

CHAPTER 11

The Reality of Challenging Texts in High School Science and Social Studies

HOW TEACHERS CAN MEDIATE COMPREHENSION

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This chapter:

- Describes the complex connections between reader purpose, engagement, and knowledge; texts of the subject areas; and the social networks within which texts are embedded.
- Uses short pieces of science and history texts to illustrate what youth need to know and be able to do to comprehend texts at the high school level.
- Summarizes what teachers need to know and be able to do to mediate these challenges.
- Presents content literacy teaching practices that can be adapted for particular youth, particular texts, and particular contexts of instruction.

INTRODUCTION: WHAT'S THE BIG DEAL WITH READING IN HIGH SCHOOL?

Imagine walking into your classroom, the teacher's lounge, or your office and being asked to read the following text:

Emergency Quota Act of 1921

AN ACT

To limit the immigration of aliens into the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. . . .

Sec. 2. (a) That the number of aliens of any nationality who may be admitted under the immigration laws to the United States in any fiscal year shall be limited to 3 per centum of the number of foreign born persons of such nationality resident in the United States as determined by the United States census of 1910. (Retrieved April 9, 2007, from tucnak.fsv.cuni.cz/~calda/Documents/1920s/QuotaAct1918.html)

What is the first thing you would do upon being presented with this reading task? Can you identify the main idea of the passage? What kinds of questions would you ask the person who demanded this reading act of you? What kinds of questions would you ask yourself? Perhaps most important, would you do it?

Many of you reading this chapter would probably ask, “Why? What do you want me to do with it?” if presented with this reading task. You might ask these questions simply because you are a good reader, and as such, you automatically seek to establish your purpose for reading. Or you would ask these questions because you know that good readers attempt to establish a purpose for reading when presented with a text they have not chosen to read. When good readers have not chosen texts for themselves, they recognize that the purpose for reading is not up to them to determine. Finally, you might ask such questions because you know you have a choice and can refuse to read the text if the reason for reading is not to your liking.

This note about choice is an important one. Literacy theorists argue that choice in reading and writing tasks makes an enormous difference in one’s motivation or engagement with those tasks (Guthrie & Wigfield, 2000). A number of studies have demonstrated that many young people do not read academic texts with proficiency or high interest (Moje, 2007; Perie, Grigg, & Donahue, 2005). The lack of proficiency has been attributed variously to low literacy skills, to motivation and engagement, and to text difficulty.

However, studies have also indicated that young people read many different kinds of texts—including challenging texts—outside of school, and they read them with fluency and reasonably high comprehension (Alvermann, Young, Green, & Wisenbaker, 1999; Gee, 2003; Leander & Lovvorn, 2006; Moje, 2006). Many of these same scholars have suggested that motivation and engagement are at work in young people’s abilities to read out-of-school texts. But we believe that is not just that youth *want* to read these texts. Motivation matters, but what may help youth persevere

even in the face of challenging texts may be the fact that these texts are embedded in meaningful social networks of the young people's lives. As such, these social networks provide important background knowledge that helps youth establish a purpose, ask questions of text, monitor their comprehension, and synthesize ideas for each new text they read.

By contrast, the texts of high school classrooms are not embedded in the social networks of most students' daily lives. They are embedded in the social networks represented by the disciplines, which means that they draw on different kinds of knowledge and skills. In this chapter, we want to highlight the vast requirements of knowledge and skill required to read the texts of high school subject-matter areas. Understanding the text of the Emergency Quota Act excerpt requires the ability to set purposes for one's reading; to ask questions about authorship, historical context, and political attitudes and ambitions; to give meaning to words used in particular ways; to monitor comprehension and to know how to find information alluded to, but not explained in the text. These skills are often mentioned in discussing comprehension but are rarely examined in terms of what it means to, say, set a purpose for reading a primary source. Just what is it that the reader is supposed to understand about the act? What level of comprehension is demanded here? What will the reader have to do with this text?

Likewise, producing a well-written argument in science or social studies depends on an ability to set purposes for the writing. But even that one skill—purpose setting—is complicated, requiring extensive knowledge, experience, cognitive development, and engagement. It also requires that youth become part of the social networks in which these disciplinary texts are embedded. Several education researchers and curriculum developers have experimented with activities and practices that foster students' entrance into disciplinary networks, usually by focusing on typical practices or ways of doing, thinking, talking, reading, and writing. Project-based science curricula, for example, introduce young people to the practice of developing questions and carrying out scientific investigations of natural phenomena (Krajcik, Blumenfeld, Marx, Bass, & Fredricks, 1998). In history and science classroom research, scholars have developed technology scaffolds that engage students in examining primary sources (Bain & Ellenbogen, 2001). Others have experimented with bringing practicing scientists into the science inquiry process (Hall & Turow, 2006) as a way of modeling scientific thinking practices for students. In most of these cases, these useful practices are not specifically focused on text reading (Robert Bain's [2006] work in history classrooms is a notable exception). In addition, although these practices help to build necessary knowledge and skills of the subject-matter areas, they do not necessarily make explicit the knowledge and skills necessary for developing high school text reading skills among students.

What follows is an analysis of some the skills and knowledge that young people need in order to comprehend the texts of high school content areas. These skill and knowledge demands complicate secondary school reading and are unique to subject-matter texts, suggesting that what we know about comprehension and comprehension instruction at the elementary level may not be easily extrapolated to comprehension instruction at the secondary level.

The analysis emphasizes the different types of knowledge necessary for purpose setting, comprehension monitoring, and sense making, with an examination of how knowledge and development intersect with engagement in reading. To frame the analysis, we draw from our recent experience co-teaching 11th-grade social studies students in a predominantly Latino/a neighborhood of a large Midwestern city. As hinted at by the Emergency Quota Act text excerpt with which we opened the chapter, we were studying a unit on U.S. immigration issues and history. We framed the problem under study in terms of contemporary questions around who should be allowed to immigrate into the United States, and whether and how immigration should be monitored. We started with a contemporary problem and then looked back in time to our nation's founding, moving forward until we returned to the present day. Our analysis of the text challenges students faced as they read primary sources throughout U.S. history is bolstered by findings from Moje's research with young people in and out of school.

