a skill is vital because it's not possible for teachers to provide students with direct instruction in the thousands of vocabulary words and phrases they need to learn for academic success. The

two skills can be used in tandem as well: readers can be taught first to use word parts to predict a word's meaning and then to use context to confirm or correct that prediction.

- Clarifying and reinforcing definitions of words and phrases. Word and phrase definitions can be enhanced using tools such as graphic organizers and other visual strategies to tie a word or phrase to concrete examples and nonexamples (e.g., *ant* and *baby* as nonexamples of *enormous*). Identifying cognates in other languages that have a common etymological origin with English counterparts (e.g., *actividades* and *activities*, *centro* and *center*, *investigación* and *investigation*) is another way to clarify definitions of words and phrases.
- Using vocabulary when writing and speaking. Providing ELs with frequent and varied opportunities to use newly learned academic vocabulary—beyond memorizing definitions—cements new words and phrases into their working knowledge. Requiring ELs to use targeted academic words and phrases anchored in the texts they're reading as part of their writing and small-group discussions increases students' experiences with the words and phrases. Engaging ELs in a range of fun and interesting games that are also intellectually meaningful, such as crosswords and charades, can also increase their exposure to these high-value words and phrases and provide a useful review of words and phrases previously taught.

While no one can deny the importance of vocabulary scaffolding, it's important to emphasize here that teachers should envision vocabulary instruction as supporting core disciplinary learning goals rather than the reverse, teachers planning content instruction around meeting particular vocabulary aims (Bruna, Vann, and Escudero 2007).

4. Scaffolds that support ELs in developing their facility with written language

Just as teachers can carefully scaffold the reading of complex texts, they can also provide ELs with scaffolds as they learn to write about a variety of topics and texts. Anchoring assignments in the texts students are reading (and the topics these texts cover) gives ELs (and all students) meaningful information and ideas to write about as they extend and solidify their content learning as well as their writing skills. In the words of one EL expert, "It is precisely because reading and writing access similar cognitive strategies . . . that reading and writing make such a powerful combination when taught in connection with one another" (Kim et al. 2011, 233). Such assignments are superior to ones explicitly geared toward producing grammatically standard writing because decontextualized writing is much harder to negotiate than is writing on a subject one knows about (Bunch, Kibler, and Pimentel 2012). Allowing students to write about what they've learned grounds that content deeply in students' understanding.

ELs are also aided when instructional routines guide them from whole-class to small-group discussions, followed by the creation of notes and graphic organizers, sentence and paragraph writing, and finally the production of fully developed written compositions (Kim et al. 2011). The early stages of such routines help ELs capture and reflect on new knowledge and make explicit the relationships among concepts in texts well before they're asked to respond to a writing prompt. Mentor (model) texts that highlight specific elements of well-structured responses can serve as scaffolds that guide ELs in understanding the expectations of assignments (Bunch, Kibler, and Pimentel 2012). Reviews of common transitions and other linking words and phrases can also help ELs beginning to write in English (Baker et al. 2014).

Finally, formative feedback is essential but an oft-overlooked scaffolding opportunity. So as not to overwhelm or discourage ELs but rather foster their writing development, useful feedback should be explicit, constructive, and targeted to the instructional objectives of the lesson or an identified, limited set of language features relevant to the individual or the class (Ortmeier-Hooper 2013). For example, if the instructional target is to "have students write a compelling argument about zoo habitats, then [the teacher should] provide specific feedback on the ideas presented in the text rather than on spelling, grammar, or punctuation" (Baker et al. 2014, 52).

From Theory to Realization

The promise of the best practices for EL instruction reviewed above isn't just theoretical, as a recent study examining six high schools in the northeast United States shows (Castellón et al. 2015). While these six schools vary in terms of the size of their EL populations, all have over 80 percent of their students qualifying for free or reduced-price lunch (a commonly used metric of school socioeconomic status). Each school has raised the graduation bar above minimum district and state mandates, and still these schools have higher-than-average EL high school graduation and postsecondary entry rates.

What's their secret? While the schools don't share a common curriculum, they do share several emphases that reflect both the policies and many of the instructional methodologies advocated above (Castellón et al. 2015):

- They've adopted ambitious missions focused on preparing all students for college and career success, and those missions guide all instructional and policy decisions.
- They set clear and achievable goals dedicated to integrating students' knowledge and language development, with particular attention to meeting the language demands integral to the disciplines.

- They view scaffolding of learning not as the exclusive responsibility of certain teachers but rather as the responsibility of the entire school community—the whole teaching staff as well as students helping students and parents working at home with their children.
- They celebrate the cultural and linguistic diversity of students rather than view that diversity as an obstacle to academic progress, and, as a result, students feel proud of their identities and abilities as well as those of their peers.
- They welcome the use of home language in classes, including “translanguaging” in which bilingual speakers move fluidly between the languages they know. Several schools have made graduating fully bilingual and biliterate students an imperative.
- They place a priority on hiring teachers who can speak students’ home languages or have themselves been immigrants or ELs and who are dual certified in ESL and content areas.
- They promote deliberate and thoughtful collaboration between language specialists and content area teachers, including coteaching to support both language and content learning.
- They encourage teachers to take risks, test out their ideas, and report on the success (or lack of success) of their instructional practices.
- They’re highly attuned to students’ needs and capacities and have developed flexible support structures in their master schedules, including longer school days, additional support through tutoring and double periods, and supplementary English and math courses.
- They value diagnostic assessments “for learning and not just of learning” (18; emphasis in original) and use their results along with other data points to adjust instruction and to prompt students to take charge of their own progress.
- They leverage community partners by providing students with opportunities to take part in college-level courses, mentorships, and extracurricular activities.

Conclusion

Lau v. Nichols succinctly frames the legal responsibilities of schools to provide ELs with access to equal educational opportunities:

Any ability grouping or tracking system employed by the school system to deal with particular language skills needs of national origin minority group children must be designated to meet such language skills needs as soon as possible and must not operate as an educational dead-end or permanent track. (414 US 563 (1974), 569)

In the spirit of this directive from the U.S. Supreme Court, this chapter draws on several strands of theory and research on language and literacy

development and pedagogy to offer a new vision of EL instruction that meets the demands of college and career readiness. The guidance herein is united under the banner of integrating language development and content learning deeply and coherently. Under this approach, ELs take part in disciplinary core classes with generous language supports, receive additional language instruction in targeted ELD classes, and utilize their home languages as an additional asset on the way to becoming fully functional bilinguals. This instructional methodology allows ELs to engage genuinely with content-rich, appropriately challenging texts and tasks that build knowledge and broaden worldviews. It teaches ELs the value of evidence when they answer weighty questions both orally through extended discussions and in writing. Most of all, it enables ELs to become self-directed learners able to fully pursue their interests and futures. In sum, the investment in teaching language with grade-level content is worth the effort, satisfying the twin goals of equity and effectiveness.

It's perhaps fitting to end by reflecting on the fact that not only does the research suggest that effective teaching and instructional supports for students who are native English speakers benefit ELs, but also that the reverse is true: many of the effective teaching and instructional supports for ELs also benefit native English speakers. Tellingly, this includes developing native English speakers' fluency in one or more additional languages. Let's hope that as schools strengthen the instruction of ELs, they embrace the goal of fully functional bilingualism for all students as a linguistic and culturally enriching approach that would benefit the entire populace and nation. ❖

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