RETHINKING THE ROLE OF LITERACY IN THE CONTENT AREAS

There's much more to reading than the basics, and that becomes especially clear as soon as students start to study the academic content areas. After the elementary years, not only do reading assignments become longer and more full of content; they also become increasingly *varied* in their style, vocabulary, text structure, purpose, and intended audience. For instance, science textbooks differ from textbooks in history and math, and all textbooks differ from the whole universe of other materials that teachers might assign, from newspaper columns to historical documents, reference materials, Internet-based hypertexts, and on and on. Middle and high school students must learn that in some classes they are expected to follow written instructions to the letter, while in others they are expected to read skeptically, or to question the author's assumptions, or to analyze the writer's style. Moving from one subject area to the next, they must tap into entirely different sets of vocabulary and background knowledge. They must learn to write well in many genres, as well as realize that chemists, historians, mathematicians, journalists, and members of every other profession have their own unique ways of sharing information, getting people's attention, debating, responding to criticism, reporting facts, and establishing authority.

It has become common among literacy researchers to describe the distinct ways of reading and writing and communicating among different groups as "social practices" (Barton, 1994, 2003; Greenleaf, 1994; New London Group, 1996; Scribner and Cole, 1981; Street, 1995). That is, researchers have challenged the assumption that literacy learning is basically a solitary activity. Rather, people learn by interacting with others (especially with people who are more knowledgeable in the area than they are), gradually becoming familiar with and internalizing their ways of doing things (their "practices"). Every academic discipline, or content area, has its own set of characteristic literacy practices. Students won't learn how to read and write and become comfortable in the field of biology, for example, unless they spend a lot of time reading, writing, and talking about biology, ideally with interested peers and well-trained teachers. To enter any academic discipline is to

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Imagine having to speak Italian, Arabic, and Russian in the morning, followed by French, Swahili, and Spanish in the afternoon.

For students, that's how it can feel to move from math to English to history to art to science to social studies to driver's education, changing subjects all day long. Every academic content area—and every non-academic kind of text, as well—has its own vocabulary, textual formats, stylistic conventions, and ways of understanding, analyzing, interpreting, and responding to words on the page.

On the following pages is just a sampling of the many kinds of texts a student might be asked to read over the course of a typical school day.

become comfortable with its ways of looking at and communicating about the world. Algebra, for instance, focuses on interactions among real or imagined objects, and it translates those interactions into a simple shorthand language that permits description of how any given "A" relates to a "B" or a "C." By contrast, historians choose to zero in on events rich in *human* significance, and instead of condensing those events into a formal shorthand, they prefer to elaborate on them by means of description, narrative, and logical exposition, so as to flesh out an overarching thesis. Chemists, on the other hand, tend to prize an extremely precise sort of description and narrative, meant not to elaborate a thesis but to compose an accurate record of a procedure and its results. In each case, writers choose particular sorts of words, arrange them in particular sorts of ways, imagine a particular sort of audience, and otherwise bend their language to suit the particular purposes and values of the discipline.

Over the last few decades, education researchers have become increasingly aware of the varied ways in which people use written materials to communicate with one another, define themselves as individuals, and identify themselves as belonging to particular groups, both in and outside of the classroom. Gradually, it has become clear that being "literate" means very different things in differing contexts and content areas (Barton et al., 2002; Borasi and Seigel, 2000; Saul, 2004; Wineburg, 2001).

Yet educators often take a somewhat narrower view of what it means to be literate. Over the last few decades, appeals to teach "reading across the content areas" have tended to translate into courses, textbooks, and workshops that encourage all content area teachers to help their students learn a core set of reading comprehension strategies, and "writing across the curriculum" has tended to mean instruction in a single, all-purpose writing process. Less common have been efforts to help teachers address the literacy demands that are *specific* to their content areas.

Research suggests that the teaching of generic reading comprehension strategies does have merit, and that students can learn a number of routines that can help them comprehend many different kinds of written documents (reviewed in Kamil, 2003; Biancarosa and Snow, 2004; RAND Reading Study Group, 2002; Brown, Palincsar, and Armbruster, 1994). These include *pre-reading* activities such as reviewing vocabulary to be found in the text, making predictions as to what the text is likely to say, and identifying text features such as tables of contents, headings, illustrations, and authors' biographical statements. These strategies also include things that students can do *while reading*, such as drawing a visual representation of the unfolding argument, or asking questions about main ideas as they unfold, or making note of unfamiliar words, concepts, or ideas to research after reading. And they include *post-reading* activities such as summarizing and restating the text's main points, or comparing notes with other students.