The chapter concludes with a discussion of teaching practices and specific strategies to help teachers mediate these challenges and support young people's reading comprehension and written production of the texts demanded for high school content-area learning. The suggested practices are not intended to supplant project-based practices described above, but to complement such practices, in an attempt to support text reading while conducting both natural and social science investigations.

TYPES OF KNOWLEDGE AND SKILL NECESSARY FOR PURPOSE SETTING AND COMPREHENSION

We feature the Emergency Quota Act of 1921 text because it was in the process of teaching it that we began to think about the complexity of knowledge and skill demands implicit in what is, at first glance, a seemingly straightforward piece of text. Our analysis—conducted at some level in the midst of trying to help students understand the text—revealed at least six types of knowledge or skill necessary for purpose setting and sense making of this short passage: (1) semantic, (2) mathematical, (3) historical, (4) geographical, (5) discursive, and (6) pragmatic.

Semantic Knowledge and Skill

That semantic—or word—knowledge is needed to make sense of this passage may seem rather obvious and is often the first factor considered by content teachers, literacy coaches, and reading theorists. The technical words of the passage include *immigration*, *aliens*, *Senate*, *House of Representatives*, *Congress*, *assembled*, *fiscal year*, *per centum*, *nationality*, and *census*. The everyday terms that might give adolescent readers pause, particularly in relation to the syntax in this passage, include *enacted* and *resident*. Many of these terms are ones that most youth are likely to have heard before; however, the difference between their casual use and their meaning in this passage may be critical. Readers who do not know the technical or everyday meanings of these and other words in the passage could nevertheless work to comprehend the passage, provided they possess the semantic skill not only to locate words in dictionaries, but also to discern which meaning is more appropriate in the context of the passage. Such semantic skill, however, is complicated by the other knowledge demands embedded in the passage. As we used the Emergency Quota Act and other texts in the immigration unit, we found ourselves repeatedly turning our students to the dictionary, asking students to read each of the definitions provided, and then working with them to choose the word that best fit the context in which we were reading.

Mathematical Knowledge

As mentioned above, *per centum* is a key phrase in this text that needs to be understood in order to make sense of the text. However, the knowledge required is not merely definitional (i.e., it is not enough merely to know that the Latin phrase translates as “per one hundred,” it is also essential that students understand what it means mathematically when a limit is set at 3 per 100). As obvious as this may seem to the adult reader, students in our classes answered the question, “If there were 100 people from Albania in the United States in 1910, then how many Albanians could immigrate to the United States in 1921?” with responses such as, “Five?” or “Twenty?” Students’ responses indicated either a lack of skill in calculating percentages (or even a lack of conceptual knowledge of what a percentage represents) or a lack of interest in applying the mathematical concept to the historical information of the passage (in some cases, they seemed to simply call out a number without really stopping to think about the question). Both language and minimath lessons were useful here, as we discussed both the meaning of *per centum*, using the Spanish for 100 as a way into the Latin word, and how to calculate three per centum of a given number of residents. Making sense of the numbers, however, raises

questions about another kind of knowledge required for making sense of this passage: knowledge of history.

Historical Knowledge

One of the most important types of knowledge for making sense of this particular historical document is knowledge of past events, data, people, and social and political issues and conflicts. Although a reader could comprehend the Emergency Quota Act's surface meaning to be that in 1921, U.S. immigration law set limits on immigration that equaled 3% of the people of a given nationality living in the United States in 1910, the significance of the text is revealed only when one either knows or examines the numbers of immigrants from different countries living in the United States in 1910. If readers know anything about U.S. immigration during the early 1900s, then they will know that the numbers of different nationalities living in the United State were vastly different. They might even know something about the nature of the differences (e.g., that the country was heavily populated by people of English and German descent, and less heavily populated by people of Italian, Romanian, or Polish descent). If, for example, readers had knowledge of the information shown in Table 11.1 then they would be able to draw inferences about the intent of the act, and they might put a different spin on the word *emergency*.

Armed with the knowledge that the number of British residents in 1910 was higher than the number of Romanian or Polish residents, the reader might infer that the law targeted 1910 as a way of limiting the numbers of Romanian and Polish residents and allowing British peoples to maintain dominance in the larger population (the same sort of argument could be made for German immigration in comparison to Italian immi-

TABLE 11.1. Foreign-Born Residents by Selected Country of Origin, 1890–1920

Country/region	1890	1910	1920
Great Britain	1,251,402	1,221,283	1,135,489
Ireland	1,871,509	1,352,251	1,037,234
Germany	2,784,894	2,311,237	1,686,108
Italy	1,887	1,343,125	1,610,113
Romania	NA	937,884	1,139,979
Poland	48,557	65,923	102,823

Note. Based on information retrieved April 9, 2007, from www.u-s-history.com/pages/h1398.html and April 20, 2007, from www.census.gov/population/www/documentation/.

gration). However, to do so, readers would then have to employ their mathematical knowledge to determine that 3% of 65,923 (the number of Polish-born residents in 1910) is smaller than 3% of 1,221,283 (the number of British-born residents in 1910). But the need to make that mathematical calculation depends on the knowledge that the groups differed in number. Without that knowledge, the words would be taken at face value and the law would appear to be equitable. With that knowledge, readers would have access to deeper and historically important interpretations of the text. Specifically, they would come to understand that the Emergency Quota Act of 1921, despite its seemingly equitable application of the same *per cent* limit to all nationalities, was established to limit the immigration of certain groups (Eastern and Southern Europeans, in particular) into the United States. To draw that conclusion, however, one would also need to know that the numbers of those groups immigrating were on the rise, as shown in Table 11.2. It could be argued that the savvy reader would ask questions of that text that would demand the answers provided via these data. However, that savvy and the accompanying critical reading practice require additional types of knowledge and skill, such as knowledge of geography and skill in making sense of geographical data.

