Beyond Comprehension

We Have Yet to Adopt a Common Core Curriculum That Builds Knowledge Grade by Grade—But We Need To

ILLUSTRATIONS BY JAMES YANG

By E. D. Hirsch, Jr.

The prevailing view of the American educational community is that no specific background knowledge is needed for reading. Any general background knowledge will do. This innocent-sounding idea, so liberating to the teacher and the student, frees schools from any requirement to teach a specific body of knowledge. This purported liberation from "mere" information and rote learning is one of the most precious principles of American educational thought, and lies at its very core. Its proponents disparage those who favor a definite, cumulative course of study for children as "traditional," "hidebound," and "reactionary," to mention only the more polite terms.

Yet the supposedly liberating and humane idea that any general background knowledge will serve to educate children and make them proficient readers is not only incorrect, it is also very old and tired; it has had its day for at least half a century, during which time American reading proficiency and verbal SAT scores have declined drastically.[1] (For a detailed explanation of the drop in SAT scores, see Marilyn Jager Adams's article on page 3.) Scapegoats for the decline, such as television and social forces, have been invoked to explain it, but they cannot fully explain why other nations, equally addicted to television but not to American educational theories that disparage "mere" information, have not suffered a similarly drastic decline in reading proficiency.[2]

It is true that given a good start in decoding, a child will develop fluency and accuracy in decoding with practice. And it is also true that decoding is a skill that can be transferred from

E. D. Hirsch, Jr., is a professor emeritus at the University of Virginia and the author of many articles and books, including the bestsellers Cultural Literacy *and* The Schools We Need. *He is a fellow of the American Academy of Arts and Sciences and the founder of the Core Knowledge Foundation.* *This article is adapted from* The Knowledge Deficit: Closing the Shocking Education Gap for American Children *by E. D. Hirsch, Jr.*

one text to another. But the progress of a child's reading comprehension is different. That progress does not follow a reliable course of development. Because comprehension is knowledge dependent, someone who reads well about the Civil War may not necessarily read well about molecular interactions.

One particularly elegant experiment was conducted to find out how important domain-specific knowledge is in actual reading tasks.[3] In two of the groups of students studied, one had good decoding skills but little knowledge of the subject, baseball, while another had poor decoding skills but knew a lot about baseball. As predicted, *the reading comprehension of the low-skills, baseball-knowing group proved superior to the reading comprehension of the high-skills, baseball-ignorant group*. These results have been replicated in other situations and knowledge domains; they show the powerful effect of prior knowledge on actual reading ability.[4]

Faulty Ideas

Most current reading programs talk about "activating" the reader's background knowledge so she can comprehend a text. But in practice, they are only paying lip service to the finding that background knowledge is essential to reading comprehension. Little attempt is made to *enlarge* children's background knowledge—and, as a direct result, little is accomplished in terms of expanding children's ability to comprehend more complex and varied texts. The disjointed topics and stories that one finds in current reading programs, such as "Going to School" and "Jenny at the Supermarket," seem designed mainly to appeal to the knowledge that young readers probably already have.

For decades, most professional educators have believed that reading is an all-purpose skill that, once learned, can be applied to all subjects and problems. A specific, fact-filled, knowledge-building curriculum, they hold, is not needed for gaining all-purpose cognitive skills and strategies. Instead of burdening our minds with a lot of supposedly dead facts, they call for us to become expert in solving problems, in thinking critically—in reading fluently—and then we will be able to learn anything we need.

This idea sounds plausible. (If it did not, it could not have so thoroughly captured the American mind.) Its surface plausibility derives from the fact that a good education can indeed create very able readers and critical thinkers. The mistake is to think that these achievements are the result of acquiring all-purpose skills rather than broad factual knowledge. As the study of students' abilities to comprehend a text about baseball demonstrated, reading and critical thinking are always based on concrete, relevant knowledge and cannot be exercised apart from what psychologists call "domain-specific" knowledge.[5]

The idea that reading with comprehension is largely a set of general-purpose skills and strategies that can be applied to any and all texts is one of the main barriers to our students' achievement in reading. It leads to activities (like endless drilling in finding the main idea) that are deadening for agile and eager minds, and it carries big opportunity costs. These activities actually slow down the acquisition of true reading ability: they take up time that could be devoted to gaining general knowledge, which is the central requisite for high reading ability.

