

Core Knowledge Basics By E.D. Hirsch, Jr.

Contents

<i>Why Core Knowledge Promotes Social Justice</i>	_____	1
<i>You Can Always Look It Up – Or Can You?</i>	_____	3
<i>Why General Knowledge Should Be a Goal of Education in a Democracy</i>	_____	7
<i>Biography of E.D. Hirsch, Jr.</i>	_____	8

Why Core Knowledge Promotes Social Justice

(Convocation Address to the Students and Faculty of the University Of Tennessee-Chattanooga, October 6, 1999)

This is my first visit to Chattanooga but it's not my first time in Tennessee. I was born in this state, I grew up here, and it was here that I formed, like many Southerners of my generation, a determination to work for greater social justice. I think it may be hard for those of you in your twenties or even your fifties to understand the brutal character of the social injustice that existed in Memphis, Tennessee sixty years ago when I was growing up there. I'm glad it's hard for you to imagine those days. There has been real progress in the relations between blacks and whites in this state. But in no state or region of the nation, north or south, east or west, have our schools achieved true equality of educational opportunity which is the heart and soul of progress towards social justice.

It is one of the tragic paradoxes of our history in the last half of this century that the Brown decision which desegregated our schools was handed down just when romantic progressivism finally succeeded in abolishing the emphasis on traditional academic content in the early grades. By the 1970s and 80s the public schools into which our children were integrated were schools in which the traditional lore necessary to communication and full participation in our society was very inconsistently taught. This meant that children from privileged homes learned from their parents and peers the vocabulary and knowledge which the schools neglected to teach, whereas children who lacked such exposure to literate culture in their homes did not receive it at all. In the wake of the Brown decision, at the very moment of our highest hopes for social justice, the victory of progressivism over academic content had already foreclosed the chance that school integration would equalize achievement and enhance social justice.

Progressivism is a faulty theory at any time. But as it came to dominate our public schools in the '60s, '70s, and '80s, it precipitated a social misfortune whose effects we can now see ever more acutely – for instance, in the bitter debates going on over affirmative action. If school integration had actually achieved its promise, there would be ever less need for affirmative action in the colleges, because student achievement would be much more broadly distributed among social groups. It is certainly true that affirmative action at the college level can now modestly help the cause of social justice.

Yet if it is true that educational deficiencies can be partly redeemed at age 18 by attending a good college, far, far more progress can be made towards equal opportunity by giving students a chance to attend a very good school from the earliest grades. Intelligent early intervention obviates the need for race-conscious intervention after so many children have already fallen through the cracks. I don't know how many of you intend to devote yourselves to public education. We need the best and most idealistic of your generation. It is up to all of us who are in education, and especially in early education, where schooling has the greatest effect on social equity, to redeem the promise of public schooling and help make the very need for debate over affirmative action gradually disappear. We must make it possible for all children to achieve at higher levels, and thereby reduce the tragic achievement gap between social groups.

There is only one way to do this. Each child in each grade must learn what he or she needs to know in order to be ready to learn the lessons of the next grade. This entails that the things children need to learn in each grade must be agreed upon very specifically, so that every child does in fact learn what is needed in that grade. Education is a slow and cumulative process.

Knowledge builds upon knowledge, skill upon skill. And the skill of skills – reading well, which is the key to further learning, is not just a mechanical skill. Reading well isn't just knowing how to sound out words and perform rapid eye movements, or look for the main idea. It entails having a wide vocabulary so that one can understand newspapers, serious books, and training manuals for new skills. And a wide vocabulary means having correspondingly wide knowledge. Words stand for things. To possess a wide vocabulary without wide knowledge is a thing that has never existed and never will. In the early grades, breadth of knowledge is ultimately the key to depth. Broad, well-chosen knowledge in the academic disciplines is the one thing needful in effective early schooling.

