Top Lang Disorders
Vol. 32, No. 1, pp. 35–50

Disciplinary Literacy and the Common Core State Standards

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The purpose of this article is to present a perspective on disciplinary literacy and the Common Core State Standards based on the argument that disciplinary literacy is embedded in the standards. The article highlights possibilities and challenges associated with national efforts to prepare students for success in college and the workforce. Information is presented on the basis of a selected literature review of disciplinary literacy, adolescent literacy, student achievement, and the common core standards. Instructional strategies also are presented for developing students' disciplinary literacy and meeting common core goals. In the article, I call for collaborative inquiry and shared accountability among stakeholders to ensure that all students' literacy and learning needs are met in a new era of educational reform. **Key words:** *adolescent literacy*, *college and career preparation*, *common core state standards*, *disciplinary literacy*, *educational reform*

NEED FOR ADVANCED LITERACY INSTRUCTION AND IMPROVED STUDENT ATTAINMENT

Literacy is necessary for success in schools, colleges, career, and life. Because of a global information-intensive society, the globalization of labor markets, economic demands, and the increasing demands of a technologically advanced workforce, literacy has been viewed as a main factor for societies' financial growth and success. In order for the United States to remain competitive with other highly developed countries and for young Americans to succeed in the global workplace, there has to be an improvement in the literacy skills of middle and high school students (Dando, 2010). Although U.S. students in Grade 4 score among the top in the world, by Grade 10 they place close to the bottom among developed nations (Organisation for Economic Co-Operation and Development, 2006, 2008). Some projections estimate that 63% of projected job openings for 2018 will require at least some college education. This presents a challenge, given evidence that 15-year-old Americans rank 14th among developing nations in reading and that low literacy skills are associated with low levels of employment, high rates of remedial course work (e.g., 42% of college students take remedial work in reading and mathematics), and increased drop-out rates (Alliance for Excellent Education, 2011; U.S. Department of Education, 2007).

According to the National Assessment of Educational Progress, students' literacy performance from 8th to 10th grades has remained low over the past four decades (Lee & Spratley, 2010; National Center for Education Statistics, 2010). Results from *The Nation's Report Card: Grade 12 Reading and Mathematics 2009 National and Pilot State Results* report (National Center for Education Statistics, 2010) show that 1 in 5 low-income and minority students is proficient in reading and about 1 in 10 low-income students is proficient in mathematics. Reading ability is a key predictor of achievement in science

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The author has disclosed no significant relationships with, or financial interest in, any commercial companies pertaining to this article.

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DOI: 10.1097/TLD.0b013e31824561a2

and mathematics (American College Testing, 2006), and for the United States to thrive financially and culturally in a competitive global economy, American youth will have to possess advanced literacy, mathematics, and science skills (Alliance for Excellent Education, 2011; Snow, Burns, & Griffin, 1998).

Several works have redirected the attention of the public to the need for comprehensive improvement in adolescent literacy. These include the report, *A Nation at Risk* (National Commission on Excellence in Education, 1983); the *No Child Left Behind* (U.S. Department of Education, Office of Elementary and Secondary Education, 2002) Act of 2001; the *Reading Next* report (Biancarosa & Snow, 2004, 2006); position statements issued by the National Council for Teachers of English (2004); the report commissioned by the National Reading Conference (Alvermann, 2001); the report issued by American College Testing (2006); reports published by the Alliance for Excellent Education (2011; Kamil, 2003); and reports by Strickland and Alvermann (2004) and the National Institute for Literacy (2007). Some evidence supports a conclusion that the national emphasis of the 1990s on improving young children's reading achievement produced growth in early reading scores. For example, reports indicate that 9-year-olds in the United States are reading much better than they were 12–15 years ago (Perle, Grigg, & Donahue, 2005).

Unfortunately, early reading improvement does not guarantee that students will be able to read and comprehend the specialized texts of English language arts, science, mathematics, and other content areas (Lee, Grigg, & Donahue, 2007; Perle et al., 2005). The assumption that secondary students "already know how to read" has contributed to years of adolescent literacy neglect by policymakers and researchers and limited literacy instruction beyond Grade 3 (Biancarosa & Snow, 2004; Graham & Hebert, 2010; Graham & Perin, 2007; National Assessment of Educational Progress, 2003, 2005, 2007, 2009; Snow & Biancarosa, 2003).

Because the United States is in the midst of an adolescent literacy crisis, what are possible avenues for emerging from it? The Common Core State Standards (CCSS, 2010) initiative is viewed by many as a possible catalyst for improving the educational attainment (especially in mathematics and science) of adolescents in the United States. The CCSS propose a leveling of the field in academic expectations by back mapping college and career readiness standards that students will build through Grade 12 by starting in kindergarten. The standards position literacy and the reading of complex text in the "heart" of each content area. The hypothesis of disciplinary literacy approaches is that, by incorporating effective, subject-specific literacy strategies, skills, and practices into content instruction, students will develop relevant content and literacy skills in tandem (Shanahan & Shanahan, 2008). Adoption of the CCSS implies a disciplinary literacy learning framework; that is, all teachers, including teachers of history/social studies, science, mathematics, and technical disciplines, will be addressing 10 reading and 10 writing standards through disciplinary instruction in their respective subject areas. Implementation of disciplinary literacy and CCSS guidelines has the potential to improve the content and literacy knowledge, skills, and performance of adolescents.

In this article, I argue that using the CCSS and teaching for disciplinary literacy will help students develop specialized knowledge and skills that are relevant to each subject area, to college and career preparation, and to the world. The CCSS are organized in a disciplinary fashion, and disciplinary literacy considerations are central to the CCSS. Content area teachers will not be able to implement disciplinary literacy without understanding the responsibility the CCSS place on every area teacher to develop students' reading, writing, thinking, speaking, and listening skills that are unique to, and necessary for, learning in each subject area.

The purpose of this article is to present the case for the complementary relationship between DL and the CCSS and for the potential

of disciplinary literacy and the CCSS to work in tandem to develop students' content and literacy knowledge in each discipline, preparing them for college and careers. A secondary purpose is to describe the possibilities and challenges associated with disciplinary literacy and CCSS implementation.

DISCIPLINARY LITERACY

The landmark report by the National Commission on Teaching and America's Future (1996), *What Matters Most: Teaching for America's Future*, identified teachers' knowledge as the key factor in student achievement. Other reports since then have focused on the same relationship (e.g., U.S. Department of Education, 2007) and have highlighted the need for placing a highly qualified teacher in every classroom. A highly qualified secondary school teacher is expected to be equipped not only with content knowledge and pedagogy but also with knowledge about how to support the development of students' literacy skills across the content areas (Biancarosa & Snow, 2004).

