

Reading and Writing in the Academic Content Areas

For years, the nation's education policymakers have spotlighted the importance of literacy instruction in grades K–3, where students develop the basic reading skills upon which they will build their future academic success. Now that federal and state investments in early literacy are starting to pay off—with the National Assessment of Educational Progress (NAEP) showing significant gains on fourth-grade reading scores, especially among poor and minority students—it is time to shine the light upon the urgent literacy needs of older students.

It is a terrible mistake for schools to stop teaching reading and writing after the third grade; unfortunately, most schools do just that. At that point, students may be able to sound out words on the page, or understand simple texts, or follow the plot of a story. However, unless they receive ongoing and explicit instruction—with special attention to vocabulary, reading comprehension, and writing—they will never master the more advanced skills required to succeed in high school, college, and the workforce.

Today, less than one-third of America's high school students read or write at grade level. Among low-income students, the figure is fewer than one in six (Perie et al., 2005). In a typical high-poverty urban school, roughly half of incoming ninth-grade students read at a sixth- or seventh-grade level (Balfanz et al., 2002).

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Literacy skills are alarmingly low even among those students who plan to go to college. For instance, a major study of high school juniors and seniors taking the ACT college entrance exam found that only half were ready for college-level reading assignments in core subjects like math, history, science, and English (ACT, 2005). Of students who enroll in a four-year college, nearly 8 percent will take at least one remedial reading course—and only about one-third of those students are likely to graduate within eight years.

That's not going to cut it—not at a time when the fastest growing occupations demand far greater than average literacy skills (Barton, 2000), and not in an era of rapid technological change, knowledge-driven markets, and fierce global competition.

Clearly, vast numbers of middle and high school students need help with their reading and writing skills. The question is: Whose job should it be to teach them?

At the elementary school level, the answer is obvious: it's everybody's job. Most primary school teachers are generalists, and all fifty states require them to be knowledgeable about and skilled in reading and writing instruction, among other subjects.

But at the secondary level—where teachers have traditionally been defined as specialists in particular academic content areas—the responsibility for teaching reading and writing appears to belong to nobody in particular. Ask the math, science, and history teachers, and they’ll point to the English department. Ask the English teachers, though, and they’ll probably shake their heads—English teachers tend to regard themselves first and foremost as teachers of *literature* and only secondarily, if at all, as reading and writing instructors.

So what’s the answer? What will it take to get more secondary level teachers to shoulder the responsibility for helping kids improve their literacy skills?

Among researchers, school reformers, and professional associations, the consensus view is that every middle and high school teacher has a role to play in helping students to become fully literate. But that is not to say that all teachers should play precisely the *same* role. Content-area teachers can and should provide certain kinds of literacy instruction, but they cannot be expected to do exactly the same work as reading specialists.

TO BE LITERATE IS TO READ AND WRITE IN MANY DIFFERENT WAYS

It is often said that in the first few years of school kids “learn to read,” so that in later years they can “read to learn.” That is, an important shift is supposed to occur around the fourth grade. Before that point, students are given a steady diet of nursery rhymes, storybooks, and other simple texts, which help them to practice the basic mechanics of reading. After that point, teachers begin to assign longer and more content-rich materials, and students are expected to read for information, to gather facts, remember details, look for main points, follow directions, and so on.

But reading assignments do not just become longer and more full of content; they also become *varied* in their style, format, vocabulary, purpose, and intended audience.

By the time students enter the middle grades, the curriculum divides into a number of discrete subject areas, each of which has its own distinct kinds of texts and ways of reading and writing. Science textbooks, for example, look and feel quite different from textbooks in history and math, and differ even more 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.

It is true that older students must be skilled at reading to learn; but it is also true that they never finished learning to read.

For instance, they must learn to skim some kinds of books quickly, checking for main points and broad themes, but to pore over others, in search of fine details. In some classes they must 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, jargon, and background knowledge. They must learn to write in many styles, applying a myriad of discipline-specific conventions and rules. And they must learn that chemists, historians, mathematicians, journalists, and members of every other profession have their own characteristic ways of talking, reasoning, arguing, presenting their thoughts, and responding to critics.