Apologists for the current state of public schools continue to blame the persistent achievement gap between ethnic and racial groups on social conditions or on shortcomings in the innate abilities of some groups. But the proof that such social and psychological determinism

is false is the fact that the achievement gap between social and racial groups has been greatly reduced in France and other democracies. If social or IQ determinism were true, then the educational success of those nations would be impossible. It is no accident that progressivism never took hold in nations which have greatly narrowed the test-score gap between groups. By criticizing progressivism, I don't of course criticize its emphasis on humane, lively, and imaginative teaching. That has been a hallmark of good education in all times and places. I mean only to criticize its all-too-successful attack on traditional academic subject matter as being boring, useless, and even soul-deadening.

Let me remind you of the founding idea of democratic education as it was envisaged after the great democratic revolutions in Europe and America first by thinkers like Jefferson, then by Horace Mann and W.E.B. Du Bois. They wanted the focus of the schools to be on strong content in history, science, mathematics, and the arts. Those subjects were to form the common content which everyone learned. Commonality of content was the essence of the so-called "common school." The idea was that schooling should enable every person to stand on his or her own two feet, equal to every other person of similar talent and virtue, rather than, as in the past, having one's role in life determined by the status, wealth, or education of one's parents. This democratic

ideal was shared by all the great founders of democratic education everywhere in the world. The common school was to be a place where children of all races and conditions would be offered the same opportunity to amplify their talents. How far short of this ideal our schools have fallen in the 20th century is highlighted by the degree to which other democracies have lived up so much better than we have to this egalitarian ideal.

They have achieved this by two basic policies that are directly opposed to the principles of progressive education – first, they have determined that the emphasis of schooling should fall on the academic curriculum, not on slogans about growth, critical thinking, and individually tailored study plans – and second, that all children should share a core of common intellectual capital. The most acute thinkers about democratic education, including Jefferson, Mann, and Du Bois, believed that it is not intelligence that increases knowledge but knowledge that increases intelligence. Du Bois, who was himself the product of the New England common school, would have scorned the sentimental absurdity that each child must have his or her own special curriculum suited to his or her special personality. Yet this very month the latest issue of the widely-read professional magazine *Educational Leadership* focuses on the progressive theme "Personalized Learning." On the cover, right underneath the phrase "Personalized Learning" there is a photograph of a young African-American student – a bitter irony. But, on this ceremonial occasion, my intention is not to inveigh against progressivism despite its bitter social fruit. My hope is to encourage all of you to work directly or indirectly for truly democratic public schools, and to view their creation as the chief unfinished business of the struggle for civil rights. The late James Farmer, the great civil rights activist, once honored our annual Core Knowledge conference by giving a keynote address in the tradition of Du Bois which said, in effect, that strong common content in the early grades is the new frontier of the civil rights movement.

I hope that that idea rings true to many of you, and that you and your generation will help make it a reality. It's my fervent belief, reinforced by everything I have learned from study and experience, that public education has no more right to continue to foster segregated knowledge than it has to foster segregated schools.

You Can Always Look It Up – Or Can You?¹

Fifty-eight years ago when I was in ninth grade, I attended a progressive school in New Orleans called Metairie Park Country Day School. If you saw the movie “Auntie Mame” with its Park Avenue version of my progressive experience, you will know that, in the 1940s, progressive theories were mainly confined to private schools; they hadn’t seeped very far into the public school domain. At Metairie Park, my entire ninth grade curriculum consisted of two “integrated,” “multidisciplinary” projects, as they would now be called. They were participating in the school production of Gilbert and Sullivan’s *The Mikado*, (I can still sing many of the solos and choruses by heart), and building a complicated scientific instrument called a “phonodyke.” I was excused from ordinary classes. It was great fun. Fortunately for my education, I spent just one year at that school. My earlier years had been very fruitful ones spent in a regular public school in Memphis, Tennessee, the Lennox School, where we studied Shakespeare in fourth grade.