Adolescents face many challenges for achieving high levels of literacy, including the literacy demands of content area texts, literacy demands in a fast-changing world, advanced examinations, and a disconnect between in-school culture and out-of-school culture (Moje, 2002). That reading in the secondary grades is different from reading in the early grades is supported not only by literacy research, but also by the new CCSS. According to Lee and Spratley (2010), 10th-grade students in the United States score among the lowest in the world, struggling with issues such as (a) engagement with reading (especially expository text) and motivation to read, (b) vocabulary, (c) comprehension, and (d) self-regulating their comprehension.

Intervention research has shown that students can benefit by having reading instruction incorporated in their content areas (Anders & Guizzetti, 1996; Ivey, 1999; Moore, Readance, & Rickelman, 1983). Despite the benefits of content-area embedded reading instruction, however, many content area teachers have resisted incorporating reading instruction in their classes due to lack of time and belief that literacy skills are unrelated to their content (Alvermann & Moore, 1991; O'Brien & Stewart, 1990; O'Brien, Stewart, & Moje, 1995; Shanahan & Shanahan, 2008). Many secondary teachers assume that students should arrive in secondary grades having mastered the necessary reading and comprehension skills. Even when they realize that not all students are able to read the text of the disciplines, they do not assume the reading instruction responsibility because of their perceived need to cover more content and their lack of reading expertise (O'Brien et al., 1995).

Generalized approaches to literacy development in the content areas, whereby content area teachers "sprinkle" their content with generic literacy strategies, have neither been received nor implemented well, nor have they improved the ever-alarming crisis in adolescent literacy (Phelps, 2005; Shanahan & Shanahan, 2008). Many content area teachers have viewed this approach as infringing on their content plans and schedule instead of as a means to supporting and assessing student learning of the content (O'Brien et al., 1995; O'Brien & Stewart, 1992). Much of content area literacy instruction has focused on generic literacy skills (e.g., summarizing, predicting, questioning), and instruction sometimes does not extend beyond assigning the reading and writing of content-specific texts (McConachie & Petrosky, 2010; Snow & Moje, 2010). Most importantly, the reading in the content areas approaches does not recognize the different demands of each discipline (Shanahan & Shanahan, 2012).

Proponents of disciplinary literacy argue that focusing on generalizable skills and abilities, such as decoding, fluency, and basic comprehension strategies will not prepare students to deal with the complex literacy and content demands of each discipline (Plaut, 2009; Shanahan & Shanahan, 2008; Snow & Moje, 2010). I also argue that general strategies are insufficient for coping with the

demands of new educational standards. As students advance through grades, their literacy instruction should become increasingly more complex and discipline-based and should support students' understanding of complex texts in each content area (Snow & Moje, 2010). There is a need for specialized content-area instruction that allows students to develop comprehension and knowledge within the advanced content of the disciplines in the secondary grades (Bulgren, Deshler, & Lenz, 2007; Guthrie, Wigfield, & Perencevich, 2004; Shanahan & Shanahan, 2008; Yore & Treagust, 2006), and the CCSS are most likely to be met if secondary teachers learn new strategies for promoting literacy practices specific to their disciplines.

Disciplinary literacy is built on the premise that each subject area or discipline has a discourse community with its own language, texts, and ways of knowing, doing, and communicating within a discipline (O'Brien, Moje, & Stewart, 2001). It moves beyond the notion of "every teacher is a reading teacher" and literacy as an "add-on" set of generic strategies used to improve the reading and writing of subject area texts. Rather, it situates literacy as an integral part of content (Moje, 2008) so that "literacy within the discipline" becomes the goal of disciplinary literacy.

Shanahan and Shanahan (2008, 2012) proposed that disciplinary literacy, comprising advanced literacy instruction embedded within content-area classes, such as mathematics, science, and social studies, should be a focus of literacy efforts at middle and secondary school settings. Disciplinary literacy "involves the use of reading, reasoning, investigating, speaking, and writing required to learn and form complex content knowledge appropriate to a particular discipline" (McConachie & Petrosky, 2010, p. 16). Disciplinary literacy highlights the complexity, literacy demands, and differentiated thinking, skills, and strategies that characterize each discipline. According to this approach, definitions of literacy in the secondary grades must be anchored in the specifics of individual disciplines. Within this framework, literacy needs to be positioned as a discipline-specific process within each content area. Content area teachers need to teach students not only about their content area, but also how to read and understand from informational text (Snow & Biancarossa, 2004), especially in an era of educational reform. Furthermore, this instruction should be specific to the literacy expectations of each discipline.

Disciplinary literacy is prominently featured in the new CCSS. Also reflected in the CCSS is the view of content and literacy knowledge developing in tandem (Shanahan & Shanahan, 2008). Content area teachers need to see that disciplinary literacy instruction can facilitate, and not compete with, content learning (Hall, 2005). The CCSS convey the disciplinary literacy principle that each discipline has a specific approach to literacy knowing and learning. They imply that content area teachers in secondary grades are best suited to teach reading in their respective disciplines because of their knowledge of the content and implicit knowledge of the structure and language of their discipline (Fang & Schleppegrell, 2008). For example, history teachers are best positioned to teach students how to read and write about history, just as English teachers are best suited to teach students how to read literature and write literary analyses. Professional development in disciplinary literacy can provide secondary content area teachers with discipline-specific strategies that will help students meet the literacy demands of each discipline, while developing their content knowledge (Lee & Spratley, 2010).

Moje (2008) suggests that disciplinary literacy instructional programs need to build skills, rather than just encourage content area teachers to apply literacy strategies to their various disciplines. Many literacy strategies are not deeply penetrating enough and do not equip teachers with literacy tools that represent the uniqueness of the various disciplines (Moje, 2008; Shanahan & Shanahan, 2008). Because of the distinctive manner in which each discipline arrives at constructing knowledge, literacy itself becomes a core aspect of

disciplinary practice, instead of just a set of tools brought into the discipline to improve reading and writing of content-specific texts (Moje, 2008). This includes teaching students to read complex texts in each content area. Textbooks are at the center of content area instruction, but many students have difficulties reading the textbooks. Some teachers do not even use them because the textbook is too complex for students. Teachers should play a role, therefore, in selecting relevant, meaningful, and complex texts, and they must learn how to engage students in learning more about the content.