Geographic Knowledge and Skill

A lengthy list of countries and population numbers included in the 1924 law requires either extensive knowledge of geography or well-developed geographical skills to find the countries and attempt to identify demographic characteristics of the populations therein (see list in Appendix 11.1). However, these knowledge and skill demands are even more complicated: To recognize the import of either the 1921 act or

TABLE 11.2. Immigration Statistics, 1920–1926

Year	Total entering United States	Country of origin		
		Great Britain	Eastern Europe	Italy
1920	430,001	38,471	3,913	95,145
1921	805,228	51,142	32,793	222,260
1922	309,556	25,153	12,244	40,319
1923	522,919	45,759	16,082	46,674
1924	706,896	59,490	13,173	56,246
1925	294,314	27,172	1,566	6,203
	304,488	25,528	1,596	8,253

Note. Based on information retrieved April 9, 2007, from www.u-s-history.com/pages/h1398.html and April 20, 2007, from www.census.gov/population/www/documentation/.

the 1924 law, one needs to recognize that the people of some countries were not as highly regarded as the people of other countries, at times on the basis of social class, at other times on the basis of race, ethnicity, or language. To know these differences requires deep geographical knowledge beyond simply knowing where a country is located on a map or globe.

Discursive Knowledge and Skill

One additional type of knowledge is discursive, or the knowledge that the construction of texts is tied to the domain in which, and the purposes for which, they were originally written. Understanding the Emergency Quota Act of 1921 as more than a string of words demands that the reader possess and use discursive knowledge of how and why legal documents from a particular time period were written, to what audiences they spoke, and to what issues they were addressed. Discursive knowledge is even more useful in understanding a later immigration law, the Immigration Act of 1924, wherein limits are reduced to two per centum of the foreign-born persons resident in the United States in 1890 (note both the reduction in percentage and the backward move by 20 years from 1910 to 1890), particularly in the final portion of the act, which reads:

The immigration quotas assigned to the various countries and quota-areas should not be regarded as having any political significance whatever, or as involving recognition of new governments, or of new boundaries, or of transfers of territory except as the United States Government has already made such recognition in a formal and official manner. (Retrieved April 9, 2007, from www.u-s-history.com/pages/h1398.html)

This attempt to disavow political intent in the law requires an understanding of the nature of political back-room negotiations, U.S. foreign policy, and of the likely targets of this law. A skilled reader should wonder about the politics at work in the time period upon reading these words; the skilled reader should also question the intent behind the words. In the absence of such knowledge, skill with navigating discourse communities can come into play and aid in comprehension. However, the discursive skill here involves imagining reactions from various countries around the world, as well as from various national groups within the United States at the time, and analyzing how the text was constructed in attempts to minimize those reactions. Thus, the discursive skill requires knowledge of politics, rhetoric, history, and geography—a point that emphasizes the complicated, interrelated nature of bodies of knowledge and skill in making sense of texts at the high school level. No text is an island unto itself; an awareness of *intertextuality*—that is, the interconnectedness of multiple

texts and ideas across texts—is especially important for both the high school reader and the teachers of high school readers.

Making sense of these texts also requires another kind of discursive knowledge or skill, one that is tied to the original question of purpose. The reader needs to recognize that one should get information, ideas, or perspectives from texts. The question, however, is which information, ideas, or perspectives are to be taken away from the text, and once one has them, what is to be done with them? Expert reader studies (Alexander, 2003; Alexander, Kulikowich, & Jetton, 1994; Pressley & Afflerbach, 1995; Wineburg, 1998) have demonstrated that expert readers either ask for, articulate, or have in their minds an explicit purpose when approaching a text. How many high-school-age readers approach texts such as the Emergency Quota Act with a specific purpose in mind? From where would this purpose come? Would the purpose come from the discipline of history? That would require discursive knowledge of historical reading practices and problem framing (Bain, 2006). How often do high school teachers help readers set such purposes for the various texts they read? And when we do set purposes for student readers, how clear and specific are they?

For example, as we taught these texts, we provided an interpretive task for our 11th-grade students to complete after reading the Emergency Quota Act of 1921. The students were asked to draw a representation of what they had read for placement on a timeline we were building as a class. We saw this task as an excellent way to translate across communicative forms (i.e., from print to drawing), and the collection of drawings placed on the timeline helped to make visual the laws and to frame them chronologically. The timeline provided a stable referent as we worked through the unit. But the question remains as to how clear we made *what* the students were supposed to take away and represent from the Emergency Quota Act text. It was in working with several small groups of students as they struggled through this text that we realized a weakness in our lesson design. Specifically, although our students could visually represent a surface-level meaning of the texts they read, they were not able to dig deeper into the texts to comprehend more nuanced meanings, and nothing in the task's purpose demanded in-depth reading. The task was a comprehension task, but comprehension to what *end*? This problem became especially clear with the Emergency Quota Act and the Immigration Law of 1924, because so much meaning lies beneath the surface of the words in those two laws. Thus the purpose we set of representing the laws visually provided one way into the laws, but it did not provide the students with the kind of purpose they really needed in order to understand the importance of the laws historically.

In effect, high school readers and their teachers must juggle different purposes for reading at all times. As Wineburg (1991, 1998) demon-

strated, historians read archival material with two purposes in mind. One is the purpose involved in doing history: that of constructing accounts from the range of sources they analyze. The other purpose for which they read is to discern the purpose of the original writer, the context in which the text was written, and the probable effects of the text on other people or on historical events. Historians read with their working purposes in mind, and those purposes demand that they examine the author's purpose and context for the texts that they study. Like historians, secondary school students must approach texts, then, with multiple purposes in mind: One purpose might be to complete the school task they have been assigned. But if we want students to learn the concepts of the discipline, then students in a history class must assess an original author's purpose; analyze the historical, geographical, political, and discursive contexts; corroborate evidence and information; and read between the lines of the texts (Wineburg, 1991; VanSledright & Kelly, 1998). In other words, they need to read as historians would, not so that they can become historians, but so that they can understand the importance of the information for their lives as citizens (Wineburg & Martin, 2004). Very rarely are students taught to read like historians, and thus, very rarely are they reading history in ways that will inform present-day social issues and decisions.