Moreover, numerous studies over the past few decades have demonstrated that it is most helpful to teach comprehension strategies, text structures, and word-level strategies *while students are engaged in reading challenging, content-rich texts.* Such skills don't stick when practiced for their own sake. Rather, students learn those

You learn better if you care about what you are reading.

skills best when they have compelling reasons—such as the desire to make sense of interesting materials—to use them (Alvermann, 2002; Guthrie and Wigfield, 1997; Vacca and Vacca, 1998; Wilhelm and Smith, 2002).

Given that content area reading materials are often quite difficult—in fact, many of the most popular middle and high school textbooks rival the complexity of college-level materials in their syntax, vocabulary, content, and presentation—it makes good sense to encourage all teachers to become familiar with these strategies. Students will need advanced literacy skills in order to do the sorts of intellectual work that the academic disciplines require, such as conducting and reporting scientific experiments, analyzing historical sources, or proving mathematical theorems. If teachers want their students to be able to handle such assignments, they would do well to help them become more competent in reading difficult texts in general.

To become competent in a number of academic content areas requires more than just applying the same old skills and comprehension strategies to new kinds of texts. It also requires skills and knowledge and reasoning processes that are specific to particular disciplines.

This is why we don't just stare at the book all hour.

Teachers know that you have the ability to pull out your device and look up the facts. Teachers are there to help you learn how to give those facts context, why they are important and how it applies to you.

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By way of illustration, consider two of the core subject areas, science and history. To some extent, the challenges involved in reading the texts of these disciplines are the same. For example, whether students have to read a chemistry paper or a political speech from the Civil War, they will probably need to learn new terms and phrases, pay close attention to detail, and work their way through long, complex sentences, written in a style that sounds nothing like contemporary spoken English. Likewise, when assigned to write a term paper on either of these subjects, they will probably want to generate ideas and organize what they intend to write, write more than one draft, and cite prior sources and include them in a bibliography. Similarities

In many other ways, though, science texts are very different from texts in

history, and each discipline emphasizes particular kinds of language and particular approaches to reading and writing. In chemistry textbooks, for example, language tends to be extremely precise with respect to things and events in the physical world, and students must learn to read those parts of the text with exactitude, taking care to note whether a reaction occurred at 31.9 degrees Fahrenheit or 32.1 degrees Fahrenheit, or whether a solution turned orange or yellow. However, students likely will have no reason to ask whether a particular experiment was conducted in New Hampshire or Georgia, or whether it happened to occur in 2001 or 2003.

At times, historians may pay close attention to these sorts of physical details, too, but their reasons for doing so are different from those that motivate chemists (Wineburg, 2001; Wilson and Wineburg, 1988). In particular, historians tend to be more exacting readers than chemists when it comes to details that made an important difference in people's lives, and they tend to take a special interest in the *circumstances* in which written documents were produced, particularly when reading primary source materials. Here, the context in which materials were written matters as much as the literal meaning of the text itself, and students need to know that it is crucial to take note of who wrote the given document, under what circumstances, for whose eyes and ears, and to what ends. To fully comprehend the significance of a Civil War–era speech, for example, students must understand that it matters greatly whether it was composed in 1860 or 1862, or whether it was delivered by a senator from New Hampshire or one from Georgia.

All teachers, in every discipline, have reasons to emphasize certain kinds of reading and writing over others, depending on the nature of the specific content and skills they want their students to learn. Some kinds of details matter more when reading in history class than in chemistry, or in biology class more than in algebra. Certain forms of writing (interpretive essays, for example) tend to be required in American Literature even though they would be considered inappropriate in Earth Science, where an extended scientific explanation of data would be expected.

If the goal of content area instruction were simply to get students to memorize facts and crunch numbers, there would be little reason to show them that they need to pay attention to different things when reading algebra textbooks and geometry textbooks, or that a lab report requires a different narrative voice than a historical essay. However, the goal of content area instruction is instead to introduce students to the ways in which experts in the core academic disciplines look at the world, investigate it, and communicate to one another about what they see and learn.

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