Shanahan and Shanahan (2008) invited a panel of disciplinary experts (i.e., in chemistry, history, and mathematics) to discuss how they approached reading discipline-specific materials and identify challenges students would face with reading such materials. Participants varied in the way they read, in what they considered to be challenges in the text, and in how the texts should be taught. In terms of discipline-specific strategies, for example, sourcing, contextualizing, identifying arguments, and how the author portrays events, are useful to history. In chemistry, separating essential information from nonessential information, visualizing, and thinking of examples are some of the strategies teachers should teach. Explaining concepts, writing equations, and illustrating data are some of the strategies that will help students read and comprehend text in mathematics. To achieve change, national efforts must be expanded to support adolescent literacy development, identify more advanced curriculum, and provide quality instruction to support older readers' literacy and discipline-specific knowledge and skills. There is also a need for all educators to come together, problem-solve, and collaboratively develop schoolwide plans that will help facilitate the implementation of disciplinary literacy and CCSS guidelines.

Several pressing questions motivate this call to action. How can adolescents develop the knowledge and thinking patterns of mathematics, history, or biology if they do not know how to read and comprehend mathematics, history, or biology texts? If students do not have discipline-specific content and literacy knowledge and skills, will they be able to read and comprehend varied complex texts, know how to identify the author, the audience, purpose, whether other sources support or contradict information, or whether information is credible, inaccurate, or biased? Will they be able to meet the new educational standards if they do not have effective discipline-specific literacy skills? In order for students to be ready to face the literacy demands of college and career, they will need to read many complex texts, learn how to use information as evidence, present well-reasoned oral and written arguments, and conduct synthesis and comparative evaluation of information.

THE COMMON CORE STATE STANDARDS

In 2010, the Carnegie Council for Advancing Adolescent Literacy (2010) released a landmark report titled, *Time to Act: An Agenda for Advancing Adolescent Literacy for College and Career Success.* This report arrived at a pivotal time in education history. Also in 2010, the National Governors Association and the Council of Chief State School Officers released the publication of the proposed new academic standards, CCSS, in English language arts and mathematics (K–12). The purposes of CCSS are to improve U.S. educational outcomes, standardize educational opportunity, and focus on fewer and more rigorous standards that are internationally benchmarked. The CCSS map the knowledge and skills students should develop in grades K–12 that will adequately prepare them for the workforce and college careers.

In English language arts, the CCSS place an increased focus on expository text and multiple texts from the earliest grades, critical reading of text, disciplinary literacy in the upper grades, the importance of text complexity and text evidence, the value of canonical text, academic vocabulary, informational writing (starting in kindergarten), and integration of literacy in mathematics, history/social studies, science, and media/technology. In math-

ematics, the CCSS emphasize deep understanding and mastery of key critical topics at each grade level, a balance between conceptual understanding and increasing procedural fluency, and critical thinking and problem-solving skills students will need to master to be successful and internationally competitive 21st-century thinkers. In science, students from the early grades are expected to write logical arguments based on evidence, provide sound reasoning, participate in short- and long-term research, and present findings.

Close reading is a focus of the CCSS across grades and content areas. Students are expected to read closely to determine what the text says explicitly and implicitly and cite specific evidence from text(s) when writing or speaking to support conclusions drawn from one or multiple sources. These expectations become progressively more complex and require multiple sources/texts as students move into the upper grades. In this context, the standards focus on close reading, on explicit understanding of what a text says and does not say, and on students' ability to gather evidence from complex texts to support their understanding. The CCSS establish expectations for students to determine word meanings, expand their basic and specialized vocabulary, and prepare them for the literacy demands of the 21st century. The standards call for a "balanced diet" of reading fiction and nonfiction text, with an emphasis on students reading more nonfiction texts to better prepare them for the types of text they will read in college and in their future careers. According to the standards, in the fourth grade, students should be reading equally from fiction and informational text; in the eighth grade, 45% of text should be literary and 55% informational, and by 12th grade, 30% literary and 70% informational.

In elementary grades, informational texts occur primarily in the areas of science and social studies, and teachers use informational texts to help students learn about the world on an equal basis to literary text. In the high school grades, the English language arts standards for reading, writing, speaking, listening, and language are also translated into literacy standards in history and social studies, science, and technical subjects. Standards for the development of writing target arguing and explaining. These genres account for 80% of the writing focus of the later grades. Therefore, emphasis should be placed on writing to argue, inform, and persuade using evidence from text(s)—on the college and career readiness forms of writing. Standards increase in complexity from K to 12, helping to articulate what students need to know and be able to do along this trajectory and assist with differentiation.

The CCSS are designed to be rigorous, clear, and specific (i.e., providing precise details about the "what"), teachable, learnable, measurable, coherent, with limited repetition across grades, informed by other top-performing countries, evidence-based, aligned with college expectations, consistent and clear, building upon existing state standards, and with rigorous content and application of knowledge through higher order skills (see http://www.corestandards.org). The standards establish benchmarks for "what" all students must be able to read and comprehend so they are ready for the types of reading they will have to do in college and the workforce by the end of high school. The core standards are not a curriculum. They outline a clear set of expectations of knowledge and skills that students will need to succeed in higher education and employment. How the standards are to be met is left up to the states, school districts, principals, and educators.

But how will educators support students with language disorders and other needs under the CCSS initiative? The CCSS do not define advanced work beyond the core nor the interventions needed for students below grade level, and they do not provide guidance on the full range of support for English language learners (ELLs) and students with special needs. Although the CCSS initiative is promising for stimulating higher level literacy learning, there are many questions associated with the CCSS that will guide educators' and policy makers' discussions for the

years to come. Will the CCSS bring about positive change on the teaching profession and will they provide the support and empowerment necessary for teachers to succeed? Will the CCSS promote more implementation of disciplinary literacy instructional practices especially in the upper grades? How will this initiative help recruit, prepare, and sustain high-quality educators at the elementary- and secondary-grade levels?

The core cognitive processes in the CCSS include the following: precision and accuracy, problem formulation, communication, interpretation, and research. All of these cognitive processes are embedded from a young age throughout the core, including social studies, science, and technical subjects. The five components of English language arts include reading, writing, speaking, listening, and language; these components are to be incorporated in each content area and at each grade level. The CCSS aim to help states, schools, and teachers focus their instruction on key cognitive skills and strategies students need for college and the workforce—a goal that is also shared by disciplinary literacy learning guidelines, although the methods in Disciplinary literacy emphasize discipline-specific approaches rather than a focus on general cognitive processes.

