

*A Special Section on  Reading*

# Apprenticing Adolescents To Reading in Subject-Area Classrooms

When middle and high school teachers reconceptualize students' classroom experience as a "cognitive apprenticeship," they begin to see the power of modeling their own strategies for reading and making sense of challenging texts in their disciplines.

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**D**ESPITE THE increasing pressures for content coverage in the current high-stakes testing environment, a small but growing number of middle and high school teachers across the country are taking the time to teach about reading in their disciplines. They are learning to recognize their own complex discipline-specific reading processes and are helping their students do the same, implementing an approach we call Reading Apprenticeship.<sup>®</sup> These teachers' efforts have made a significant difference in attitudes and outcomes for many of their students, particularly for those who are reading well below grade level and who have "given up on reading."<sup>1</sup>

## **CREATING COMMUNITIES OF INQUIRY AMONG TEACHERS AND STUDENTS**

Since 1995, we and our colleagues in the Strategic Literacy Initiative at WestEd have worked with several

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hundred middle and high school social studies, math, English, and science teachers in a research and professional development program focused on “apprenticing” students to reading in those disciplines. In this way the students can become more engaged and confident readers of challenging academic texts. The teachers with whom we work are increasingly concerned about the gap between students’ ability to read assigned texts and the standards they are expected to meet. However, few middle and high school teachers see their own abilities to read subject-area texts as a powerful resource for helping students approach these texts independently, confidently, and successfully. Because most secondary content teachers have not spent much time thinking about the mental processes by which they make sense of texts in their fields, this knowledge is invisible and therefore unavailable to most of them.

Although researchers have demonstrated positive effects on student achievement when teachers engage students in subject-area work through increased classroom conversation and, specifically, talk about how we read in subject areas,<sup>2</sup> this kind of talk is rare. Helping teachers become more aware of the literacies they bring to their subject-area expertise can open up powerful resources for teachers’ and students’ learning.<sup>3</sup> In professional development networks across the San Francisco Bay Area, as well as through national institutes for teacher and curriculum leaders, we and our colleagues have been helping teachers to establish a routine in their subject-area classrooms of discussing their own and their students’ resourceful problem solving with texts.

## THE READING APPRENTICESHIP FRAMEWORK

The Reading Apprenticeship approach is an instructional framework embedded in the process of teaching subject-area content, rather than an instructional add-on or additional curriculum.<sup>4</sup> Reading Apprenticeship helps students become better readers by:

- engaging students in more reading;
- making the teacher’s discipline-based reading processes and knowledge visible to students;
- making the students’ reading processes, knowledge, and understandings visible to the teacher and to one another;
- helping students gain insight into their own reading processes as a means of gaining strategic control over these processes; and
- helping students acquire a repertoire of problem-

solving strategies for deepening comprehension of texts in various academic disciplines.

At heart, Reading Apprenticeship is a partnership of expertise, drawing on what teachers know and do as readers in their disciplines and on adolescents’ unique and often underestimated strengths as learners. In any apprenticeship, an expert practitioner or mentor consciously models, directs, supports, and shapes an apprentice’s growing repertoire of practice. The apprentice actively engages in the task, learning by doing with appropriate support and gradually moving toward skillful independence in the desired practice. Any number of learning contexts offer examples, from water skiing to cooking, from conducting an orchestra to performing surgery.

Some researchers studying novice and expert performance on a variety of mental tasks have adopted the metaphor of “cognitive apprenticeship” to describe a type of teaching designed to assist students in acquiring more proficient cognitive processes for such valued tasks as reading comprehension, composing, and mathematical problem solving.<sup>5</sup> If students are to become skilled readers of academic texts, the invisible processes involved in comprehending such texts must be made visible and accessible to them as they actually engage in meaningful literacy activities. Clearly, the best mentors for student apprentices learning discipline-based literacy practices are those teachers who have mastered these very practices — subject-area teachers. In Reading Apprenticeship classrooms, teachers reconceptualize subject-area learning as an apprenticeship in discipline-based practices of thinking, talking, reading, and writing.<sup>6</sup> In a Reading Apprenticeship classroom, then, the curriculum includes more than just *what we read*. It includes *how we read* and *why we read in the ways we do*.