Most current reading programs do not prepare students for high school, higher education, the workplace, or citizenship because they do not make a systematic effort to convey coherently, grade by grade, the knowledge that books (including high school textbooks), newspapers, magazines, and serious radio and TV programs *assume* American readers and listeners possess. (Every newspaper, book, and magazine editor, and every producer for radio and TV is conscious of the need to distinguish what can be taken for granted from what must be explained. The general reader or listener that every journalist or TV newscaster must imagine is somebody whose relevant knowledge is assumed to lie between the total ignorance of a complete novice and the detailed knowledge of an expert.)

How Much Knowledge Do We Need?

Here is the first paragraph of an article by Janet Maslin, taken at random from the books section of the *New York Times* on February 6, 2003. It is an example of writing addressed to a general reader that a literate American high school graduate would be expected to understand.

> When Luca Turin was a boy growing up in Paris, according to Chandler Burr's ebullient new book about him, "he was famous for boring everyone to death with useless, disconnected facts, like the distance between the earth and the moon in Egyptian cubits." Mr. Burr sets out to explain how such obsessive curiosity turned Mr. Turin into a pioneering scientist who, in the author's estimation, deserves a Nobel Prize.

Most current reading programs only pay lip service to the finding that background knowledge is essential to reading comprehension.

This example shows that the background knowledge required to understand the general sections of the *New York Times*, such as the book review section, is not deep. It is not that of an expert—of course not, for we cannot all be experts on the diverse subjects that are treated by books. If authors want their books to be sold and read, they must not assume that their readers are experts. They may take for granted only the relevant background knowledge that a literate audience can be expected to possess.

What *do* readers need to know in order to comprehend this passage? We need to know first that this is a book review, which aims to tell us what the book is about and whether it is worth reading. We need to understand that the reviewer is favorably disposed to the book, calling it "ebullient," and that it is a nonfiction work about a scientist named Luca Turin. We need to have at least a vague semantic grasp of key words like ebullient, boring,

obsessive, pioneering, estimation. We need to know some of the things mentioned with exactness, but not others. It's not necessary to know how long a cubit is. Indeed, the text implies that this is an odd bit of information, and we can infer that it is some form of measurement. We need to know in general what Paris is, what the moon is and that it circles the earth, that it is not too far away in celestial terms, and we need to have some idea what a Nobel Prize is and that it is very prestigious. Consider the knowledge domains included in this list. Paris belongs to history and geography; so does Egypt. The moon belongs to astronomy and natural history. The Nobel Prize belongs to general history and science.

We may infer from this example that only a person with broad knowledge is capable of reading with understanding the *New York Times* and other newspapers. This fact has momentous implications for education, and for democracy as well. A universal ability of citizens to read newspapers or their equivalent with understanding is the essence of democracy. Thomas Jefferson put the issue unforgettably: "The basis of our government being the opinion of the people, the very first object should be to keep that right; and were it left to me to decide whether we should have a government without newspapers or newspapers without a government, I should not hesitate a moment to prefer the latter. But I should mean that every man should receive those papers and be capable of reading them."[6] The last phrase, "be capable of reading them," is often omitted from the quotation, but it is the crucial one. Reading achievement will not advance significantly until schools recognize and act on the fact that it depends on the possession of a broad but definable range of diverse knowledge. Effectively teaching reading requires schools to systematically teach the diverse, enabling knowledge that reading with comprehension requires.

Effectively teaching reading requires schools to systematically teach the diverse, enabling knowledge that reading with comprehension requires.

What Knowledge Do We Need?

But what exactly does that enabling knowledge comprise? That is the nuts-and-bolts question. The practical problem of helping all students achieve adequate reading comprehension depends on our schools being able to narrow down what seems at first glance to be vast amounts of heterogeneous information into a teachable repertory that will enable students to understand the diverse texts addressed to the average citizen. Our sketch of the background knowledge needed to understand Maslin's short passage offers clues to the kind of instruction needed to advance general reading comprehension ability. It will be broad instruction in the worlds of nature and culture as a necessary platform for gaining deeper knowledge through listening and reading. But what, exactly, should that broad general knowledge be?