Implications of the CCSS for student assessment

At present, 45 states have formally adopted the CCSS and have agreed to replace their state tests with new assessments aligned with the CCSS. If implemented correctly, they will catapult U.S. education toward world-class learning standards.

The CCSS provide a three-part model for determining text complexity that can inform assessment. The model includes analysis of the following components: (1) qualitative dimensions of text complexity (e.g., levels of meaning or purpose, structure, clarity, language conventionality, and knowledge demands); (2) quantitative dimensions of text complexity (e.g., word and sentence length, and text cohesion); and (3) reader (e.g., reader motivation, knowledge, and experiences) and task considerations (e.g., purpose and task complexity). States and districts will need to consider these components as they review existing literacy assessments to provide data for common core alignment, develop tools that will help teachers assess literacy in *each* discipline, identify discipline-specific materials for assessing students' reading abilities, and develop a model for a collaborative, cross-disciplinary instruction of reading in the secondary grades.

In the area of English language arts, states and districts will need to design rubrics that will help first to understand the three elements that interact to determine the complexity of texts (i.e., qualitative, quantitative, and reader and task considerations), and second, to assess qualitative measures of text complexity and student comprehension. In addition, they will need to provide assistance to teachers in all content areas on how to access, read, and comprehend texts of varied complexity.

Implications of the CCSS for professional development

The CCSS should trigger a shift in teacher preparation and in-service education. English language arts and reading faculty are no longer the sole educators responsible for literacy. Literacy is positioned at the core of each content area and each teacher in every subject area at every grade level is responsible for students' literacy. School districts will need to provide professional development for educators to help them know: (a) about the CCSS and the kinds of instructional, curricular, and pedagogical changes motivated by the new standards; (b) how to assess performance tasks using rubrics; (c) how to create face-to-face and online artifacts to assess performance; and (d) how to identify progress monitoring assessments for English language arts and mathematics by grade level. All educators must be engaged in collaborative inquiry concerning the implementation of the standards and participate in designing rigorous curricula and assessments that will help all students succeed in schools

and beyond. In addition, districts should develop pilot performance-based assessment programs that will collect and develop valid and reliable performance assessments and task-related resources that are aligned to the CCSS. Collecting and studying student work and data will help educators reflect on how performance-based assessments can inform and improve instruction for *all* students.

RELATIONSHIPS OF DISCIPLINARY LITERACY AND THE CCSS

Disciplinary literacy tasks are prominently positioned within CCSS to promote the development of content knowledge, reading, writing, and higher order thinking skills across grades and within each content area. Disciplinary literacy is complex and is reflective of the individualized structure, demands, texts, and habits of mind associated with each discipline. According to the CCSS, literacy is positioned in the center of each subject area. The CCSS emphasize reading in history/social studies, science, and other subject areas. The standards require specialized reading emphasis for each subject area and require the teaching of comprehension with both literary and informational texts. According to the CCSS, it is imperative that history/social studies and science teachers include texts in their instructional routines.

Content area teachers will need to emphasize disciplinary standards. This means that they must learn how to teach the specialized uses of literacy in each content area instead of just layering generic reading and writing strategies to content subjects. Both disciplinary literacy and the CCSS place much emphasis on reading and interpreting multiple texts at all grade levels, and in reading, writing, and oral language. Inherent in disciplinary literacy and in the CCSS is the increasing expectation for students to incorporate research into their reading and writing. The CCSS also expect students to use technology to gather information through print and digital resources, while applying disciplinary literacy actions such as analyzing, evaluating, and synthesizing.

As also supported by the CCSS, academic subject matter becomes progressively more complex and specialized across grade levels, as does literacy. Being able to read a novel does not transfer to reading specialized texts that require different ways of reading, speaking, writing, inquiring, communicating, and knowing (McConachie & Petrosky, 2010). Reading a history textbook is not the same as reading a chemistry textbook. Unfortunately, teachers may expect that transference of general reading strategies and skills will result in understanding specialized texts—both disciplinary literacy and CCSS contrast with this viewpoint. Although basic reading skills are embedded in all reading tasks (Shanahan & Shanahan, 2008), in intermediate through secondary grades, students are expected to read and comprehend progressively more complex texts that warrant specialized skills and routines. In a history class, for example, students would read primary documents, construct meaning from multiple sources, examine photos and artifacts, consider the author's purpose and perspective for writing the document or text, and evaluate information. On the contrary, in a science class, students would read graphs, charts, and formulas, question procedures, and draw conclusions. To prepare students to succeed both in college and in the workforce, teachers need to teach them how to access, read, and critically analyze text, its meaning, and implications.

Implications for practice

Both the CCSS and disciplinary literacy place challenges on students and teachers. The standards place an increased emphasis on informational text, multiple texts, critical reading, disciplinary literacy, comprehension, oral language, writing about text, and technology in literacy and language. According to Lee and Spratley (2010), adolescents need more targeted, comprehensive, and "discipline-tailored" literacy support in the academic areas. All educators need to develop knowledge about the unique practices

of each discipline and how learning is created and shared (e.g., Fang, 2004; Geisler, 1994; Halliday, 1998; Schleppegrell, 2004). Students can benefit from learning-specific literacy strategies that engage them with complex texts, build their background knowledge, develop their comprehension, and write in a way that is consistent with each discipline.

Professional development should address disciplinary literacy and the CCSS in tandem. Lee and Spratley (2010) call for developing educators' and policymakers' understanding of disciplinary literacy, improving policy, and providing specialized, quality professional development to teachers. As discussed previously, the CCSS will also require targeted comprehensive teacher professional development on the standards, assessment, and implementation. Teachers of reading in the disciplines face unique challenges because first, it is difficult to motivate a reader to read a text he or she is not interested in (Fisher & Frey, 2009), and second, it is difficult to understand the text when the reader has limited background knowledge and specialized vocabulary about the topic. Reading comprehension of complex texts in the disciplines (and across grades) is not a natural outcome of teaching a few effective comprehension strategies. Both CCSS and disciplinary literacy call for the development of student independence fostered by the explicit teaching of discipline-specific strategies aimed at helping students to read and comprehend texts of varied complexity while building their background knowledge of each discipline.

Prior knowledge is a good predictor of comprehension (Dole, Valencia, Greer, & Wardrop, 1991). As supported by both the CCSS and disciplinary literacy, the various disciplines provide an appropriate context for building and activating students' prior knowledge. To do that, teachers have to develop a strategic approach to selecting texts and teaching in a way that will allow students to problem-solve and develop higher order thinking skills across the disciplines (Moje, 2008; O'Brian et al., 1995, 2001). Core literacy teaching practices that can be used across the disciplines include purpose setting/problem framing, whole-group knowledge elicitation and development, text-based discussions using multiple texts types, questioning and modeling thinking with texts types, visualizing and visual representations, and summarizing and synthesizing with texts (Moje, 2008; Moje & Speyer, 2008).