WHO IS RESPONSIBLE FOR LITERACY INSTRUCTION?

Over the last two decades, a number of leading researchers have conducted large-scale studies and historical analyses to find out what types of reading and writing occur in America's middle and high schools, and their findings have been quite consistent: Students engage in very little sustained reading, and when they do it is mainly from brief, teacher-created handouts and, to a lesser degree, from textbooks. Most teachers encourage and require very little reading of primary sources or real-world materials. Most teachers devote little, if any, class time to showing students, explicitly, what it means to be a good reader or writer in the given subject area. And most students engage in very little discussion of what they have read, how to write, or how to interpret, analyze, or otherwise respond to texts (Wade & Moje, 2000; Connors, 1997; Cuban, 1989; Hillocks, 1986).

Historically, many teachers in the academic content areas have been reluctant to define reading and writing instruction as part of their job. To some extent, this may reflect nothing more than the natural human aversion to change—secondary level teachers have long regarded themselves as content specialists, not as teachers of skills, and they may have little desire or incentive to disturb the status quo. But it is also a likely result of the fact that most secondary school teachers have never received more than a token amount of training in literacy instruction, and they are quite reasonably hesitant to take on responsibility for work they have not been trained to do.

There are other legitimate concerns. For instance, teaching students how to read and write can be quite time-consuming, especially if teachers require students to produce and revise a lot of written work. Given a teaching load of four or five classes of up to thirty students each,

A Day in the Life of a Struggling Reader

Imagine if you were required to speak Italian, Arabic, and Russian in the morning, followed by French, Swahili, and Spanish in the afternoon.

For struggling adolescent readers, that's what it seems like to move from one subject to the next. From math to English to history to science to civics, each academic content area has its own vocabulary, textual formats, stylistic conventions, and ways of understanding, analyzing, interpreting, and responding to words on the page.

Here is a sampling of texts a student might be asked to read over the course of a typical school day:

BIOLOGY

Until the mid-1800's scientists thought organic chemicals (those with a C-C skeleton) could only form by the actions of living things. A French scientist heated crystals of a mineral (a mineral is by definition inorganic), and discovered that they formed urea (an organic chemical) when they cooled. Russian scientist and academician A.I. Oparin, in 1922, hypothesized that cellular life was preceded by a period of chemical evolution. These chemicals, he argued, must have arisen spontaneously under conditions existing billions of years ago (and quite unlike current conditions).

WORLD HISTORY

EDWARD by the grace of God, King of England, Lord of Ireland, and Duke of Guyan, to all Archbishops, Bishops, etc. We have seen the Great Charter of the Lord HENRY, sometimes King of England, our father, of the Liberties of England, in these words: Henry by the grace of God, King of England, Lord of Ireland, Duke of Normandy and Guyan, and Earl of Anjou, to all Archbishops, Bishops, Abbots, Priors, Earls, Barons, Sheriffs, Provosts, Officers, and to all Bailiffs and other our faithful Subjects, which shall see this present Charter, Greeting.

ENGLISH 1

Romeo and Juliet, Act 1, Scene 1. Verona. A public place. Enter SAMPSON and GREGORY, of the house of Capulet, armed with swords and bucklers.

SAMPSON: Gregory, o' my word, we'll not carry coals.

GREGORY: No, for then we should be colliers.

SAMPSON: I mean, an we be in choler, we'll draw.

GREGORY: Ay, while you live, draw your neck out o' the collar.

SAMPSON: I strike quickly, being moved.

ALGEBRA 1

Emma invested money at Party Bank three years ago. She signed up for a CD that paid 6% yearly interest, compounded semiannually. The interest is added to the balance and is accumulated with the original investment. At the end of three years, her account is worth \$4,417.99. How much was her initial investment?