My colleagues Joseph Kett and James Trefil and I set out to answer that question back in the 1980s. We asked ourselves, "In the American context, what knowledge is taken for granted in the classroom, in public orations, in serious radio and TV, in books and magazines and newspapers addressed to a general audience?" We considered various scholarly approaches to this problem. One was to look at word frequencies. If a word appeared in print quite often, then its meaning was probably not going to be explained by the writer. We looked at a frequency analysis of the Brown Corpus, a collection of passages from very diverse kinds of publications that was lodged at Brown University, but we found that this purely mechanical approach, while partially valid, did not yield altogether accurate or intelligent results. For example, because the Brown Corpus was compiled in the 1950s, "Nikita Khrushchev" was a more frequent vocabulary item than "George Washington."[7]

A much better way of finding out what knowledge speakers and writers take for granted is to ask them whether they assume specific items of knowledge in what they read and write. This direct approach proved to be a sounder way of determining the tacit knowledge, because what we must teach students is the knowledge that proficient readers and writers actually use. From people in every region of the country we found a reassuring amount of agreement on the substance of this taken-for-granted knowledge.

We had predicted this agreement. The very nature of communicative competence, a skill that successful teachers, reporters, doctors, lawyers, book club members, and writers have already shown themselves to have, requires that it be widely shared within the speech community. Shared, taken-for-granted background knowledge is what makes successful communication possible. Several years after our compilation of such knowledge was published, independent researchers investigated whether reading comprehension ability did in fact depend on knowledge of the topics we had set forth. The studies showed an unambiguous correlation between knowledge of these topics and reading comprehension scores, school grades, and other measures of reading ability. One researcher investigated whether the topics we set forth as taken-for-granted knowledge are in fact taken for granted in newspaper texts addressed to a general reader. He examined the *New York Times* by computer over a period of 101 months and found that "any given day's issue of the *Times* contained approximately 2,700 occurrences" of these unexplained terms, which "play a part in the daily commerce of the published language."[8]

An inventory of the tacit knowledge shared by good readers and writers cannot, of course, be fixed at a single point in time. The knowledge that writers and radio and TV personalities take for granted is constantly changing at the edges, especially on issues of the moment. But inside the edges, at the core, the body of assumed knowledge in American public discourse has remained stable for many decades.[9] This core of knowledge changes very slowly, as sociolinguists have pointed out. If we

want to bring all students to reading proficiency, this stable core is the enabling knowledge that we must teach.

That's more easily said than done. One essential, preliminary question that we faced was this: how can this necessary knowledge be sequenced in a practical way for use in schools? We asked teachers how to present these topics grade by grade and created working groups of experienced teachers in every region of the country to produce a sequence independently of the others. There proved to be less agreement on how to present the material grade by grade than there had been in identifying what the critical topics are. That difficulty too was predicted, since the sequencing of many topics is inherently arbitrary. While it's plausible that in math, addition needs to come before multiplication, and that in history, Greece probably ought to come before Rome, maybe it's not plausible that Greece should come before George Washington.

We collected the accumulated wisdom of these independent groups of teachers, made a provisional draft sequence, and in 1990 held a conference where 145 people from every region, scholarly discipline, and racial and ethnic group got together to work extremely hard for two and a half days to agree on an intelligent way to teach this knowledge sequentially. Over time, this Core Knowledge Sequence has been refined and adjusted, based on actual classroom experience. It is now used in several hundred schools (with positive effects on reading scores), and it is distinguished among content standards not only for its interest, richness, and specificity, but also because of the carefully thought-out scientific foundations that underlie the selection of topics. (The Core Knowledge Sequence is available online at **www.coreknowledge.org**.)

Today, in response to requests from educators, the Core Knowledge Foundation offers a range of instructional supports, including detailed teacher guides, a day-by-day planner, and an anthology of African American literature, music, and art. And, as shown over pages 37 to 43, we are now offering a complete language arts program for kindergarten through second grade. This program, which was pilot tested in 17 urban, suburban, and rural schools, addresses both the skills and the knowledge that young children need to become strong readers and writers. This new program is our attempt to reconceive language arts as a school subject. In trying to make all students proficient readers and writers, there is no avoiding the responsibility of imparting the specific knowledge they will need to understand newspapers, magazines, and serious books. There is no successful shortcut to teaching and learning this specific knowledge—and there is nothing more interesting than acquiring broad knowledge of the world. The happy consequence is a reading program that is much more absorbing, enjoyable, and interesting than the disjointed, pedestrian programs offered to students today.

Most current programs assume that language arts is predominantly about "literature," which is conceived as poems and fictional stories, often trivial ones meant to be inoffensive vehicles for teaching reading skills. Stories are indeed the best vehicles for teaching young children—an idea that was ancient when Plato reasserted it in *The Republic*. But stories are not necessarily the same things as ephemeral fictions. Many an excellent story is told about real people and events, and even stories that are fictional take much of their worth from the nonfictional truths about the world that they convey.