Disciplinary literacy focuses on the specialized problems of each subject area, expert comparisons, the language, and thinking patterns of each discipline. Teaching low-performing readers discipline-specific strategies and helping them make expert comparisons, use the language of each discipline to exchange ideas, offer solutions, and raise questions will best prepare them to handle the complex literacy and curricular demands of each discipline. Key factors for successful discipline-specific instruction include developing a classroom culture of high expectations (Lee, 2007) and delivering instruction that is purposeful, authentic, relevant, and critical. For CCSS and disciplinary literacy purposes, teachers need to organize instruction in engaging ways; provide guided support; sequence discipline-specific skills; include careful reading of complex texts that will help build background knowledge and comprehension; model rereading as needed; teach students how to analyze the author's use of language, grammar, and organization to make sense of the text; and help students develop discipline-specific vocabulary and discourse knowledge (Michaels, O'Connor, & Resnick, 2008; Michaels, O'Connor, Hall, & Resnick, 2002). All should be aimed at building students' independence as readers.

For states and school districts to be ready to implement the CCSS by 2014 to 2015, as planned (CCSS Initiative, 2010), it is imperative that they provide professional opportunities for cross-disciplinary educator teams to engage in collaborative learning and planning, develop understanding of text complexity, and identify discipline-specific instructional strategies for scaffolding students' access to complex texts. Figure 1 summarizes instructional recommendations (developed by the

Figure 1. Instructional Recommendations for Combined Disciplinary Literacy and Common Core State Standards Implementation

Classroom environment

- Create a language- and print-rich classroom environment that includes high expectations for all students to demonstrate inquiry, engagement, critical thinking, academic discourse, collaboration, rigorous and relevant instruction, purposeful assessment, and support.

Instruction

- Provide students with a curriculum that is characterized by both depth and consistency across grade levels.
- Teach students how to pose discipline-specific questions and apply discipline-specific habits of mind. Teach them how to inquire, read, write, talk, reflect, and represent the critical questions, problems, and concepts defined by each discipline's standards and content requirements.
- Teach students how to read critically, compare, evaluate, and synthesize evidence from multiple texts, and write critically about the ideas across texts.
- Use a variety of instructional approaches to develop student learning (e.g., direct instruction, modeling, inquiry, observations, discussions, flexible grouping, guided reflection, and differentiation of content, process, and product).
- Teach students how to locate, read, evaluate, and use information from the Internet, and how to use technology for writing and oral presentations.
- Provide instructional accommodations, adaptations, and augmentations for English language learners, students with disabilities, and gifted and talented students.

Materials/texts

- Promote classroom reading, writing, listening, speaking, and critical thinking using authentic materials that support the development of content-specific knowledge.
- Select multiple text selections (and nontext sources).
- Build student background knowledge of topics through wide reading.
- Guide students through complex texts by using discipline-specific literacy strategies that develop a conceptual understanding of language, deepen students' content knowledge and skills, and promote transfer of learning.
- Teach students about text features and how to construct meaning from them (e.g., graphs, charts, illustrations, and headings).
- Teach text structure and genres, and how to read, predict main ideas in text, and evaluate information from multiple complex texts. Explain what counts as evidence within the discipline.

Vocabulary and comprehension

- Analyze the language of each discipline—grammar can help with an understanding of vocabulary, complex sentences, and ideas. Help students with identifying "signal" words that can help direct and build meaning.
- Provide students with effective tools (or strategies) for vocabulary and comprehension, how to access text, how to organize information, and what to do when meaning fails.
- Develop students' specialized vocabulary and monitor student comprehension.
- Invite students to make their understanding of text visible and tangible (e.g., What am I understanding from this text? What is problematic with this text? What questions do I have about this text?).
- Help students to deconstruct complex sentences, words, and ideas in text(s).
- Teach students how to identify types of ideas (e.g., explicit vs. implicit) and relationships among ideas.

Assessment

- Use multiple forms of assessment (e.g., formal, informal, formative, summative) to provide instruction that will meet all students' learning; apply progress monitoring of student learning.
- Monitor student progress and use data to make instructional decisions.

author) for teachers (and other professionals) to help with the implementation of disciplinary literacy and CCSS guidelines in each content area in order to improve student outcomes.

Possibilities and challenges

The CCSS present a call to higher standards and increased student ability to meet them. What role would disciplinary literacy guidelines, the CCSS, common core assessments, and prescribed materials play in the current educational reform efforts? Although there is common agreement about the need for high-quality education standards, there is disagreement among many about the potential impact of these policies on students, teachers, and schools. How do the CCSS account for uncommon student differences? Will implementing the CCSS alone ensure that all students in the United States will graduate with the advanced skills needed for success in an information-intensive world?

Stakeholders

National and partner organizations and the International Benchmarking Advisory Group (Organisation for Economic Co-Operation and Development, 2008) call on state leaders to close the achievement gap between low- and high-performing students by strengthening the curriculum, placing highly qualified teachers in schools, updating state standards, and leveraging states' influence to ensure that textbook and other materials are aligned to internationally benchmarked standards by revising state policies for teacher preparation and support, monitor implementation of interventions, and examine student attainment in an international context. Policy makers will have to collaborate with all educators in the development of curricular and assessment frameworks for students in grades K–12 that meet CCSS expectations and support a disciplinary literacy learning framework. Will the CCSS requirements narrow the achievement gap or expand it?

Curriculum materials

As more states adopt the CCSS, all need to practice common sense in the assignment of texts to students, especially if one of the main English language arts program goals is to promote a love of reading in students. Curriculum developers need to write texts that are relevant and rigorous. Barton (2010), a senior associate with the Educational Testing Service, calls for the practice of sanity and emphasizes the need to pay attention to teachers' views about the CCSS. The standards make no adjustments for ELLs, students with disabilities, gifted students, or students who enter kindergarten with little exposure to books. Teachers will still have to make instructional accommodations for those students. How will (should) materials be modified to meet CCSS and disciplinary literacy guidelines?