The progressive theory that students should gain knowledge through a limited number of projects instead of by taking courses in separate subjects is based on the following reasoning. If you learn a bunch of facts in separate, academic courses you will passively acquire a lot of inert, fragmented knowledge. You will be the victim of something called rote learning.

But if you engage in integrated, hands-on projects you will achieve integrated, real-world knowledge. By this more natural approach you will automatically absorb the relevant facts you need. Any specific facts that you didn’t gain you can look up later in a reference book, or, nowadays, on the internet. It has been a watchword of the progressive approach that “you can always look it up.”

The progressive idea of pursuing a few projects in depth is not an implausible theory. The breadth-versus-depth problem in education is perennial and real. So is the problem of the integration of knowledge. Any teacher of science who fails to offer concrete experiences that manifest the feel and heft of things is missing a big opportunity for helping students gain conceptual insight. Any teacher of early math who doesn’t challenge students with real-world problems that require a translation back and forth between the physical world and the abstract relations of math is leaving out an essential element of good math teaching.

But teachers prove every day that lively teaching techniques which motivate students and enhance their

active participation in learning are entirely consistent with imparting broad knowledge effectively to young children. The best teaching methods do not have to be coupled with an anti-fact or anti-academic mentality. Lively teaching is quite consistent with making sure that a broad yet selective array of topics is taught and learned in each subject, so that students will not be ignorant at graduation of key topics like photosynthesis.

Unfortunately, this moderate position on combining lively teaching techniques with broad knowledge is considered a cop-out by progressivists who caricature the teaching of facts as “rote learning,” and “inert” knowledge. Factual knowledge, they say, is mostly pointless because the facts you teach will be “out of date within five years.” Last January, an education professor was quoted as saying that detailed information need no longer be taught because “it can easily be garnered from the computer and the internet.”² (That claim is repeated so often without evidence that I think it must have been rote learned.)

Teachers at Core Knowledge schools, where there is an emphasis on broad factual knowledge, as well as on lively teaching, have uniformly observed that their students haven’t become rote learning robots after all. On the contrary, factual knowledge has made them more engaged and curious than they were before. On museum visits teachers notice the difference between kids who formerly ran around randomly pushing buttons, and saying “gross” when they saw invertebrates, and children who become deeply absorbed in the museum experience because they have learned what vertebrates and invertebrates are.

Breadth, as it turns out, is not the enemy of depth. According to independent evaluations of Core Knowledge schools conducted by Johns Hopkins researchers, Core Knowledge students use the library and look things up more than control students, because they have gained selectively broad knowledge in history, science, and literature. Knowing about the Nile River makes them want to learn more about the Nile, and their breadth of knowledge enables them successfully to look things up. Since they already know something about the Nile and Egypt, they are able to contextualize what they find out when they do look it up.

There is a consensus in cognitive psychology that it takes knowledge to gain knowledge. Those who repudiate a fact-filled curriculum on the grounds that kids can always look things up miss the paradox that de-emphasizing factual knowledge actually disables children from looking things up effectively. To stress

process at the expense of factual knowledge actually hinders children from learning to learn. That is the paradox disclosed by cognitive research.

Take for example some research conducted by Professor George A. Miller and his colleagues, who studied what happens when children actually do look things up. George Miller is one of the great pathbreaking figures in cognitive psychology. In 1987, he and Patricia Gildea published a report on children's learning that included some experiments in their use of a dictionary to learn word meanings.³

The normal child's aversion to doing this, Miller found, was amply justified. In the time it took children to find the dictionary word and construe its meanings they usually forgot the original problem context and never found their way back. They mainly experienced frustration. That difficulty was exacerbated by the inherent uncertainties and ambiguities of word definitions. As a consequence, children consistently produce sentences like:

- "Mrs. Morrow stimulated the soup." (That is she stirred it up.)
- "Our family erodes a lot." (That is they eat out.)
- "Me and my family correlate, because without them I wouldn't be here."
- "I was meticulous about falling off the cliff."
- "I relegated my pen pal's letter to her house."