To help teachers construct this new conception of reading in the subject areas, we have developed an instructional framework, derived from a view of literacy as socially and cognitively complex and drawing on the core metaphor of cognitive apprenticeship described above. The Reading Apprenticeship framework involves teachers in orchestrating and integrating four interacting dimensions of classroom life that support reading development. These dimensions are woven into subject-area teaching through “metacognitive conversations” — investigations into the thinking processes that students and teachers employ as they read. (See [www.wested.org/stratlit](http://www.wested.org/stratlit) for a visual representation of the framework.)

1. *The social dimension: building a reading inquiry*

*community*. The social dimension of the Reading Apprenticeship framework involves developing a sense of safety in the classroom community and making good use of adolescents' interest in peer interactions. As students share confusions about and difficulties with texts, they learn that confusion is a starting place for making meaning with text. Through ongoing conversations rooted in text, they also learn to ask critical questions about content, purpose, and perspective.

At Oak Grove Middle School in Concord, California, Monica Figueroa's seventh-grade social studies students are beginning their study of ancient Africa. Individually, they read and take notes on their understandings and questions about a section from their textbook on the legend of Kings Sumanguru and Sundiata. Then, in small groups, they confirm what they know (Who won the battle? How does magic fit here?) and try to solve problems, some of which stem from the dramatic language in the legend (What does it mean to "fix someone with a gaze"? If an arrow "grazes" someone, is that serious?). Confusion and comprehension problems that remain are then taken up by the whole class before students move on to the next segment of text. When these students share comprehension difficulties as well as understandings and ways of solving comprehension problems, they build both content knowledge about historical legends and a repertoire of reading strategies. As the year proceeds, the students also develop critical reading skill to raise questions about the accuracy and completeness of information in the text.

2. *The personal dimension: creating a sense of agency.* The personal dimension in the Reading Apprenticeship framework involves addressing adolescents' interest in exploring new aspects of their own identities. Teachers help students recognize and work with the skills they use in out-of-school settings and support them as they strive to become more strategic and purposeful about their reading.

One way that John Mach, an English Language Development teacher at Dixon High School in Dixon, California, helps his students build fluency and stamina is with supported independent reading. As part of their daily sustained silent reading (SSR), Mach's students respond to metacognitive prompts in their reading logs that help them deepen their thinking about their own reading processes and about the ideas in the

text they are reading. Early in the year, a prompt might be: "I started to think about \_\_," or "An image I had in my mind was \_\_." By midyear, students prepare book talks, based on their logs, and seek to interest others in a favorite SSR book. The prompts are expanded to include critical responses to the text: "If I could, I would change the part about \_\_," or "I finally understood \_\_." Over time, the students read more and select from a wider array of books for independent reading, thereby building confidence and range. They grow both as readers and as competent, confident speakers of English.

3. *The cognitive dimension: developing a comprehension toolkit.* The cognitive dimension in the Reading Apprenticeship framework involves developing students' repertoire of specific comprehension and problem-solving strategies, with an emphasis on group discussion of when and why particular cognitive strategies are useful.

When students in Lisa Krebs' English class at Dixon High School study *The Odyssey*, they no longer read to answer the teacher's questions. Instead, they learn techniques to support a close reading of a difficult text that is driven by their own questions. Especially in the beginning, the students tackle the epic in manageable chunks, using metacognitive routines such as "think-aloud" and "talking to the text" to monitor comprehension and solve problems as they occur.<sup>7</sup> They learn to discuss the text in response to their own questions, as well as in the context of Greek mythology. At one point, students wonder why Odysseus and his sailors must steer a course between the hazards of Scylla and Charybdis. Why not take a different route? The ensuing discussion brings out important distinctions between the constraints Greek mythology places on a hero's quest and the options a contemporary explorer might have, for example, in avoiding physical danger in a wilderness expedition.