Pragmatic Knowledge and Skill

One type of pragmatic knowledge is the recognition that texts can be questioned. The Emergency Quota Act and its partner, the Immigration Act of 1924, provide excellent examples of texts that convey a simple piece of information and appear to lay down equitable laws but, in fact, are replete with hidden implications—implications that are dependent on knowledge of history or, at least, on the knowledge that one should ask questions such as, “Why, in 1921, would the U.S. immigration law refer back to 1910 to calculate its immigration quotas?” And just who lived in the United States in 1910? Knowing that one can ask such questions of a text (and being motivated to do so) is something that may need to be taught. At one point in our unit, I said to one class, “So, what do you think: Is this Immigration Law [of 1924] equitable? It says that every resident ethnic/national group can have the same percentage of immigrants, right?” One young woman responded, “I would have thought so, until you showed us all of that [referring to the data tables presented previously].” In other words, this student may not have asked the question about the equity of the act unless we had modeled how to ask and how to make sense of related information. On another note, other students may not have recognized embedded inequities had we not probed this point through questioning and revisiting the ideas across multiple texts and sources of information.

The idea of making sense of related information is linked to two additional types of pragmatic knowledge or skill required for reading the seven lines of the Emergency Quota Act of 1921: search skills/knowledge and analytical skills/knowledge. Let us assume that all of our high school readers possess, at some level, many of the different kinds of skills described above. They still need to build relevant historical knowledge or information (we can assume that they do not possess it in depth, or we would not be teaching them history). Thus they either need the information handed to them (e.g., in the form of a lecture) or they require knowledge of how to access information and the skill to do so. Once they have access to the information, they must be able to determine its relevance and make sense of it.

Knowledge of and Skill to Retrieve Data or Information

This set of knowledge and skills may seem trivial and yet was central to us as teachers in preparing to teach this text. As adults with history degrees, we did not have the immigration statistics relevant to interpreting the text stored in memory; we had to search for them. In our current context, we relied heavily on the Internet, which meant that we needed not only digital search skills but also *critical* digital search skills. We checked and double-checked sources, assessing each site's provenance and checking the numbers across multiple sites. In this lesson, we supplied these materials for students, but our analysis of this text suggests that this data retrieval knowledge and skill would be an important comprehension skill to teach in future lessons.

Analytical Knowledge and Skill

Consider the data tables shown previously. Think of the many challenges in making sense of those tables, let alone in applying them to the print text they inform. First, one must know how tables work. This kind of knowledge is often assumed, but it is not clear in what grade the reading of tables is taught. To read Table 11.1, for example, the reader must know that the items in the rows of the tables do not necessarily have a relationship to one another except insofar as each item represents a country of origin from which people have emigrated to the United States. The columns, however, *do* have a relationship because the information in the columns represents trends in numbers of people from each of those countries over 10-year time periods. The time periods, which are written from least to most recent, represent the periods critical to the two pieces of immigration legislation under study.

Table 11.2, however, is arranged in exactly the opposite order and includes a total immigration column. Both of these tables are types of pri-

many historical texts that adolescents must be able to read and then apply to their reading of the immigration laws. The irony of the process of table reading in this case is that reading the tables depends at some level on knowing what one needs to learn from them. In other words, one must have a purpose for reading the tables as well, and that purpose derives from knowing what one needs to learn from the legislation under study. But reading the legislation requires knowing the importance of the numbers in the table. Again, these texts are interconnected and are dependent on relatively high levels of background knowledge and analytical skill. We can teach such knowledge and skill simultaneously, but such teaching is challenging and takes time. Thus, as we taught this unit, we found that we needed to guide our students in making sense of these tables and that we had to make direct links back and forth from legislation to tables. Our students could engage in analysis of the numbers and the words and ideas, but only with our support and direction.

THE ROLE OF MOTIVATION AND INTEREST IN BUILDING KNOWLEDGE AND COMPREHENDING TEXTS

Thus far, we have emphasized the role of knowledge and skill in making sense of high school content-area texts. However, understanding this text may depend most on readers' interest in the topic or motivation to make sense of the text for some purpose beyond being interested (e.g., to get a school task done, to use the text as evidence in a debate). That is, people need to *want to know* what texts mean in order to spend the time asking questions, searching for information, or questioning contexts.

There are many possibilities for building on students' motivation for, and interest in, reading various texts, particularly if teachers choose topics that appeal to youths' interests. Many young people in this particular urban neighborhood read texts outside of school that address issues and topics commonly covered in social studies (Stockdill & Moje, 2008)—which suggests that they should find school social studies to be a fascinating and useful subject. In other words, young people *are* motivated to learn social and natural science concepts. The same research, however, yields data that report the opposite finding: These same students rate social studies among their least useful and enjoyable subjects, with science a close second. What explains this contradiction?

One challenge to interest and motivation may be that although adolescent students may be highly interested in a topic, they are often less engaged with academic texts about the topic because of the writing style of those texts. Several researchers have found that the lack of voice of academic texts make them difficult for students to access (Paxton, 1999;

Schleppegrell, 2004). Indeed, as we taught our unit on immigration, we noted many of the youth appeared to be highly engaged in our brainstorming discussions (K-W-L; what I *know*, what I *want* to know, what I *learned*; Ogle, 1986) about immigration, but groaned when we passed out written texts to read to help them learn what we wanted them to know.

One notable exception was the reading of "The New Colossus" (Lazarus, 1883), a poem that we read together, engaging in a close reading and analysis of each stanza. Although neither of us would claim that the students were enthralled with this text, they did appear to be more engaged than when they were asked to read texts independently, even when the activities attached to the independent reading were ostensibly engaging (e.g., drawing a political cartoon to represent the texts of immigration laws). Their interest in "The New Colossus" may have something to do with its narrative form (a hypothesis borne out by their similar interest in the 1940s journal entry of a Mexican *bracero* [worker]). However, we would also assert that working through the text with the students helped to maintain their engagement.

Thus we suggest spending a fair amount of time on whole-class think-alouds of readings, especially early in a unit, to model for students how to set a purpose, ask questions of the text, and troubleshoot when comprehension goes awry. Even reading small portions of challenging texts can make a difference. In a study of middle school students' reading of science texts, for example, we noted that a newspaper article on HIV/AIDS confused middle-school students because the text had been edited to delete a reference explaining how an 11-year-old boy had acquired HIV/AIDS in the birth process (Cleveland, Heitzman, & Moje, 2007). The information that the virus was transmitted from mother to child in the birth process was supplied by one teacher during an in-class reading of the text, helping students focus their attention on the central ideas of the texts, rather than on questions about whether the young boy had engaged in sexual activity at a very early age. Navigating such points of confusion can make an important difference in students' motivation to keep reading.