Of course, Professor Miller is in favor of dictionaries and encyclopedias in appropriate contexts where they can be used effectively by children and adults. But those contexts turn out to be somewhat rare occasions when nuances of meaning can be confidently understood. Reference works including the internet are immensely valuable in those constrained circumstances. But Miller has shown very well why, outside those circumstances, adults use reference resources so infrequently. His observations are well supported by other areas of cognitive psychology.

For instance, there is a domain of cognitive science called "expert-novice studies." Two of its leading figures are Herbert A. Simon, the Nobel prize winner, and Jill Larkin, who has co-authored articles on this subject with Simon. Their studies provide an insight into the paradox that you can successfully look something up only if you already know quite a lot about the subject. In these studies, an expert is characteristically a specialist who knows a lot about a field – say a chess master or a physicist, whereas a novice knows very little. Since the expert already knows a great deal, you might suppose that she would learn very little when she looked something up. By contrast, you might think that the novice, who has so

much to learn, ought to gain a still greater quantity of new information from consulting a dictionary or encyclopedia or the internet. But, on the contrary, it's the expert who learns more that is new, and learns it much faster than the novice. It's extremely hard for a novice to learn very much in a reasonable time by looking things up.⁴

Simon and others point out that one reason the novice has this difficulty is that the human mind is able to assimilate only three or four new items before further elements evaporate from memory. The expert had already assimilated most of the elements being looked up, and therefore needed to pay attention only to one or two novel features which could easily be integrated into his prior knowledge. In a famous experiment by de Groot, a chess expert could learn a complex new chess position after just a few seconds exposure, whereas novices could remember very little. That was because the novices had to remember ALL the unfamiliar positions (which the human mind simply can't do) whereas the experts had to notice only a few salient departures from a wealth of positions they already knew.⁵ The analogy between the chess experiment and looking things up is quite apt. Imagine an expert and a novice looking up the entry "planets" on the internet and finding the following definition: "any of the non-luminous bodies that revolve around the sun. The term planet is sometimes used to include the asteroids, but excludes the other members of the solar system, comets, and meteoroids. By extension, any similar body discovered revolving around another star would be called a planet."

A quite well-informed person would learn a good deal from this entry if, for example, he was uncertain about whether asteroids, comets, and meteoroids should be called planets. A novice would learn less. Since he wouldn't know what planets are, he probably wouldn't know what asteroids, comets, and meteoroids are. Even the simple phrase "revolving around another star" would be mystifying, since he probably wouldn't know that the sun is a star. Equally puzzling would be the phrase "other members of the solar system," since the term "solar system" already requires knowing what a planet is. An imaginative novice would no doubt make some fortunate guesses after a rather long time. But looking things up turns out to have an element of "Catch-22": you already need to know something about the subject to look it up effectively.

There's a third area of research that is relevant to looking things up, and it's especially interesting to those who are concerned with helping schools narrow the achievement gap between social classes and ethnic/racial groups. It is recent work on vocabulary. The biggest academic gap between groups in the early

years – a gap which grows ever bigger – is the vocabulary gap. It’s hard for a child or adult to look things up if vocabulary limitations keep them from making basic sense out of the words in the reference book or on the internet.

Betty Hart and Todd Risley, in their important book *Meaningful Differences*, have shown that enormous vocabulary differences develop between children before they reach kindergarten. In the absence of compensatory schooling, this initial disadvantage will grow, because the low-vocabulary child will learn less than the high vocabulary child when exposed to the same lessons.⁶

To reduce this difference requires better parenting, better preschooling, and more systematic teaching of school subjects in the early grades. Vocabulary is a reflection of knowledge. Only when children learn subjects in a cumulative way can they build up their vocabularies rapidly and remedy their deficiencies. Specialists in vocabulary estimate that in order to understand something that is read or heard or looked up, the percentage of already-known words necessary for comprehension is around 95%. That’s a rough, if simplified, principle to keep in mind. To make it worthwhile to look something up you already need to know 95% of the words.⁷

To end this report from the research literature, I’ll mention two more research programs that it will be useful to know about when you hear slogans about looking things up. Thomas Landauer is a brilliant psychologist at the University of Colorado who, with his colleagues, has made a lot of progress in devising a workable computer model of how children’s minds manage to learn the meanings of as many words as they do. Many aspects of the model reflect what we know children in fact do, and it is the only successful model of the astonishing rate at which children learn the meanings of words.