4. *The knowledge-building dimension: tapping and extending knowledge of content, text, and discourse.* The knowledge-building dimension in the Reading Apprenticeship framework involves identifying and expanding the knowledge students bring to a text, including knowledge about text structure, about topics and content, about word structure and meaning, and about discourse patterns and signals. The last of these refers to the particular ways ideas are organized and

*Students respond to prompts in their reading logs that help them think about the ideas in the text they are reading.*

expressed in different disciplines and to the various genres within each discipline.

At Oak Grove Middle School, Dorothea Jordan taps into the knowledge of opposites that her seventh-grade pre-algebra students already possess. She uses that knowledge to help build the concept of positive and negative integers. Together, she and her students develop a chart with examples (up/down, young/old, east/west). As the students read word problems, they are thus able to be alert to clue words that signal positive and negative. In addition, they learn to represent the information graphically on a number line or in a diagram of positively and negatively charged particles. Jordan is helping students build a knowledge framework for transforming word problems into algebraic symbols.

### METACOGNITIVE CONVERSATION

In a classroom community of readers, the metacognitive conversation is the central dynamic that animates and links the four dimensions of the Reading Apprenticeship framework. In a metacognitive conversation, teacher and students discuss their personal relationships to reading in the discipline, the cognitive strategies they use to solve comprehension problems, the structure and language of particular types of texts, and the kinds of knowledge required to make sense of reading materials.

At Skyline High School in Oakland, California, Willard Brown focuses explicitly on academic literacy in his chemistry classes throughout the year, emphasizing ways of reading, thinking, and talking that are particular to science. Rather than present a smorgasbord of activities, he concentrates on a handful of reading and discourse routines that he uses over and over again in different ways. The routines stress metacognition — thinking about one's thinking — and collaborative meaning making.

Brown has integrated Reading Apprenticeship approaches into his science teaching as part of an overall mission to enable a more diverse group of students to enroll and succeed in high-level science classes. About half the students at Skyline are African American, 20% are Latino, 20% are Asian American, and just over 5% are European American. An effort toward greater inclusiveness in Honors Chemistry at Skyline has resulted in classes containing students with diverse knowledge, skills, and experiences. Some enter the class as relatively skilled academic readers, while others struggle with academic texts.

Brown and other Reading Apprenticeship teachers judiciously incorporate a variety of cognitive strategies — such as visualizing, summarizing, questioning, connecting to other experiences or texts, and so on — to help students develop a repertoire of comprehension problem-solving tools. However, no single strategy or mix of strategies provides the key leverage point to increase students' engagement with academic texts. Rather, it is the changed climate of a classroom community in which inquiry into reading in chemistry, or in U.S. history, or in world literature, or in geometry becomes a shared topic of conversation.

### CHANGING CLASSROOM PRACTICE

As teachers practice making the invisible processes of reading visible with colleagues in professional communities and as they practice looking at and listening closely to students' reading performance, they reformulate their assumptions about what reading is and about students' reading strengths and challenges. As part of this process, teachers begin to make powerful changes in the way they approach reading in their subject-area classes.

*Demystifying reading.* Early in the school year, teachers working to embed a Reading Apprenticeship approach in their subject-area classes talk explicitly with students about the ideas behind Reading Apprenticeship and invite students to bring in texts they choose for the teacher to do a “cold” think-aloud reading. In this process, the teacher literally thinks out loud as she reads, pausing after every sentence or phrase, as she works to make sense of a text that she is reading for the first time. Gayle Cribb, a social studies teacher at Dixon High School, describes the power of this method for her students:

My students were completely amazed that I, as a mature, adult reader, would find some texts challenging. They delighted in watching me struggle to understand the texts they brought me, recognizing the feeling of being lost, but surprised by my patience and tenacity, by my vigorous search for handholds and willingness to stretch for any shred of meaning. Many found strategies like using the pictures, slowing down, breaking it into chunks, using my knowledge of Spanish, thinking about what the root of a word might mean, wondering about meanings in new contexts, flat-out guessing, etc., to be a complete revelation.