Because of student mobility, nothing short of a common curriculum—one shared by all schools—will do.

The new Core Knowledge language arts program contains not only fiction and poetry, but also narratives about the real worlds of nature and history. Since word learning occurs much faster in a familiar context, the program stays on each selected subject-matter domain long enough to make it familiar. Such integration of subject-matter content in reading classes enriches background knowledge and enlarges vocabulary in an optimal way.

Constantly Changing Schools—A Critical Issue

Thus far, I've mostly been explaining the need for a fact-filled, knowledge-building curriculum. But the critical issue of student mobility demands more than just each school adopting or adapting such a curriculum. If we are really to serve all of our children to the best of our ability, then nothing short of a common curriculum—one shared by all schools—will do.

Mobility is a term to denote students' moving from one school to another in the middle of the year. The percentage of economically disadvantaged students who migrate during the school year is appallingly high, and the effects are dishearteningly severe. One study has analyzed those effects on 9,915 children. With this large group, the researchers were able to factor out the influences of poverty, race, single-parent status, and lack of parental education in order to isolate just the effects of changing schools.

Even with other adverse influences factored out, children who changed schools often were much more likely than those who did not to exhibit behavioral problems and to fail a grade.[10] The researchers found that the adverse effects of such social and academic incoherence are greatly intensified when parents have low educational levels and when compensatory education is not available in the home. But this big fact of student mobility is generally ignored in discussions of school reform. It is as if that elephant in the middle of the parlor is less relevant or important than other concerns, such as the supposed dangers of encouraging uniformity or of allowing an "outsider" to decide what subjects are to be taught at which grade level.

In a typical American school district, the average rate at which students transfer in and out of schools during the academic year is about one-third.[11] In a typical inner-city school, only about half the students who start in the fall are still there in

the spring—a mobility rate of 50 percent.[12] Given the curricular incoherence in a typical American school (in which two fourth-grade classrooms may cover completely different content), the education provided to frequently moving students is tragically fragmented. The high mobility of low-income parents guarantees that disadvantaged children will be most severely affected by the educational handicaps of changing schools, and that they will be the ones who are most adversely affected by lack of commonality across schools.

The finding that our mobile students (who are preponderantly from low-income families) perform worse than stable ones does not mean that their lower performance is a consequence of poverty. That is to commit the fallacy of social determinism. *Where there is greater commonality of the curriculum, the effects of mobility are less severe.* In a summary of research on student mobility, Herbert Walberg states that "common learning goals,

curriculum, and assessment within states (or within an entire nation) ... alleviate the grave learning disabilities faced by children, especially poorly achieving children, who move from one district to another with different curricula, assessment, and goals."[13] The adverse effects of student mobility are much less severe in countries that use a nationwide core curriculum.

While ignoring important issues like mobility that really do impede learning, some people blame ineffective teachers for students' lackluster performance. But so-called low teacher quality is not an innate characteristic of American teachers; ineffective teaching is the consequence of the ineffective training they have received and of the vague, incoherent curricula they are given to teach, both of which result from most education schools' deemphasis on specific, cumulative content. No teacher, however capable, can efficiently cope with the huge differences in academic preparation among the students in a typical American classroom—differences that grow with each successive grade.[14] In other nations, the differences between groups diminish over time, so that they are closer together by grade 7 than they were in grade 4.[15] Even the most brilliant and knowledgeable American teacher faced with huge variations in student preparation cannot achieve as much as an ordinary teacher can within a more coherent curricular system like those found in the nations that outperform us.

The chief cause of our schools' inefficiency is precisely this curricular incoherence.[16] At the beginning of the school year, a teacher cannot be sure what the entering students know about a subject, because they have been taught very different topics in prior grades, depending on the different preferences of their teachers. Typically, therefore, the teacher must spend a great deal of time at the beginning of each year reviewing the preparatory material students need to know in order to learn the next topic—time that would not need to be so extensive (and so very boring to students who already have the knowledge) if the incoming students had all been taught using a common core curriculum and thus had all gained this knowledge already.

If states would adopt a common core curriculum that builds knowledge grade by grade, reading achievement would rise for all groups of children. So would achievement in math, science, and social studies because, as common sense predicts, reading is strongly correlated with the ability to learn in all subjects. Equally important, the achievement gap between social groups would be greatly narrowed and social justice would be served. ❑

The chief cause of our schools' inefficiency is curricular incoherence. At the beginning of the year, the teacher cannot be sure what the entering students know.