CURRENT EVENTS

BOSTON - Boston Scientific Corp. on Monday recalled nearly 23,000 pacemakers and defibrillators that could fail because of an electrical flaw, and the company asked doctors to check 27,000 patients already implanted with potentially faulty devices.



how likely are teachers to assign frequent essays, and then read and comment on them and require revisions?

Additionally, existing state achievement tests and graduation exams do very little to encourage content-area teachers to provide extensive literacy instruction. Today, most assessment systems consist almost exclusively of multiple-choice and short-answer items, with an emphasis on recall of factual information, not analytic reading or independent writing. If anything, current accountability systems tend to create incentives for content-area teachers to help students memorize the content to be tested, at the expense of time they might otherwise spend giving students opportunities to read and write like scientists, historians, mathematicians, and other kinds of scholars (Hillocks, 2003).

A FOUR-PART AGENDA FOR LITERACY IN THE CONTENT AREAS

If teachers of math, English, history, science, and other subjects are to shoulder more responsibility for literacy instruction, they will need to be given the kinds of professional development that will enable them to succeed, along with the kinds of encouragement and organizational incentives needed to break from familiar routines and beliefs. Moreover, reformers will have to be sensitive to content-area teachers' fears that they could be asked to provide instruction that lies well beyond their expertise—for instance, high school math or history teachers would be perfectly justified in rejecting the suggestion that they teach word recognition, decoding, basic comprehension, and other fundamentals of literacy.

What is needed today is for reformers to spell out more clearly and in much more detail precisely which responsibilities ought to belong to which teachers, and to describe the conditions that education leaders and policymakers will need to create in order to promote meaningful change.

Some reading comprehension strategies should be taught in every content area.

The kind of general literacy instruction that should be provided in every content area does not require a master's degree in reading or a significant amount of specialized training. Rather, the research identifies and recommends a set of relatively manageable and straightforward strategies for helping students comprehend all sorts of texts (Pressley, 2000). 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 pointing out features such as tables of contents and authors' biographical statements. These strategies also include things that students can do while reading texts, such as drawing a visual representation of the unfolding argument, or stopping to check a dictionary or encyclopedia. And they include post-reading activities such as summarizing and restating the text's main points, or identifying key points of ambiguity, or comparing notes with other students.

In short, there are fairly simple reading comprehension strategies that any teacher, in any content area, can and should use when students are having trouble making sense of particular reading materials. Those strategies might tend to come in handy more often in literature or history courses than in chemistry or calculus, but they can be equally useful in math and science classes, such as when teachers assign essays from popular science magazines or examples of real-world mathematical applications. And, finally, these are the sorts of teaching strategies that can be learned in a matter of days or weeks, not months.



In every content area, teachers should provide instruction in the reading and writing skills that are specific to that content area.

To become an expert, whatever the field, is to learn how to do things more or less automatically. For instance, accomplished tennis players don't stop to think about the proper way to hit backhand shots; they just hit the ball. Accomplished artists don't need to remind themselves which colors combine to make green; they simply go ahead and mix the blue with the yellow. And accomplished biologists don't ask themselves which style one uses in a laboratory report; they simply sit down at the computer and start writing.

For content-area teachers—those teaching social studies, sciences, math, and humanities—this familiarity is both a blessing and a curse. Well-trained teachers are intimately familiar with the disciplinary standards against which their students' work is to be judged. The expertise possessed by biology teachers, for example, allows them to distinguish between clever experiments and ones that are poorly designed, or between good laboratory reports and bad ones. But on the other hand, those teachers may no longer remember what it was like to learn these things for the first time. Because the format and style of a laboratory report has become so familiar, they may assume that these things are self-evident to everybody else as well.

Just as important, though, is to recognize that some of those essential, taken-for-granted skills belong to the world of reading and writing. Traditionally, the school subject of biology has not defined literacy as one of its core concerns, but successful biologists and biology students do in fact conduct much of their work through the written word. To become accomplished in this or any other academic field is as much a process of learning to read and write in certain ways as it is a process of learning facts, methods, theories, and other kinds of "content." Hence, biologists must know how to collect samples, sterilize equipment, dissect specimens, and classify organisms. They must know photosynthesis from bioluminescence, viruses from bacteria, and Watson from Crick. And they must also know how to read and comprehend articles in biology journals, write up their lab notes in an appropriate style, and describe their findings in a format with vocabulary that other biologists will understand.