By making their own reading processes — the confusions, clarifications, and connections — visible, teachers demystify reading and underscore the idea that reading fluency and comprehension depend on the type of text one is reading and on the reader's experience with that type of text and its content. The teachers' willingness to take the risk involved in showing their students how they actually *work* to comprehend texts helps students realize that it is strategic effort and not magic that is involved in comprehension. Students are then engaged in "thinking aloud" or "talking to the text" themselves, to help them become aware of their own thinking processes and expand their problem-solving repertoires.

*Returning reading to subject-area classrooms.* Many well-intentioned teachers have been "teaching around the text" in an effort to make sure their students — many of whom are not prepared to read and understand their academic texts independently — can "get the concepts and content" of the curriculum. In its best form, this kind of compensatory teaching can result in a very engaging kind of classroom, with gifted teachers involving students in discussions about content. In its worst form, of course, students copy notes from chalkboards and study these to pass their course tests. In either form, however, students do not receive the support they need to develop as more sophisticated and independent readers and learners.

In Brown's chemistry class, the textbook plays a prominent role in student learning. The primary tool to support close reading of the textbook is a two-column reading log. In one column, students record what they "see" in the text — writing down passages from the text itself; in the other, they record their thinking — patterns they see, questions they have, connections they make to prior knowledge. The focus of the reading log changes from chapter to chapter, depending on the content, the demands of the text, and students' increasing academic literacy skills. Individual reading logs form the basis for classroom discussions during "preambles" — daily warm-ups that bring students' individual reading and thinking into the wider classroom community.

*Providing access to disciplinary discourse.* The primary goal of Reading Apprenticeship is to increase academic opportunities for adolescents who do not see themselves as readers of rigorous texts. We see this increased access as a vital means of working toward equity in academic achievement in secondary school and beyond. As teachers become more aware of the ways

they and their disciplinary colleagues make sense of challenging texts — asking different kinds of questions in reading science, social studies, literature, or mathematics, for example — they are able to talk more descriptively and explicitly, as Brown does here:

Sometimes you read something and you know, "Ha, they're going to talk about this next." It's called "foreshadowing," and that foreshadowing happens in science. There's a sense of a rhythm to science texts: they talk about this, then they're probably going to talk about the other thing.

Making the invisible visible in this way lets students in on how reading works in different disciplines and enables them to "break the codes" of academic language.<sup>8</sup> Brown and his colleagues see promising signs of movement toward equity goals: "The African American students are owning the sciences as part of their school and telling their friends and communicating that they can be successful in chemistry classes."

*Covering content by discovering more powerful ways to read.* One of the most vexing problems content-area teachers face as they work to embed the Reading Apprenticeship approach into their classes is content coverage. There are no easy solutions to this problem. Supporting students' disciplinary reading does take time, particularly if teachers focus on helping their students learn *how* to grapple with texts to gain understanding.

However, as teachers begin to see their students gain confidence and become more willing to struggle with reading and understanding challenging academic texts, they will become more confident that the classroom time it takes to model and engage students in thinking aloud through an opening paragraph or a challenging segment of a text is time well spent. In fact, many teachers have told us that, when they slow reading down at strategic times to model productive comprehension processes, their students gradually develop the capacity to read longer, even more challenging texts more independently and with greater understanding. Brown's experience makes this point concretely. "In the fall semester my class progressed less quickly through the textbook than some of my colleagues' classes that are not using Reading Apprenticeship or the like. By spring we have caught up or passed by because students are reading more independently."

*Learning to see students differently.* At the end of the year, one teacher who participated in professional development with the Strategic Literacy Initiative wrote:

I no longer feel or think that any student is hopeless. Yes, there will still be strugglers, but these methods have given me a way to help students see exactly where they need to grow. Students are always thinking something as they read. I didn't believe that before. Reading Apprenticeship has helped me pull out that thinking to make it a valuable part of class discussion.

A number of teachers with whom we work initially despaired that their students would ever become strong readers of academic texts in their disciplines. Indeed, much of the popular media and even education journals had reinforced these teachers' impressions that students who are "reading below grade level" are hopelessly behind and can never "catch up."