English language learners

To help ELLs meet high academic standards in language arts, teachers should take advantage of the skills and knowledge they bring (Almanza-de-Schonewise & Klingner, 2012) and should ensure that they can provide qualified support. ELLs need to be immersed in literacy-rich environments and in diverse language experiences. Teachers will have to employ additional resources and strategies to make coursework comprehensible to ELLs. Instruction should promote active student participation in the classroom, collaboration, evidence-based discussions, and writing that is critical to ELLs' success across the content areas.

ELLs need to develop communicative strengths in language arts. Ongoing assessment, progress monitoring, and feedback are necessary to support their learning. In mathematics, ELLs first need to understand the text of the word problem before they attempt to solve it. Classroom instruction should focus on discipline-specific discourse and academic language. Teachers also should encourage ELLs to use the language of each discipline, require that they use words in various contexts, ensure that they understand spoken

and written words orally and can use them in writing, and teach them to engage in negotiating meaning.

Students with disabilities

The CCSS articulate rigorous grade-level expectations in the areas of mathematics and English language arts. Promoting a culture of high expectations for all students is a fundamental goal of the CCSS. Students with disabilities must be challenged (and supported) to excel within the general curriculum and be prepared for success in schools and beyond. How the standards will be taught and assessed is of vital importance in reaching students with disabilities. Instruction provided by teachers and specialized instructional support personnel (see Ehren, Murza, & Malani, 2012) must include supports and accommodations to provide students with disabilities with various means of learning and opportunities to demonstrate their knowledge so they can gain access to the general education curriculum.

Assessment

Many educators have expressed concern about the availability and capacity of local resources to implement the CCSS effectively and also about the frequency and types of core assessments. Two consortia have been awarded funding through the Race to The Top Assessment competition to design new assessment systems. The Partnership for the Assessment of Readiness for College and Careers comprises a group of 26 states committed to developing an assessment system for grades 3 through 12. The SMARTER Balanced Assessment Consortium comprises a group of 31 states that are developing online tests, including summative examinations and optional formative examinations.

Although top-performing countries allow for greater school autonomy and choice in the areas of accountability and monitoring of student progress, there are many unanswered questions about how the common core assessments will be used for accountability purposes. What kinds of assessments will be used across grade levels and subject areas? How will the assessments be constructed and how will the results be used for accountability purposes? How will the standards, and the states' response to them, prepare students for college and career success? Lastly, how will the core assessments meet the needs of students with disabilities, ELLs, and students who are gifted?

Because the standards do not tell states what the standards should look like in practice, there is a need for targeted conversations about CCSS alignment, implementation, what books students will read in each grade level, what data to collect, and how to assess student learning and performance. Most states rely on single standardized assessments to measure student achievement (and teacher effectiveness in several states). States need to improve their assessments, provide teachers with examples of formative assessments aligned to college-ready core standards, and build data platforms that teachers can use to improve instruction (Phillips & Wong, 2010).

Systematic literacy and curricular efforts can be powerful driving forces to school improvement (Irvin, Meltzer, Mickler, & Phillips, 2008). Will the access to coherent standards, assessment, and curricular sources help practitioners have improved and timely access to knowledge, skills, data, and information that are typically reserved for school administrators? How will schools assimilate and accommodate the standards and what will they do to facilitate disciplinary literacy (especially in grades 6–12)? How are states, school districts, and teacher preparation institutions preparing for the implementation of the CCSS? Will the standards help educators to make more focused curricular and assessment decisions? States and school districts need to put in place mechanisms for a critical examination of the core standards, align the CCSS with existing state standards and assessments, develop assessments to measure student progress, promote collaborative inquiry, and plan to meet

the needs of all students. Educators will need resources, support, and time to adjust instruction, align instructional materials to the standards, and participate in collaborative inquiry.

Instructional considerations

The CCSS set the context for text difficulties being intensified and for teachers avoiding the practice of moving students to easier text when the reading of complex text becomes difficult. Does this mean that teachers will be reading only complex text to students? How about students who are having difficulties reading, in general? How can instruction in disciplinary literacy be tailored to meet the needs of those students? The CCSS are at a high level for early readers. How will complex texts facilitate progress in learning reading decoding and phonics?

On the contrary, what is the optimum level of text difficulty? Should students read some text that is at their reading level? How will teachers scaffold students' learning from complex texts? Multiple texts need to be introduced in kindergarten and used throughout Grade 12. What professional development will teachers receive to help them do so and who will need to participate in it? Should professional development be offered to classroom teachers only or to all educators? The standards are clear about expecting students to compare and contrast, analyze, evaluate, and synthesize information across texts and engage in evidence-based evaluation. How will teachers and other professionals help all students meet the demands of such texts?

The CCSS and disciplinary literacy present new challenges for students with language and other learning difficulties and the educators who teach them and support them. All educators will need to reframe their views of literacy; for example, both disciplinary literacy and the CCSS embrace deep learning, specialized knowledge, and ambiguity. With proper training, content area teachers can learn how to support the needs of all students through the application of discipline-specific practices. They will need to collaborate with speech–language pathologists, school psychologists, literacy coaches, "English as a Second Language" teachers, and special educators to make necessary data-driven modifications and accommodations for students with language and other learning needs. Speech–language pathologists, for example, will play a vital role in CCSS and disciplinary literacy implementation—their role will be a must in supporting students to master the speech and language skills required for meeting the CCSS.

Supportive and ongoing communication among all educators will be needed to promote delivery of quality instruction, identify and support students who are having difficulties meeting grade-level expectations, and make data-informed educational decisions. Both the CCSS and disciplinary literacy incorporate the concept that each discipline has a unique approach to literacy and that content teachers are in the best position to teach discipline-specific literacy skills that are relevant and important to their subject areas. There needs to be a systematic and shared approach to language, literacy learning, and interventions within the CCSS, disciplinary literacy, and intervention frameworks across grade levels. To best prepare all students in language, literacy, and content, it is imperative that classroom teachers collaborate with other support personnel in order to understand the needs of ELLs and students with disabilities and make appropriate instructional and assessment decisions. Everyone will need to learn and use a CCSS and disciplinary literacy common language as they work to meet the needs of all students.

CONCLUSION

One of the CCSS premises is that states are no longer competing with other states but with other countries around the world. Many U.S. educators and policymakers are concerned about the number of tests students already take and the costs associated with such tests. According to the CCSS, there is a need to prepare students for college and career and for assessments that will indicate

whether students are on track for college and career readiness. The CCSS promise rigor, focus, and coherence, and disciplinary literacy offers "discipline-tailored" learning. The CCSS include disciplinary literacy considerations and call for a restructuring of educational policies that will help the United States achieve true international competitiveness. Although in theory the benefits of the CCSS and disciplinary literacy are obvious, many challenging tasks and questions remain about curriculum development, assessment of student progress, teacher professional development in both the CCSS and disciplinary literacy, and the needs of ELLs and students with exceptionalities. The CCSS goals are noble, but the outcomes remain to be determined. How will disciplinary literacy and the CCSS impact teacher recruitment, retention, classroom instruction, and professional development?

