

ISSUE BRIEF

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The Hidden Costs of Curriculum Narrowing

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In March, *The New York Times* published a major education story under the headline “Schools Cut Back Subjects To Push Reading and Math.” The article claimed that “thousands of schools across the nation are responding to the reading and math requirements laid out in No Child Left Behind [...] by reducing class time spent on other subjects and, for some low-proficiency students, eliminating it.”¹ The headline appeared “above the fold” in the Sunday edition of the *Times*, the most valuable and influential real estate in American print journalism.

Predictably, the rest of the media quickly picked up the story in a series of ripples extending outward to other newspapers and magazines to radio and finally to television, cycling back to newspapers in the form of outraged editorials. By the time the story hit the late-night talk shows and drive-time airwaves, commentators had begun to express near hysterical dismay that social studies, science, and the arts were all but disappearing from American schools.

Not so fast. As often happens when complex educational issues encounter the popular media, the extent of the problem was blown out of proportion. The original study on which the *Times* based its story had actually found that about one third of districts reported that their elementary schools had reduced social studies and science “somewhat” or “to a great extent,” and about one fifth said the same of art and music.²

Other studies have found a similar erosion—rather than a decimation—of subjects outside of reading and mathematics. For example, teacher surveys given as part of the federal Schools and Staffing Survey show that from 1990 to 2004, the amount of time students in Grades 1–4 spent on reading and mathematics increased by 96 minutes per week, while social studies and science lost 48 minutes.³ A survey of principals conducted in Illinois, Maryland, New Mexico, and New York in 2003 found that 36 percent of high-minority schools had reduced time for the arts, while 47 percent of high-minority elementary schools had reduced time for social studies.⁴

In other words, reports of the death of the liberal arts in K–12 education have been greatly exaggerated. At the same time, however, the hours that elementary school teachers spend on those subjects clearly has been decreasing. And it is not hard to find individual examples

of low-performing elementary schools that have responded to the need to increase student performance by greatly increasing the time they spend on reading and mathematics while drastically reducing other subjects.

Two years ago, *The Washington Post* published a front-page story on a Wheaton, Maryland, elementary school. The article described a third-grade classroom where “much of the science and social studies curricula has been glossed over, or skipped entirely, because [students] must be taught—soon—to read better.” The school had replaced a daily hour of science and social studies in Grades 2 and 3 with additional language arts instruction, and it had expanded reading time in all grades. As one student put it, “In the morning we read. Then we go to [another teacher] and read. Then after lunch we read. Then we read some more.”⁵

While the *Post* reporter clearly viewed those changes as negative, the district’s leadership saw them as part of a necessary long-term strategy that would solve the school’s immediate reading problem and balance the curriculum ledger later on. “Once they learn the fundamentals of reading, writing, and math, they can pick up science and social studies on the double-quick,” said the superintendent. “You’re not going to be a scientist if you can’t read.”⁶

Indeed, a 2003 survey of principals found that middle and high schools were more likely to *increase* social studies and science instruction than decrease it.⁷ This suggests that districts are not cutting social studies and sciences entirely but merely “deferring” those subjects until the secondary grades. This strategy provides more time for reading during the elementary grades and more time for other subjects in higher grades, especially as states move to increase high school course-taking requirements for a diploma.

On the surface, that strategy makes a lot of sense. But if some districts really are engaging in a deferment strategy, will that solution work? And just as important, are there hidden costs that administrators need to be aware of before cutting back on social studies, science, and the arts in elementary schools? A persuasive body of research in cognitive science suggests that the deferment strategy most likely will fail. And the long-term costs might be much greater than educators and administrators imagine.

Counting the Hidden Costs

Dramatically reducing instructional time for social studies, science, and the arts carries major costs for students, and those costs are unlikely to be recouped later in the educational pipeline. By denying students the opportunity to build vocabulary and background knowledge, this strategy curtails reading comprehension and increases the achievement gap.

“Cognitive science research is making it increasingly clear that reading comprehension requires a student to possess a lot of vocabulary and a lot of background knowledge,” the editors of *American Educator* magazine recently proclaimed.⁸ The editorial appeared in a special issue of the magazine devoted to “Background Knowledge,” with a lead article by former University of Virginia professor E. D. Hirsch Jr., who has spent more than 20 years calling attention to the link between adequate content knowledge and strong reading comprehension skills.