Endnotes

1. There is a large literature on the decline of verbal SAT scores in the 1960s and 1970s, and on NAEP (National Assessment of Educational Progress) scores when these began to be collected in the 1970s. A summary of these issues with full bibliographical references can be found in E. D. Hirsch, Jr., *Cultural Literacy* (Boston: Houghton Mifflin, 1987), 1–10; and E. D. Hirsch, Jr., *The Schools We Need* (New York: Doubleday, 1996), 39–42, 176–179.

2. See Christopher Jencks, "What's Behind the Drop in Test Scores?" (working paper, Department of Sociology, Harvard University, Cambridge, MA, July–August 1978).

3. Donna R. Recht and Lauren Leslie, "Effect of Prior Knowledge on Good and Poor Readers' Memory of Text," *Journal of Educational Psychology* 80, no. 1 (March 1988): 16–20.

4. Wolfgang Schneider and Joachim Korkel, "The Knowledge Base and Text Recall: Evidence from a Short-Term Longitudinal Study," *Contemporary Educational Psychology* 14, no. 4 (1989): 382–393, "Performance was more a function of soccer knowledge than of aptitude level."

5. For reviews of the scientific literature on these subjects, see Hirsch, *Cultural Literacy*; Hirsch, *The Schools We Need*; Wolfgang Schneider, Joachim Korkel, and Franz Emanuel Weinert, "Expert Knowledge, General Abilities, and Text Processing," in *Interactions among Aptitudes, Strategies, and Knowledge in Cognitive Performance*, ed. Wolfgang Schneider and Franz Emanuel Weinert (New York: Springer-Verlag, 1990).

6. Letter to Colonel Edward Carrington, January 16, 1787, taken from *The Life and Selected Writings of Thomas Jefferson*, ed. Adrienne Koch and William Peden (New York: Random House, 1944), 411–412.

7. Nelson W. Francis and Henry Kucera, *Frequency Analysis of English Usage: Lexicon and Grammar* (Boston: Houghton Mifflin, 1982).

8. John Willinsky, "The Vocabulary of Cultural Literacy in a Newspaper of Substance" (paper presented at the annual meeting of the National Reading Conference, Tucson, AZ, November 29–December 3, 1988).

9. Hirsch, *Cultural Literacy*.

10. Deborah L. Cohen, "Frequent Moves Said to Boost Risk of School Problems," *Education Week*, September 22, 1993, 15. See also David Wood, Neal Halfon, Debra Scarlata, Paul Newacheck, and Sharon Nessim, "Impact of Family Relocation on Children's Growth, Development, School Function, and Behavior," *Journal of the American Medical Association* 270, no. 11 (September 15, 1993): 1334–1338.

11. Deborah Cohen, "Moving Images," *Education Week*, August 3, 1994, 32–39; David Kerbow, "Patterns of Urban Student Mobility and Local School Reform," *Journal of Education for Students Placed at Risk* 1, no. 2 (1996); Shana Pribesh and Douglas B. Downey, "Why Are Residential and School Moves Associated with Poor School Performance?" *Demography* 36, no. 4 (1999): 521–534; Thomas Fowler-Finn, "Student Stability vs. Mobility," *School Administrator* 58, no. 7 (August 2001): 36–40; Russell W. Rumberger, Katherine A. Larson, Robert K. Ream, and Gregory J. Palardy, *The Educational Consequences of Mobility for California Students and Schools*, PACE Policy Brief (Berkeley, CA: Policy Analysis for California Education, 1999); and Del Stover, "The Mobility Mess of Students Who Move," *Education Digest* 66, no. 3 (2000): 61–64.

12. U.S. General Accounting Office, *Elementary School Children: Many Change Schools Frequently, Harming Their Education* (Washington, DC: GAO, 1994).

13. Bruce C. Straits, "Residence, Migration, and School Progress," *Sociology of Education* 60 (1987): 34–43, cited in H. J. Walberg, "Improving Local Control and Learning," preprint 1994.

14. Harold W. Stevenson and James W. Stigler, *The Learning Gap: Why Our Schools Are Failing and What We Can Learn from Japanese and Chinese Education* (New York: Summit, 1992).

15. Hirsch, *The Schools We Need*, 38–41; Centre for Educational Research and Innovation, *Immigrants' Children at School* (Paris: Organisation for Economic Co-operation and Development, 1987).

16. Hirsch, *The Schools We Need*, 22–26.