A focus on literacy in each content area will have an impact on student learning but will the CCSS help all students make the grade? Will they bring the academic coherence they are aiming for? Although the standards do not define how teachers should teach, in order for them to meet CCSS in secondary grades, teachers will need to implement disciplinary literacy instruction to meet CCSS expectations.

Educational change is not an automatic result of new policy. Change cannot take place without broad-based participation, shared vision and accountability, and ongoing collaborative inquiry from all stakeholders. Educational solutions need to be both theoretical and practical (Fullan, 2004). The road to CCSS and disciplinary literacy implementation is loaded with possibilities, questions, and uncertainties. This education reform movement warrants gathering evidence to support the impact of the CCSS on student learning and success in the disciplines, in schools, and beyond.

REFERENCES

Alliance for Excellent Education. (2011). *Engineering solutions to the national crisis in literacy: How to make good on the promise of the Common Core State Standards*. Washington, DC: Author.

Almanza-de-Schonewise, E., & Klingner, J. (2012). Linguistic and cultural issues in developing disciplinary literacy for adolescent English language learners. *Topics in Language Disorders*, *32*(1), 51–68.

Alvermann, D. E. (2001). *Effective literacy instruction for adolescents. Executive summary and paper commissioned by the National Reading Conference*. Chicago, IL: National Reading Conference.

Alvermann, D. E., & Moore, D. W. (1991). Secondary school reading. In R. Barr, M. L. Kamil, P. B. Mosenthal & P. D. Pearson (Eds.), *Handbook of reading research*. (Vol. II, pp. 951–983). New York: Longman.

American College Testing. (2006). *Reading between the lines: What the ACT reveals about college readiness in reading*. Iowa City, IA: Author.

Anders, P., & Guizzetti, B. (1996). Literacy instruction in the content areas. *Journal of Adolescent and Adult Literacy*, *43*(8), 728–739.

Barton, P. (2010, March 17). *Common core standards* [Web blog post]. Retrieved June 22, 2011, from http://www.susanohanian.org/quotes.php

Biancarosa, C., & Snow, C. E. (2004). *Reading next—A vision for action and research in middle and high school literacy: A report to Carnegie Corporation of New York* (1st ed.). Washington, DC: Alliance for Excellent Education.

Biancarosa, C., & Snow, C. E. (2006). *Reading next—A vision for action and research in middle and high school literacy: A report to Carnegie Corporation of New York* (2nd ed.). Washington, DC: Alliance for Excellent Education.

Bulgren, J., Deshler, D. D., & Lenz, B. K.,(2007). Engaging adolescents with LD in higher order thinking about history concepts using integrated content enhancement routines. *Journal of Learning Disabilities*, *40*(2), 121–133.

Carnegie Council for Advancing Adolescent Literacy. (2010). *Time to act: An agenda for advancing adolescent literacy for college and career success*. New York, NY: Carnegie Corporation of New York.

Common Core State Standards Initiative. (2010). *Common core state standards: Preparing America's students for college and career*. Retrieved from http://www.corestandards.org

Dando, K. (2010, June 2). *National Governors Association and state education chiefs launch common state academic standards*. Council of Chief State School Officers Press Release. Retrieved from http://www.ccsso.org/Whats_New/Press_Releases/14241.cfm

Dole, J. A., Valencia, S. W., Greer, E. A., & Wardrop, J. L. (1991). Effects of two types of prereading instruction on the comprehension of narrative and expository text. *Reading Research Quarterly*, *26*(2), 149–159.

Ehren, B. J., Murza, K. A., & Mulani, M. D. (2012). Disciplinary literacy from a speech–language pathologist's perspective. *Topics in Language Disorders*, *32*(1), 85–98.

Fang, Z. (2004). Scientific literacy: A functional linguistic perspective. *Science Education*, *89*, 335–347.

Fang, Z., & Schleppegrell, M. (2008). *Reading in secondary content areas: A language-based pedagogy*. Ann Arbor: University of Michigan Press.

Fisher, D., & Frey, N. (2009). *Background knowledge: The missing piece of the comprehension puzzle*. Portsmouth, NH: Heinemann.

Fullan, M. (2004). *Leading in a culture of change: Personal action guide and workbook*. San Francisco: Jossey-Bass.

Geisler, C. (1994). *Academic literacy and the nature of expertise: Reading, writing, and knowing in academic philosophy*. Mahwah, NJ: Erlbaum.

Graham, S., & Hebert, M. A. (2010). *Writing to read: Evidence for how writing can improve reading: A Carnegie Corporation Time to Act Report*. Washington, DC: Alliance for Excellent Education.

Graham, S., & Perin, D. (2007). Writing next: Effective strategies to improve writing of adolescents in middle and high schools—A report to Carnegie Corporation of New York. Washington, DC: Alliance for Excellent Education.

Guthrie, J. T., Wigfield, A., & Perencevich, K. C. (2004). Scaffolding for motivation and engagement in reading. In J. Guthrie, A. Wigfield & K. Perencevich (Eds.), *Motivating reading comprehension: Concept-Oriented Reading Instruction* (pp. 55–86). Mahwah, NJ: Erlbaum.

Hall, L. A. (2005). Teachers and content area reading: Attitudes, beliefs, and change. *Teaching and Teacher Education*, *21*(4), 403–414.

Halliday, M. A. K. (1998). Things and relations: Regrammaticising experience as technical knowledge. In J. R. Martin & R. Veel (Eds.), *Reading science: Critical and functional perspectives on discourses of science* (pp. 185–235). London, UK: Routledge.

Irvin, J., Meltzer, J., Mickler, J., & Phillips, J. (2008). Meeting the challenge of adolescent literacy: Practical ideas for literacy leaders. Newark, DE: International Reading Association.

Ivey, G. (1999). A multicase study in the middle school: Complexities among young adolescent readers. *Reading Research Quarterly*, *34*, 172–192.

Kamil, M. (2003). *Adolescents and literacy: Reading for the 21st century*. Washington, DC: Alliance for Excellent Education.

Lee, C. D. (2007). *Culture, literacy, and learning: Blooming in the midst of the whirlwind*. New York: Teachers College Press.