For many years, we assumed that strong comprehension skills would follow automatically if students learned how to decode text fluently and accurately and were encouraged to read a lot. But that’s not the case. Cognitive psychologists have found that there’s another step in between fluent decoding and comprehension in which readers call on background knowledge about a topic to understand what the text is saying and what it is not saying.⁹ Readers without adequate background knowledge can comprehend some of the text, but they will not understand it fully.

To fully comprehend a newspaper article about confirmation hearings for a Supreme Court seat, for example, a reader needs to know at least a little bit about what the court is and what it does. According to Daniel Willingham, a professor of cognitive psychology at the University of Virginia, having relevant background knowledge helps in two ways: “First, it means that there is a greater probability that you will have the knowledge to successfully make the necessary inferences to understand a text. [...] Second, rich background knowledge means that you will rarely need to reread a text in an effort to consciously search for connections in the text.”¹⁰

One important element of background knowledge is vocabulary. Many experts say that a reader needs to understand about 90 percent of the words in a text in order to totally understand it.¹¹ But strong comprehension skills require more than vocabulary. Readers need to be able to tap into a broader vein of knowledge about a topic in order to construct what cognitive psychologists call a “situation model” for understanding a text. For example, in order to easily comprehend a *Washington Post* article about hearings to confirm a Supreme Court justice, readers need to know not just the formal definitions of most words used in the article, but also that the President nominates people for the court and the Congress confirms them.¹²

As the research indicates, readers who already know something about the subject of a particular text will better comprehend it than a reader who does not, even if both are equally fluent in sounding out the words. As the National Reading Panel report put it, “To read with understanding, the reader has to have a considerable amount of knowledge.”¹³ One study demonstrated that poor readers knowledgeable about baseball scored better in comprehending a text about that subject than good readers who knew little about baseball.¹⁴ Additionally, according to Linnea Ehri, who chaired the Panel’s “alphabetics subgroup” that reviewed studies on the impact of explicit phonics instruction:

Although necessary, being able to read all of the words may not be sufficient because comprehending a text requires other abilities such as knowing the meanings of words, possessing relevant world knowledge, and being able to remember the text already read. Thus, word reading skill is one of several factors influencing comprehension.¹⁵

Many organizations and individuals in addition to Hirsch are worried about the effect of narrowing the curriculum on reading comprehension. For example, the American Federation of Teachers has devoted two issues of its magazine to the subject during the past few years. And many of the nation’s foremost reading experts are concerned as well. “In order to understand what you are reading,” says Reid Lyon, chief of the Child Development and Behavior Branch of the National Institute of Child Health and Human Development (NICHD), “you have to know what the words mean and also have background knowledge, or what some folks call ‘world

knowledge.’” Louisa Moats, former director of NICHD’s Early Interventions Project, says, “It’s not true that good reading instruction has to replace a curriculum that will build a knowledge base and vocabulary.” She recommends that schools teach subjects like science and social studies along with phonics, phonemics, and other reading skills.

Of course, some educators might ask, “But can’t you make up for poor comprehension with extra instruction in the formal comprehension strategies that are part of most reading programs—skills such as monitoring, graphical mapping, questioning, and summarizing?”¹⁶ Those “metacognitive”¹⁷ strategies do help improve comprehension, but they cannot substitute for adequate content knowledge even when teachers spend lots of extra time teaching them.¹⁸ In fact, most students can learn those strategies fairly quickly, after which there are rapidly diminishing returns. One study found that six lessons in formal comprehension strategies are just as effective as 25.¹⁹ Furthermore, reading researchers now generally agree that vocabulary development and explicit instruction in comprehension strategies should be *embedded* in content area instruction rather than replacing it. According to Michael Kamil, who chaired the “comprehension subgroup” of the National Reading Panel:

Instruction in reading comprehension strategies should be incorporated into content area instruction. Specific strategies may be realized somewhat differently in different content areas. That is, knowing how to ask a question in history is probably very different from knowing how to ask a question in science. Teachers should work to help students modify the appropriate strategies so that the strategies are most effective in each content area.²⁰

On the whole, then, the available evidence strongly suggests that narrowing the curriculum in elementary school deprives students of an important opportunity to develop broad vocabulary and background knowledge necessary for strong reading comprehension later on. That lack of opportunity results in several negative consequences as students move into upper elementary school and the secondary grades.