Another important way to engage youth, and maintain their engagement even as they encounter lengthy print texts is to build units on the issues and concerns about which they care deeply. However, as we learned with the immigration unit, teachers need to be prepared to address students' well-developed beliefs about the concepts under study. Adolescent youth, more so than young children, also possess deeply entrenched views and opinions, as well as self-interested perspectives. These opinions and perspectives are useful for building interest and motivation to learn more, but they can also serve as a roadblock for learning information or ideas that may contradict those opinions or perspectives. Our students' views

on immigration were shaped by important life experiences and thereby shaped what they were willing to hear, read, or discuss. Many were either immigrants themselves or knew people who had immigrated. Many of them knew stories of immigration challenges. At the same time, they appeared to lack knowledge outside of their own experiences. This lack of knowledge outside themselves, coupled with their belief that they already knew what was important to know about immigration, made deep learning of new or different ideas challenging.

Students' beliefs also played a role in their interest in, and willingness to read, the texts of U.S. immigration history. Encouraging them to use the information they had learned throughout the unit—much of which actually bolstered their perspectives—was challenging because they said that their arguments were strong without the benefit of additional historical information. However, discussion of what these texts meant for their beliefs, and explicit attention to how the students might use the texts to support or challenge particular ideas, seemed to generate interest in the texts.

For example, at the end of the unit, as we reviewed immigration laws throughout history, one student objected to the name of one law, *Operation Wetback* (Garcia, 1980), stating that the name of the law was racist. That statement inspired a different student to raise the question of when racial slurs are considered racist, and when they are not. The heated and difficult discussion that ensued was generated from word and text and pointed back to word and text, as well as to the central issue we were investigating: the role of race in immigration law. Ultimately, the texts we read and the discussion we had about racist language helped to frame an argument that many of them planned to make in their final essays. The opportunity to discuss their beliefs and values stemmed from, and supported, their readings of text.

Another excellent motivational resource in working with the youth in our classrooms was the rich vocabulary and experience they possessed, usually from interactions with previous classes, families, peer groups, and popular cultural texts. Students were familiar, for example, with a number of terms relevant to immigration, such as *alien*, *quota*, *undocumented*, *bracero* (worker), *green card*, *visa*, *passport*, and many others. They also knew many technical terms from their previous history courses. They were less familiar, in this case, with nontechnical vocabulary such as *per centum* (see above), *teeming* or *colossus* (both from the Lazarus poem), or *pauper* and *moral turpitude* (used in an 1891 immigration law).

We spent a great deal of time defining such terms, but we were also able to make use of students' extensive knowledge of popular culture in interesting ways as we defined vocabulary or built background knowledge. For example, when discussing the Chinese Exclusion Act of 1882, one student volunteered that he had played a computer game in which the goal

was to protect Chinese workers who were building railroads in the United States during the 1800s. Other students drew on their knowledge of the African slave trade from past history courses to raise questions about whether and how Africans were counted in immigration quotas, or about the history of world wars in developing hypotheses about which immigrant groups were most accepted during different time periods of U.S. history. In another instance, while engaging in a think-aloud of a journal entry written by a Mexican *bracero* (worker), Speyer commented that the worker's mention of being fed bread and bologna as "glory" indicated how hungry he must have been. Two male students began to sing, "I'm from the ghetto, homies, I grew up on bread and bologna," an excerpt of lyrics from a popular rap song, "Move Around" (feat & Fresh, 2006). Their invoking of these lyrics led to a discussion of what bread and bologna signified in the *bracero's* text. In each of these cases, and many others, our students exhibited a wealth of knowledge—albeit not always conventional, not always deep, and not always complete or fully accurate—that could be expanded to support their sense making of these historical texts.

WHAT KNOWLEDGE AND SKILLS DOES HIGH SCHOOL COMPREHENSION INSTRUCTION REQUIRE OF TEACHERS?

Just as comprehending the complex texts of high school classrooms makes many knowledge and skill demands on adolescent students, comprehension instruction at the high school level makes comparable knowledge and skill demands on teachers.

The first type of knowledge teachers need is knowledge of students' interests, knowledge, and skills. We knew that our students would be interested in immigration because we knew that immigration was a major issue in the community, and we knew that immigration issues were a focus of national news. We were not always prepared, however, to have to push our students to think critically and objectively about immigration issues. Moreover, we were also not always prepared to help them think about how to give nuanced responses to questions about immigration. At the start of the unit, for example, we asked them to engage in a free writing activity in response to the question, "Should open immigration be allowed for any person to any country at any time?" Our students believed that they could only answer the question with a yes or a no, setting up challenges for students who believed that immigration law should be more open than it currently is, but not completely open. In some ways, the belief was an artifact of repeated practice for state writing assessments that required students to take a clear stand on issues; they believed that a nuanced perspective was unacceptable in writing school essays. This

belief required us to engage in a different kind of writing instruction than we had planned, but it was important to helping the students articulate their ideas, and would support their ability to compose sophisticated responses to test prompts.

Teachers can also benefit from having deep knowledge of, and relationships with, students, families, and the community served by the school. As coteachers with investments in the community, we had built relationships with youth and parents. As a result, we knew about common immigration concerns, we knew the different perspectives represented in the community, and we knew about planned activities around immigration law and policy. We could build on these interests and issues as we tried to make connections from the past to the present-day lives of our students.

High school teachers also need special knowledge of (or talent with) how to maintain student engagement when turning to lengthy print texts. Even the youth appeared to possess reasonable reading skills expressed dismay when asked to read texts of more than a page. As mentioned previously, think-aloud strategies that provided opportunities to discuss not only what the texts meant but also what students thought of the texts, seemed motivating. In addition, Jennifer's provision of visual images to give life to texts helped a great deal. As we discussed the Emergency Quota Act of 1921 and the Immigration Law of 1924, Speyer presented carefully selected images of typical immigrants from different areas of the world in the 1920s and asked the students to make predictions about which groups might be allowed to immigrate into the United States and to discuss why. This discussion allowed students to see, read, think about, and feel their way through a history of U.S. immigration law.