One of the key professional development goals we hold for teachers is that they will gain new awareness of the complexity of their own and their colleagues' reading processes and theories. And we hope that they will also gain a parallel awareness of and ability to work constructively with their *students'* reading processes and theories. This includes being able to understand students' reading of a broad range of texts. Like adults, adolescents can struggle with certain texts while they read others of equivalent difficulty — e.g., *Wired* magazine, automotive technical manuals, passages from the Bible — with fluency and understanding. Teachers build bridges to academic literacy as they learn to tap the resources students bring from the multiple literacies in which they engage outside of school.<sup>9</sup> They also come to see that reading ability is situation-specific.

As Reading Apprenticeship teachers begin to see shifts in their students' sense of efficacy with academic texts, their beliefs about students' overall capacities often shift as well. For many teachers, the discovery that students are always thinking is a powerful leverage point for gaining access to their students' needs and to the gaps in their understanding.

For students, the growing awareness that reading is an interactive process, a process of sense-making between the reader and text, is not only empowering but enlightening. Students shift from saying, "I just don't get this," to describing more specifically where their comprehension breaks down. As one student said with a sense of surprise, "A big thing that changed for me this year was with history. . . . You know, in this class you keep stopping to summarize as you go along, make connections, visualize what you're reading, and all that, so after a while, it hits you, this stuff *really happened*."

Students' increased interaction with texts can lead to deeper involvement in the subject area itself.

## GETTING THERE FROM HERE

For teachers to make the kinds of changes these Reading Apprenticeship teachers have made, they need a professional community in which they, like their students, can practice inquiry into reading, have time to slow reading and thinking down, and feel safe sharing their thinking with others. Teachers also need collaborative opportunities to investigate students' reading and thinking processes, and they need practice in making sense of students' meaning-making with texts. Teachers in these kinds of professional communities become more patient with themselves and with their students — even as they raise their expectations. Teachers, like their students, become more willing to take the risks and expend the effort to take on the task of making discipline-based reading an essential aspect of the subject-area classroom.

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2. Martin Nystrand and Adam Gamoran, "Instructional Discourse, Student Engagement, and Literature Achievement," *Research in the Teaching of English*, vol. 25, 1991, pp. 261-90; and Gerald Duffy et al., "Effects of Explaining the Reasoning Associated with Using Reading Strategies," *Reading Research Quarterly*, vol. 22, 1994, pp. 347-68.

3. Donald Graves, *Discover Your Own Literacy* (Portsmouth, N.H.: Heinemann, 1990).

4. Ruth Schoenbach, Cynthia Greenleaf, Christine Cizko, and Lori Hurwitz, *Reading for Understanding: A Guide to Improving Reading in Middle and High School Classrooms* (San Francisco: Jossey-Bass, 1999).

5. Lauren Resnick, "Literacy In School and Out," *Daedalus*, special issue on Literacy in America, Spring 1990, pp. 170-85; and Barbara Rogoff, *Apprenticeship in Thinking: Cognitive Development in Social Context* (New York: Oxford University Press, 1990).

6. Arthur Applebee, *Curriculum as Conversation: Transforming Traditions of Teaching and Learning* (Chicago: University of Chicago Press, 1996).

7. Marean Jordan, Rita Jensen, and Cynthia Greenleaf, "'Amidst Familial Gatherings': Reading Apprenticeship in a Middle School Classroom," *Voices from the Middle*, vol. 8, no. 4, 2001, pp. 15-24.

8. Lisa D. Delpit, *Other People's Children: Cultural Conflict in the Classroom* (New York: New Press, 1995); James Paul Gee, *Social Linguistics and Literacies: Ideology in Discourses*, 2nd ed. (London: Falmer Press, 1996); Carol Lee, "A Culturally Based Cognitive Apprenticeship: Teaching African American High School Students Skills in Literary Interpretation" *Reading Research Quarterly*, vol. 30, 1995, pp. 608-30; and Jay L. Lemke, *Talking Science: Language, Learning, and Values* (Norwood, N.J.: Ablex, 1990).

9. Elizabeth B. Moje et al., "Reinventing Adolescent Literacy for New Times: Perennial and Millennial Issues," *Journal of Adolescent and Adult Literacy*, vol. 43, 2000, pp. 400-10.