Lee, J., Grigg, W., & Donahue, P. (2007). *The Nation's report card: Reading 2007* (NCES 2007–496). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

Lee, C. D., & Spratley, A. (2010). *Reading in the disciplines: The challenges of adolescent literacy*. New York: Carnegie Corporation of New York.

McConachie, S. M., & Petrosky, A. R. (2010). *Content matters: A disciplinary literacy approach to improving student learning*. San Francisco: Jossey-Bass.

Michaels, S., O'Connor, M. C., Hall, M. W., & Resnick, L. (2002). *Accountable talk: classroom conversation that works*. Pittsburgh, PA: University of Pittsburgh.

Michaels, S., O'Connor, C., & Resnick, L. B. (2008). Deliberative discourse idealized and realized: Accountable talk in the classroom and in civic life. *Studies in Philosophy and Education*, *27*(4), 283–297.

Moje, E. B. (2002). But where are the youth? Integrating youth culture into literacy theory. *Educational Theory*, *52*, 97–120.

Moje, E. B. (2008). Foregrounding the disciplines in secondary literacy teaching and learning: A call for change. *Journal of Adolescent and Adult Literacy*, *52*(2), 96–107.

Moje, E. B., & Speyer, J. (2008). The reality of challenging texts in high school science and social studies: How teachers can mediate comprehension. In K. Hinchman & H. Sheridan-Thomas (Eds.), *Best practices in adolescent literacy instruction* (pp. 185–211). New York: Guilford.

Moore, D., Readance, J., & Rickelman, R. (1983). An historical exploration of content area reading instruction. *Reading Research Quarterly*, *18*(4), 419–438.

National Assessment of Educational Progress. (2003). *The reading framework for the 2003 National Assessment of Educational Progress*. Washington, DC: Author.

National Assessment of Educational Progress. (2005). *The reading framework for the 2005 National Assessment of Educational Progress*. Washington, DC: Author.

National Assessment of Educational Progress. (2007). *The reading framework for the 2007 National Assessment of Educational Progress*. Washington, DC: Author.

National Assessment of Educational Progress. (2009). *The reading framework for the 2009 National Assessment of Educational Progress*. Washington, DC: Author.

National Center for Education Statistics. (2010). *The Nation's report card: Grade 12 reading and mathematics 2009 national and pilot state results* (NCES 2011–455). Washington, DC: Institute of Education Sciences, U.S. Department of Education.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: U.S. Department of Education.

National Commission on Teaching and America's Future. (1996). *What matters most: Teaching for America's future*. New York, NY: Author.

National Council of Teachers of English. (2004). *A call to action: What we know about adolescent literacy and ways to support teachers in meeting students' needs. A position/action statement from NCTE's commission on reading*. Urbana, IL: Author.

National Institute for Literacy. (2007). *What content-area teachers should know about adolescent literacy*. Washington, DC: National Institute for Child Health and Human Development.

O'Brien, D. G., & Stewart, R. A. (1990). Preservice teachers' perspectives on why every teacher is not a teacher of reading: A qualitative analysis. *Journal of Reading Behavior*, *22*(2), 101–129.

O'Brien, D. G., & Stewart, R. A. (1992). Resistance to content area reading: Dimensions and solutions. In E. K. Dishner, T. W. Bean, J. E. Readance & D. W. Moore (Eds.), *Reading in content areas: Improving classroom instruction* (3rd ed., pp. 30–40). Dubuque, IA: Kendall/Hunt.

O'Brien, D. G., Moje, E. B., & Stewart, R. A. (2001). Exploring the context of secondary literacy: Literacy in people's everyday school lives. In E. B. Moje & D. G. O'Brien (Eds.), *Constructions of literacy: Studies of teaching and learning in and out of secondary classrooms* (pp. 27–48). Mahwah, NJ: Erlbaum.

O'Brien, D. G., Stewart, R. A., & Moje, E. B. (1995). Why content literacy is difficult to infuse into the secondary school: Complexities of curriculum, pedagogy, and school culture. *Reading Research Quarterly*, *30*(3), 442–463.

Organisation for Economic Co-Operation and Development. (2006). *Education at a glance 2006*. Paris: Author.

Organisation for Economic Co-Operation and Development. (2008). *Benchmarking for success: Ensuring U.S. students receive a world-class education*. A report by the National Governors Association, the Council of Chief State School Officers, and Achieve, Inc. Washington, DC: National Governors Association.

Perle, M., Grigg, W., & Donahue, P. (2005). *The nation's report card: Reading 2005* (NCES-2006-451). Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Phelps, S. F. (2005). *Ten years of research on adolescent literacy, 1994–2004: A review* (No. ED-01-CO-0011). Naperville, IL: Learning Point Associates.

Phillips, V., & Wong, C. (2010). Tying together the common core of standards, instruction, and assessments. *Kappan*, *91*(5), 37–42.

Plaut, S. (Ed.). (2009). The right to literacy in secondary schools: Creating a culture of thinking. New York: Teachers College.

Schleppegrell, M. J. (2004). *The language of schooling: A functional linguistics perspective*. Mahwah, NJ: Erlbaum.

Shanahan, T., & Shanahan, C. (2008). Teaching disciplinary literacy to adolescents: Rethinking content area literacy. *Harvard Educational Review*, *78*(1), 40–59.

Shanahan, T., & Shanahan, C. (2012). What is disciplinary literacy and why does it matter? *Topics in Language Disorders*, *32*(1), 7–18.

Snow, C. E., & Biancarosa, G. (2003). *Adolescent literacy and the achievement gap: What do we know and where do we go from here?* New York: Carnegie Corporation of New York.

Snow, C. E., Burns, M. S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.

Snow, C., & Moje, E. (2010). Why is everyone talking about adolescent literacy? *Phi Delta Kappan*, *91*(6), 66–69.

Strickland, D. S., & Alvermann, D. E. (2004). *Learning and teaching literacy in grades 4–12: Issues and challenges, in bridging the literacy achievement gap, grades 4–12*. New York: Teachers College Press.

U.S. Department of Education. (2007). *Guide to U.S. Department of Education programs*. Washington, DC: Office of Communications and Outreach.

U.S. Department of Education, Office of Elementary and Secondary Education. (2002). *No child left behind: A desktop reference*. Washington, DC: U.S. Department of Education, Education Publications Center.

Yore, L. D., & Treagust, D. (2006). Current realities and future possibilities: Language and science literacy—empowering research and informing instruction. *International Journal of Science Education*, *28*(2/3), 291–314.