A second kind of knowledge teachers need is deep disciplinary knowledge. Our previous discussion of the underlying information necessary to understand the laws we taught in this unit barely scratches the surface of the historical, geographical, political, and discursive knowledge systems on which these laws are based. Also crucial for our teaching was information on immigration statistics, the political and economic systems of both the United States and countries of origin, the political actors behind each law, and the other world events that shaped the laws. Our combined expertise in U.S. history made a vast difference in the ease with which we searched for and retrieved useful background materials. Our knowledge of history and political science also allowed us to hear students' questions or assess their confusion more readily than would a teacher from a different content background.

This point about disciplinary knowledge seems critical in a time period marked by the increased presence of literacy coaches in schools.

Literacy coaches bring valuable information about reading and writing processes and literacy teaching strategies, but content-area teachers must contribute critical information about the content of *their* disciplines—content that will shape the purpose is to be set for reading, what information is to be drawn from reading, and what background information is necessary for deep comprehension. Content teachers also contribute information about the practices of their discipline. Literacy teaching strategies can rarely be applied apart from the knowledge and particular discursive practices valued in the discipline under study.

A third kind of knowledge teachers need is knowledge of how to support adolescents of varying skill and interest levels in building relevant knowledge or in developing skills for finding and interpreting information. Teachers also need to know not only how to develop reasoned critiques of issues, but also how to teach novices to do so. For example, simply knowing that young people may rarely think to ask questions such as “Who lived in the United States in 1910 or 1890?” is central to knowing that the question must be posed initially for the students and methods for answering the question modeled. Teachers should also know that they can be explicit about *why* they are engaging in a certain practice (e.g., posing a question, walking students through a process) and still engage students in constructing the knowledge themselves. Being explicit about processes and practices is not the same thing as engaging in *explicit instruction* or a *pedagogy of telling* (Sizer, 1984). Being explicit about why members of a discipline read or write in particular ways (e.g., why scientists always make claims related back to their initial hypotheses and reason through their data in formal written reports) provides adolescent readers and writers not only with the practices they should follow to read and write proficiently, but also with a rationale for why these practices have been developed in the disciplines. Teachers may likewise need to model how to make sense of the data they find, again explaining *why* they are engaging in their sense-making practices.

Finally, teachers who seek to build on students’ interests as a way of engaging them must then possess skill in how one maintains and sharpens interests while asking students to examine their own beliefs, to take dispassionate stances on passionate beliefs in order to develop strong arguments for or against issues, and to look carefully at data and assess the validity of their own beliefs. This is perhaps the most challenging skill of all: How can teachers draw from and expand on young people’s passion and conviction while also teaching the dispassionate stances often valued in the social and natural sciences? Modeling how to challenge one’s passionate beliefs by confronting conflicting data could be one of the most useful content literacy teaching practices teachers enact in high school classrooms.

WHAT MIGHT THIS LOOK LIKE IN THE HIGH SCHOOL CLASSROOM?

Content-area literacy teaching strategies (e.g., K-W-L, semantic feature analysis) provide a framework for thinking and an organization for instruction and are invaluable tools for fostering literate practice. We used these teaching tools routinely during our 2-week unit, relying heavily on Buehl's (2002) excellent resource of a host of classroom strategies. However, the analysis of these history texts demonstrates that literacy teaching strategies alone may not address the greatest challenges presented by advanced content-area texts being read by a wide variety of youth (who may or may not be as interested in the content as those of us who chose to spend our lives teaching it). We need to continue to use literacy teaching strategies, but those strategies appear to work best if embedded in content teaching *practices* that make working with texts central to the work of content learning (Greenleaf, Schoenbach, Cziko, & Mueller, 2001; Sutherland, Moje, Cleveland, & Heitzman, 2006).

The difference between *strategies* and *practices* is analogous to the difference between tools and habits, or what Deshler and colleagues refer to as *routines* (Deshler & Schumaker, 2005). When Moje teaches preservice teacher education courses, for example, she uses a variety of tools or strategies—such as preview guides or concept maps—to support undergraduate students' reading of education research. Those literacy teaching strategies serve as tools for the practice of trying to build knowledge, set purposes, and guide students' reading and thinking as they grapple with a text. In other words, the strategies themselves are not the teaching practice; they simply support it.

As one uses various teaching strategies, then, it is important to consider the overarching practices the strategies support. We have chosen to highlight five overarching practices we think high school content-area teachers should try to enact in routine ways: (1) whole-group knowledge building, (2) scaffolded reading, (3) questioning, (4) visualizing, and (5) summarizing. A variety of daily practices and strategies can be embedded within these overarching practices, as described in the following material.

Whole-Group Knowledge-Building Activities

Setting Purpose, Framing Problems

At the beginning of a unit, set a purpose for the entire unit by framing a problem for study. Project-based science curricula, for example, always begin by posing driving questions for students to investigate throughout the course of the unit. Similarly, history and other social studies units could begin with the kind of problem framing we posed in our immigra-

tion unit, with a focus on a contemporary problem that requires knowledge of how the issue has evolved throughout history. We set a purpose by asking students to free-write to the problem of whether the United States should allow immigration by any person from any country at any time. We posed a new aspect of U.S. immigration issues each day for free writing. Free writing is a useful tool because it also serves to focus students' attention at the start of the class, but there are many other literacy teaching strategies that could be employed to frame problems and set purpose.