First, students are likely to perform poorly on standardized reading tests because in the upper grades such assessments place more emphasis

on comprehension and less emphasis on simple decoding. For example, a recent study by a team of Florida-based researchers found that differences in reading scores among third graders were mainly due to how efficiently and fluently they decoded words, while variations in reading scores among 10th graders were mainly due to their vocabularies and comprehension skills.²¹ Thus, a strategy meant to improve reading scores may actually *depress* reading scores in the long run.

Second, students who lack the background knowledge they would have attained by learning science and social studies in the early grades will struggle to comprehend their science and social studies textbooks as well as other subject-related reading materials. Not only will they fail to catch up “double-quick,” they will continue to fall further behind in those subjects.

Furthermore, the negative consequences of curriculum narrowing are even greater for low-income students, which means the practice can end up magnifying achievement gaps. That’s because more affluent students have alternative ways of gaining “world knowledge” even when their schools do a poor job of teaching about art, culture, history, geography, and the natural world. They can pick it up from trips and vacations, visits to museums and other cultural settings, and even from adult conversations in the household. In contrast, disadvantaged students are highly dependent on *schools* to provide them with a rich vocabulary and broad knowledge about the world outside their neighborhoods. For many poor urban and rural children, schools provide the primary access to that background knowledge. For example, a seminal study of vocabulary development in very young children found that by age 3, the spoken vocabularies of children with professional parents exceeded the spoken vocabularies of *parents* in welfare families.²²

Moreover, once children fall behind in acquiring background knowledge, it becomes harder and harder for them to catch up. That’s because of what Hirsch calls the “Matthew effect,” after the biblical passage that says those who already have shall gain even more while those who lack shall have taken away what little they do have. Because background knowledge about a subject is necessary to learn new vocabulary words and information related to that subject, students who start out without background knowledge will fall further and further behind.

In an especially cruel twist, studies have shown that high-poverty, high-minority schools narrow the curriculum far more frequently than schools serving predominantly white, middle-class students. Doing that deprives the children who most need knowledge about the broader world from obtaining it in the only place they can—school. “It has been a disaster for social justice,” declares Hirsch.²³

Whether the problem is confined to 10 schools or 10,000, because of the high costs of curriculum narrowing—particularly for low-income students—we must do more to prevent it.

Helping Schools Avoid Curriculum Narrowing

Above all, we must be honest. Educators faced with very large numbers of students scoring well below proficient in reading and mathematics are caught between a rock and a hard place, and there are no simple escape routes to offer them. But state officials, district leaders, and assistance providers might help schools avoid unnecessary or excessive narrowing of the curriculum by keeping a few things in mind:

First, most teachers and administrators are unaware of the hidden costs of curriculum narrowing. Educating them about the real tradeoffs will help them make better strategic decisions about whether and how much to cut other subjects in order to expand reading and mathematics.

Second, even if administrators cannot extend the school day, week, or year to make the time to teach a broad, rich curriculum, they might be able to squeeze more out of the hours they already have. A growing body of research suggests that many American schools do not make very efficient and productive use of their time. For example, a study by the Consortium on Chicago School Research found that elementary school students received less than four hours of on-task instructional time on a typical day, and only 125 days out of the 180 in a school year were devoted to academic work. All told, the researchers estimated that students received about 500 hours of instruction per year, far short of the district’s intended target of 900 hours.²⁴

Before cutting down on time for social studies, science, and the arts, schools should conduct a thorough analysis of how they use the time they have. The Center for Comprehensive School Reform and Improvement provides resources related to resource allocation, including time, on its website at www.centerforcsri.org/index.php?option=com_content&task=view&id=88&Itemid=75.