For teachers in every academic subject area, then, the challenge is to make themselves aware of the skills, knowledge, and concepts they take for granted, and which are particularly important for students to be shown explicitly. Simply put, all teachers should know what is distinct about reading and writing in their discipline, and they should, as a matter of basic professional competence, know how to make those rules, conventions, and practices apparent to students.

Schools and districts should invest in reading specialists to address local needs for the teaching of basic reading skills to middle- and high school-age students.

Many of the nation's middle and high school students are unable to decode texts, or they decode with too little accuracy or too slowly to permit them to comprehend the meaning of what they are reading. Those students need intensive, high-quality reading interventions that will allow them to finally master the basic mechanics of reading that they should have been taught in elementary school.



Some educators believe that when middle and high school students struggle with basic reading skills, the best approach is to pull them out of the regular curriculum, give them intensive support, and return them to their content-area courses once they can decode fluently. Others argue that it is better to provide basic reading support as an add-on to the regular curriculum, so that students don't fall further behind in their content-area studies even as they catch up in their decoding skills. But whatever the specific intervention model, the key is to hand the assignment over to teachers who are ready, willing, and trained to provide such instruction. Teachers of biology, literature, or civics cannot be expected to play this role.

Districts and states should revise their standards, accountability systems, and other policies to encourage more reading and writing in the content areas.

At present, no state in the nation includes specific reading and writing skills in their standards for each academic content area (ACT, 2005). However, so long as reading and writing are relegated to their own standards document—or solely to the standards document for English Language Arts—teachers in the content areas will have tacit permission to ignore them. Drawing from the most current scholarship, then, states and districts should take steps to ensure that their math, science, English, and social studies standards address the reading and writing skills that are specific to the given discipline.

But standards are only as good as the resources and incentives that accompany them. Thus, if standards documents call for higher levels of literacy, then individual schools and districts must be given the flexibility they need to schedule more time for reading and writing instruction in all content areas. Because that instruction can be quite time intensive, teachers are unlikely to assign more independent reading and writing (and especially drafts and revisions of student work) without significant adjustments in their class sizes, teaching loads, and schedules.

Likewise, schools, districts, and states should provide content-area teachers with access to more and better reading materials in their classrooms, in their school libraries, or by other means. Particularly lacking are reading materials that are “high in interest but low in frustration”; that is, books dealing with topics that appeal to older students while using language and vocabulary that struggling readers find manageable. Further, many teachers have little access to primary sources, real-world documents, and other disciplinary texts (or they have little knowledge of how to access those texts for free, when available, through the Internet). As research from ACT (2005) makes clear, exposure to sophisticated, high-level reading materials is a powerful predictor of student success when they go on to college math, science, history, and other courses.

And finally—but by no means of least importance—states should invest in accountability systems that utilize open-ended writing and analytic reading items in all content-area tests and graduation exams. While such tests can be much more expensive than those that rely on multiple-choice and short-answer items, they create a much more powerful incentive for teachers to offer more and better literacy instruction.



CONCLUSION

It is unacceptable that two-thirds of the nation's high school students read below grade level; however, given the way schools currently provide reading instruction, it is perhaps understandable.

When schools stop the teaching of reading after the third grade, students are left to struggle as they tackle much more advanced material. Instead, all secondary school teachers must do their part to build students' literacy skills, and policymakers must assure that those teachers have the supports and resources necessary to be able to teach effectively. A strong commitment by teachers, administrators, and policymakers, coupled with appropriate training and professional development and targeted interventions for those students most behind, will raise adolescent literacy levels and help students to graduate from high school prepared for college, work, and successful lives.

The time has come to change the status quo. America's global competitiveness may rely upon it, and America's children deserve no less.

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