Preview Concepts and Texts

Before reading, whether whole class or independently, preview texts with strategies such as K-W-L, anticipation guides, preview guides, and advanced organizers. When previewing, keep in mind the two levels of purpose—purpose of the reading task and purpose of the text in the discipline—discussed previously. Make explicit what you expect your students to do with the text (whether to ask questions, to use it in an essay, to link it to another text, and/or to critique or question its purpose in history). Second, discuss with students the purpose of the text for the context in which it was written. Who was its author? What did the author intend? To whom was the author writing? Although these are questions that historians routinely ask of texts in their work (Wineburg, 1991; Bain, 2006), these questions are relevant for students reading texts in any content area, because no matter what the text is, they are reading it outside of the context in which it was written. Often mathematics and science teachers will argue that context does not matter for the texts of mathematics and science, but all texts are produced in and for particular contexts and purposes, and students benefit from knowing what those are or knowing how to ask what they are and how to find out and assess those contexts and purpose

Scaffolded Reading

Talk about the Texts

In addition to brief lectures or mini-lessons as knowledge-building activities, engage in text reading and discussion strategies such as close reading, dictionary searches, concept mapping of ideas in texts, and text-self/community/world connections. As you talk about texts, define words and interpret nuances in meaning. Model for students how to ask questions even at the word level. While defining the word *quota* with our group of 11th-grade students, for example, we read several different definitions and then talked about which definition best fit our text and historical context.

Make Texts Visible

Project sections of text on overhead screen so that students can see and hear words read and so that you can point to words as you read. Look up important words together in the dictionary while also pointing to them on a common text. Look carefully at words, phrases, and syntax of sentences. Point out how headings signal what is coming up in the text. Refer readers to images that accompany the text.

Read Charts and Tables

Try not simply to refer readers to these images or to present charts and tables, but *work through them* with students. Chart/table/graph reading is a skill that is often not explicitly taught. Reading images is an important skill and often dramatically supports the reading of print (see later section). These skills are useful whether reading social studies, science, literary, or mathematics texts. As we worked through the charts we used in our immigration unit, we blocked out certain bits of information in the chart, in part to encourage students to focus on certain statistics before encountering other statistics, but in part to reveal a kind of logical progression in looking at the information. We walked the students through the chart, rather than simply offering it to them *in toto*. In this way, reading the chart was a kind of puzzle, as students tried to figure out how to interpret the numbers they saw. The important information was not contained in the numbers alone, but in what the trends or patterns in numbers over years and by immigrant groups meant for immigration history and law.

Questioning or Pressing for Understanding

One observation Moje made after a day in the classroom is that our students did not appear to have much experience answering *why* questions. For example, while brainstorming *want-to-know* items in our K-W-L activity, one young woman stated that she wanted to know why there were fences and guards at the U.S. border with Mexico but not at the U.S. border with Canada. Moje wrote her question on the board and then said, "That's an interesting one. Anyone have any ideas why that might be?" Another student said, "Because they were ordered to go there." Not taking up the validity of that statement, Moje simply asked, "Oh? Why would that be?"

"Because they were sent there," responded the student.

"OK, but why do you think guards were sent to the Mexican border and not the Canadian border?" Moje asked.

The student appeared to be perplexed by the question, and none of

the other students seemed able or inclined to help support or refute the claim. Eventually, the student said, "Because they think more Mexicans [than Canadians] want to come to the United States"—but getting this idea out took approximately 5 minutes of probing around a single statement. We maintained this pattern of probing for reasons throughout the unit, and the students did shift to engaging the *why* questions, but it took some time and required us to make a trade-off between teaching youth how to ask questions of texts and themselves—even when their ideas may have been inaccurate or partial—and covering content.

In related work in science classrooms, a number of researchers have found that teachers often resist what some researchers refer to as *pressing for understanding*, in part because they fear alienating or threatening students (Blumenfeld, Marx, & Harris, 2006; Blumenfeld, Kempler, & Krajcik, 2006). Many of the science teachers with whom we work also argue that they need to maintain a fast pace in order to cover curriculum content, engage in science investigations, and keep students' attention. This rapid movement pushes them through the curriculum and keeps students' attention focused on the points at hand, but does not necessarily engage students in the kind of questioning they need to develop for deep comprehension of advanced subject-matter texts or for taking inquiry to new levels.

Images and Visualization

The students we taught needed help visualizing what these texts meant in terms of actual people. When we presented them with visual images of different groups represented by the numbers in the tables we presented, our students appeared to make connections to the implicit goals of the laws, underscoring the idea that literate practice, although focused on making sense of encoded symbols, is also about more than just print codes or other symbols (Moje, 2000). Images can help readers interpret texts (Eisner, 1994; Kress, 2003; Kress & van Leeuwen, 1996), and visual images can prove to be important tools in supporting students' comprehension.

That said, it is important to note that visual images should not *replace* print, especially for struggling readers. Some adolescent literacy researchers have noted a tendency to offer struggling adolescent readers ways to opt out of reading print in an effort to make content information accessible; these scholars have also noted that such options may make content accessible, but do not help adolescents improve their literacy skills (Dressman et al., 2005). Thus, the point of using visualization and images is that they should be used to support print reading and writing (and vice versa). One form of representation should not simply replace the other. Moreover, teachers can work with students to draw upon past visual

images to support their comprehension of print and other symbolic texts. New images do not need to be offered with each reading; rather, readers can be encouraged to visualize without the aid of actual images, but only if they are introduced to relevant images when they first encounter new material or concepts outside their experience.

Summarization

A final overarching practice is that of summarizing. Central to this practice is the idea that teachers must teach students *how* to summarize, rather than summarizing key points or ideas for the students. This practice involves repeatedly coming back around to ideas covered in previous lessons. The practice can be aided by literacy teaching strategies. For example, keeping a K-W-L chart visible in the classroom can allow a teacher to revisit ideas the students claimed to know at the outset of a unit, suggesting modifications, additions, or corrections to the original ideas. Having the chart as a visual prompt is an excellent management device for the teacher and students, as days or weeks into a unit, they may not recall the exact content of their initial brainstorming. Similarly, the *want-to-know* items can be ticked off as they are covered, and those that are never or partially addressed can be listed in a *want-to-learn* column at the end of the unit (Blachowicz & Ogle, 2001). For secondary school teachers who will be likely to have several different sections of students producing several different K-W-L charts (or other artifacts of student thinking), keeping a permanent record might seem to pose a problem. We found it useful to make notes on the students' ideas at the end of each class period and then to type and distribute them at the next class session for students to keep as references (for underresourced schools, teachers could make a single chart or overhead transparency for each class). Whatever the method, the permanent—but changeable—K-W-L (or other strategy) artifact serves as a tool that facilitates the practice of coming back around and summarizing ideas throughout the unit.