Third, educators can build social studies, science, and arts content into those 90-minutes-plus blocks of time they now spend on reading instruction—and they should start early enough to prevent students from falling victim to the “Matthew effect.” Experts say that first and second graders need about 30 to 45 minutes per day of direct instruction in decoding, which leaves teachers plenty of language arts time for building content knowledge.²⁵

Evidence suggests that teachers will need help in knowing how to incorporate other content knowledge into reading instruction. A review of reading materials found that instead of incorporating interesting content from social studies, science, and the arts, first- and second-grade basal readers²⁶ contained texts focusing on banal topics that most students already know about such as teddy bears, grandmothers, and pets.²⁷

A lack of balanced instructional materials makes balancing the curriculum difficult but not impossible. At Maryland’s Rock Hall Elementary School, where 100 percent of fourth graders met or exceeded the state’s reading standards in 2005, teachers use thematic units to cover all subjects. “We decided to focus on reading and writing, and we teach science and social studies as part of that,” says principal Bess Engle. “I’m a big believer in theme teaching, so if a teacher

is teaching the fiction novel *Stone Fox*, she will teach math, geography, history and writing related to the book.”²⁸

Finally, districts should more closely monitor and oversee the decisions schools are making about the taught curriculum in order to ensure that those decisions are based on the long-term interests of students and teachers.

Conclusion

Some schools might well need to expand instructional time in reading to enable students to become fluent readers. But educators should be made aware that cutting too deeply into social studies, science, and the arts imposes significant long-term costs on students, hampers reading comprehension and thinking skills, increases inequity, and makes the job of secondary level teachers that much harder. Only when teachers and administrators are fully aware of the tradeoffs can they make good decisions about whether, how, and for whom to narrow the curriculum—one educational strategy that should never be considered lightly.

Endnotes

¹ Dillon, S. (2006, March 26). Schools cut back subjects to push reading and math. *The New York Times*, p. A1.

² Center on Education Policy. (2006, March). *From the capital to the classroom: Year 4 of the No Child Left Behind Act*. Washington, DC: Author (p. 96, Table 4-D). Retrieved August 4, 2006, from <http://www.ctredpol.org/nclb/Year4/CEP-NCLB-Report-4.pdf>

³ Manzo, K. K. (2006, June 14). Older students play catch-up on uncovered, vital lessons. *Education Week* (25)40, 13.

⁴ Von Zastrow, C. (with Janc, H.). (2004, March). *Academic atrophy: The condition of the liberal arts in America’s public schools*. Washington, DC: Council for Basic Education (pp. 7–8). Retrieved August 4, 2006, from <http://downloads.ncss.org/legislative/AcademicAtrophy.pdf>

This is the fourth in a series of issue briefs to be written for The Center for Comprehensive School Reform and Improvement during 2006. These commentaries are meant to help readers think beyond simple compliance with federal law or basic implementation of programs: What unacknowledged challenges must educators and leaders confront to help schools operate more effectively and to sustain improvement over the long run? In what ways does the conventional wisdom about teaching, learning, and school improvement run counter to current research and get in the way of making good decisions? What are the emerging next-generation issues that educators will face next year and five years from now? Readers can visit www.centerforcsri.org to obtain other papers in this series and to access additional information on school reform and improvement.

⁵ Perlstein, L. (2004, May 31). School pushes reading, writing, reform. *The Washington Post*, p. A1. Retrieved August 4, 2006, from <http://www.washingtonpost.com/wp-dyn/articles/A3179-2004May30.html>

⁶ Perlstein, L. (2004, May 31). School pushes reading, writing, reform. *The Washington Post*, p. A1. Retrieved August 4, 2006, from <http://www.washingtonpost.com/wp-dyn/articles/A3179-2004May30.html>

⁷ Von Zastrow, C. (with Janc, H.). (2004, March). *Academic atrophy: The condition of the liberal arts in America's public schools*. Washington, DC: Council for Basic Education (p. 19). Retrieved August 4, 2006, from <http://downloads.ncss.org/legislative/AcademicAtrophy.pdf>. For example, the study found that "In the middle and high school grades, by contrast, the general commitment to social studies, civics, and geography appears to be on the rise in both low and high-minority schools. Considerable percentages of principals in both types of schools reported increases in time devoted each of these academic areas."

⁸ Editors. (2006, Spring). Knowledge: The next frontier in reading comprehension. *American Educator*, 30(1). Retrieved August 4, 2006, from http://www.aft.org/pubs-reports/american_educator/issues/spring06/editorsintro.htm

⁹ Hirsch, E. D., Jr. (2006). *The knowledge deficit*. Boston: Houghton Mifflin (pp. 24–25).

¹⁰ Willingham, D. T. (2006, Spring). How knowledge helps: It speeds and strengthens comprehension, learning—and thinking. *American Educator*, 30(1). Retrieved August 4, 2006, from http://www.aft.org/pubs-reports/american_educator/issues/spring06/willingham.htm.