Similarly, as our students in the social studies class prepared to write essays that expanded on their free writing from the first day of the unit, we reviewed with them the different laws they had learned (referring to our visual timeline), the different texts they had read, and the different approaches they might take toward making an argument, incorporating an *if-then* writing strategy (see Buehl, 2002). In every case, our summarization work always referred back to the texts that we had read in class. In many cases, we read excerpts of those texts again for the students, both as a way of taking them back to the text and as a way of synthesizing ideas across texts. For example, when discussing a 1903 immigration statute, which prohibited *paupers* (among others) from entering the United States, we reread *The New Colossus* (after looking up the word *pauper* in the dictio-

nary). In our read-aloud of *The New Colossus*, we emphasized the line, "Give me your tired, your poor, your huddled masses, yearning to breathe free," comparing it to the text of the statute, which reads:

The following classes shall be excluded from admission to the United States . . . all idiots, insane persons, epileptics, and persons who have been insane within five years previously; paupers; persons likely to become a public charge; professional beggars; persons afflicted with a loathsome or with a dangerous contagious disease; persons who have been convicted of a felony or other crime or misdemeanor involving moral turpitude. (32 Stat. 1214, sec. 2 of 1903 U.S. Statutes at Large)

We asked the students to evaluate whether the law excluding paupers and sick people lived up to the sentiment expressed in Lazarus's poem. Through this process, we were teaching vocabulary; summarizing ideas within texts; synthesizing ideas across texts; modeling critical reading, questioning, and thinking; and, most important, teaching concepts, events, and actions central to the study of history and the social sciences. In short, we were engaging these youth in comprehension instruction in the service of social studies learning, not apart from it.

CONCLUSIONS: BUILDING DISCIPLINARY LITERACY BY TEACHING WITH TEXTS

We believe that all subject-matter teachers can engage in similar kinds of teaching, setting up routines, habits, and practices that turn students to the texts of their content areas, whether textbooks, related real-world texts (e.g., newspaper articles), or primary sources. We also believe that these turns to subject-matter texts can be engaging for young people if couched in meaningful purposes for reading the texts. Too often, text reading in high school subject matters such as social studies and science is relegated to the background. Bringing text reading to the foreground and modeling for young people how texts of history and science can inform their everyday lives will not only improve their literacy skills, but also enhance their content learning and their possibilities for future participation as educated citizens.

DISCUSSION AND ACTIVITIES

1. Consider your own students. What do you know about them? What topics in social studies or science seem to interest them most? How could you connect their interests to the central concepts of your subject matter? And what might you have to watch out for as you do make those connections? Specifically:

- What you can say about the range of literacy skills your students demonstrate? How might those skills play a role in their understanding of different texts in your content area?
 - How might students' interests and passions for a topic help you get them interested in subject-matter texts?
 - How might students' interests and passions challenge them in conducting careful, objective inquiry into these topics?
2. What are the major concepts of your subject area? How might you frame a problem for students to study or on which they could take a stand, using text resources from your area. What texts would be useful for helping them investigate the problem or take a stand?
 3. Now, considering those texts, what would your students need to know and be able to do to understand the big ideas and apply them to the problem or issue under study? As an experiment, take a piece of text from your subject area and analyze the necessary language skills, content knowledge, and discipline-based thinking skills needed to construct deep meaning from the text. You might want to use the six types of knowledge/skill discussed in the chapter as a guide for your analysis.
 4. Once you've conducted the text analysis, construct a lesson or unit around the central problem or issue you've chosen, and then use the text or texts you analyzed. Try building in some of the teaching practices and strategies outlined in the chapter.

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APPENDIX 11.1. Country or Area of Birth Quota, 1924–1925

Note. Retrieved from <http://www.u-s-history.com/pages/h1398.html>.

- Afghanistan—100
- Albania—100
- Andorra—100
- Arabian peninsula (1, 2)—100
- Armenia—124
- Australia, including Papua, Tasmania, and all islands appertaining to Australia (3, 4)—121
- Austria—785
- Belgium (5)—512
- Bhutan—100
- Bulgaria—100
- Cameroon (proposed British mandate)—100
- Cameroon (French mandate)—100
- China—100
- Czechoslovakia—3,073
- Danzig, Free City of—228
- Denmark (5, 6)—2,789
- Egypt—100
- Estonia—124
- Ethiopia (Abyssinia)—100
- Finland—170
- France (1, 5, 6)—3,954
- Germany—51,227
- Great Britain and Northern Ireland (1, 3, 5, 6)—34,007
- Greece—100
- Hungary—473
- Iceland—100
- India (3)—100
- Iraq (Mesopotamia)—100
- Irish Free State (3)—28,567
- Italy, including Rhodes, Dodecanesia, and Castellorizzo (5)—3,845
- Japan—100
- Latvia—142
- Liberia—100
- Liechtenstein—100
- Lithuania—344
- Luxemburg—100
- Monaco—100
- Morocco (French and Spanish Zones and Tangier)—100
- Muscat (Oman)—100
- Nauru (proposed British mandate) (4)—100
- Nepal—100
- Netherlands (1, 5, 6)—1648
- New Zealand (including appertaining islands (3, 4)—100
- Norway (5)—6,453
- New Guinea, and other Pacific Islands under proposed Australian mandate (4)—100
- Palestine (with Trans-Jordan, proposed British mandate)—100
- Persia (1)—100
- Poland—5,982
- Portugal (1, 5)—503
- Ruanda and Urundi (Belgium mandate)—100
- Rumania—603
- Russia, European and Asiatic (1)—2,248
- Samoa, Western (4) (proposed mandate of New Zealand)—100
- San Marino—100
- Siam—100
- South Africa, Union of (3)—100
- South West Africa (proposed mandate of Union of South Africa)—100
- Spain (5)—131
- Sweden—9,561
- Switzerland—2,081
- Syria and The Lebanon (French mandate)—100
- Tanganyika (proposed British mandate)—100
- Togoland (proposed British mandate)—100
- Togoland (French mandate)—100
- Turkey—100
- Yap and other Pacific islands (under Japanese mandate) (4)—100
- Yugoslavia—67

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