¹¹ Hirsch, E. D., Jr. (2006). *The knowledge deficit*. Boston: Houghton Mifflin Company (p. 25).

¹² Hirsch, E. D., Jr. (2003, Spring). Reading comprehension requires knowledge—of words and the world. *American Educator*, 27(1), 17.

¹³ National Reading Panel (2000, December). *Teaching children to read: An evidenced-based assessment of the scientific research literature on reading and its implications for reading instruction. Reports of the Subgroups*. Washington, DC: National Institute of Child Health and Human Development (pp. 4–83). Retrieved August 4, 2006, from <http://www.nichd.nih.gov/publications/nrp/ch4-II.pdf>

¹⁴ Cited in Willingham, D. T. (2006, Spring). How knowledge helps: It speeds and strengthens comprehension, learning—and thinking. *American Educator*, 30(1). Retrieved August 4, 2006, from http://www.aft.org/pubs-reports/american_educator/issues/spring06/willingham.htm

¹⁵ Ehri, L. C. (2004). Teaching phonemic awareness and phonics: An explanation of the National Reading Panel meta-analysis. In P. McCardle & V. Chhabra (Eds.), *The voice of evidence in reading research*. Baltimore: Brookes Publishing (p. 155).

¹⁶ The National Reading Panel found scientific research to support seven comprehension strategies: monitoring, cooperative learning,

graphic and semantic organizers, question asking, question answering, story structure, and summarizing.

¹⁷ Metacognition refers to higher order thinking that involves active control over the cognitive processes engaged in learning. Activities such as planning how to approach a given learning task, monitoring comprehension, and evaluating progress toward the completion of a task are metacognitive in nature.

¹⁸ Editors. (2006, Spring). Knowledge: The next frontier in reading comprehension. *American Educator*, 30(1). Retrieved August 4, 2006, from http://www.aft.org/pubs-reports/american_educator/issues/spring06/editorsintro.htm.

¹⁹ Rosenshine, R., & Meister, C. (1994, Winter). Reciprocal teaching: A review of the research. *Review of Educational Research*, 64(4), 506.

²⁰ Kamil, M. L. (2004). Vocabulary and comprehension instruction: Summary of the implications of the National Reading Panel findings. In P. McCardle & V. Chhabra (Eds.), *The voice of evidence in reading research*. Baltimore: Brookes Publishing (p. 230).

²¹ Schatschneider, C., Buck, J., Torgesen, J., Wagner, R., Hassler, L., Hecht, S., & Powell-Smith, K. (2004, December). *A multivariate study of individual differences in performance on the reading portion of the Florida Comprehensive Assessment Test*. Tallahassee, FL: Florida Center for Reading Research. Retrieved August 4, 2006, from http://www.fcrr.org/TechnicalReports/Multi_variate_study_december2004.pdf. The researchers note that although the study was conducted using the FCAT, Florida's state assessment: "FCAT reading comprehension levels were also completely consistent with reading comprehension scores from the SAT9 test, which is a nationally standardized test..."

²² Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experiences of young American children*. Baltimore: Brooks Publishing.

²³ Hirsch, E. D., Jr. (2006). *The knowledge deficit*. Boston: Houghton Mifflin (p. 34).

²⁴ Smith, B. (1998, December). *It's about time: Opportunities to learn in Chicago's elementary schools*. Chicago: Consortium on Chicago School Research (p. 3). Retrieved August 4, 2006, from <http://www.consortium-chicago.org/publications/pdfs/p0f03.pdf>

²⁵ Hirsch, E. D., Jr. (2006). *The knowledge deficit*. Boston: Houghton Mifflin (p. 81).

²⁶ Basal readers are textbooks used to teach reading and associated skills to school children. Commonly called "reading books," they are usually published as anthologies that combine previously published short stories, excerpts of longer narratives, and original works.

²⁷ Walsh, K. (2003, Spring). Basal readers: The lost opportunity to build the knowledge that propels comprehension. *American Educator*, 27(1), 24–27.

²⁸ Mathews, J. (2006, April 4). Much better than adequate progress. *Washington Post Online*. Retrieved August 4, 2006, from <http://www.washingtonpost.com/wp-dyn/content/article/2006/04/04/AR2006040400644.html>

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