Landauer’s work is complicated and highly mathematical, but its essence is this. We learn and refine word meanings that we have experienced in the past even when we are not experiencing those words in the present. The mind unconsciously assigns a word that it encounters to a domain of related words, and on each occurrence of the word, the mind not only refines the meaning of the word being encountered but also the meanings of other, previously experienced words that belong near its domain.⁸

The mind is constantly modulating and readjusting all those neighboring words, even when we’re not paying attention to the process. That’s the key insight about the rapid rate at which we learn words over time. Although

the average rate is amazing, the process is gradual and cumulative as we experience thousands of words a day. The words that I am paying attention to refine and calibrate the meanings of previously-experienced words that I’m *not* attending to.

This means that dismissive talk about “mere facts” is hugely oversimplified. Facts, like words, are rarely inert or isolated. A child’s (or adult’s) mind is in a constant flurry of subterranean integration and hypothesis-making. And a person’s success-rate in making sense of words and facts increases with a person’s knowledge.

This fascinating work of Landauer’s brings into relief a critical characteristic of human learning – its gradual and cumulative nature. We extend and refine our knowledge and our vocabulary slowly over time – but only to the extent that we have the opportunity to do so. We cannot extend our knowledge if we are not being exposed to new knowledge. Most of the unusual words which educated people know are words that are rarely heard in ordinary conversation. They are picked up in reading. We should encourage children to read in a wide diversity of topics in order to build up their treasury of knowledge and words. We should take great care in the books we make available, assign, and recommend. The ongoing, cumulative process of building knowledge and vocabulary cannot be replaced by brief incursions into the dictionary or the internet.

An advantaged 17-year-old high school graduate usually knows about 80,000 words. That means, from age one, 80,000 words have been learned in 5,840 days, which averages out to about 13 new words a day. Of course that’s the average rate for an advantaged child after 16 years, not the actual rate at which new word-meanings are acquired at the end of each day. The child as listener, reader, and speaker is experiencing thousands of words every day, and is gradually enlarging and mapping a huge continent of word/meaning associations.⁹

To the extent that other forms of learning follow this same slow pattern of accretion, these results argue in favor of a broad, curriculum in the early grades, and one which would also, of course, encourage children to probe deeply into subjects that interest them. A broad curriculum builds vocabulary. The critical academic difference between advantaged and disadvantaged children is a difference in vocabulary size. Imparting broad knowledge to all children, starting in preschool, is the best way to enable all children to acquire a broad vocabulary, and, more generally, achieve equality of educational opportunity.

This evidence for a broad-gauged curriculum in the earliest grades is strengthened by the finding that

students cannot learn or probe deeply into material that is largely new to them. Studies show that the most effective learning environment is one that guides a student through manageable, incremental advances in knowledge. Other studies show that the most effective learning materials are those which offer the student a relatively small proportion of new content.¹⁰

In sum, anti-fact slogans and the polar oppositions between breadth and depth are misleading. Readiness to learn means already knowing a lot of what you are trying to learn. Learning to learn is not an abstract skill. It entails already having the preparatory knowledge that enables further learning to occur. Possession of this enabling knowledge is the most reliably accurate meaning that can be attached to the term “learning to learn.”

This brings me to the last example of research on looking things up. One of the most important principles of psychology is that knowledge builds on knowledge. The more you know, the more readily you can learn something new, because you have a lot more analogies and points of contact for connecting the new knowledge with what you already know.

Another way of stating this is simply to say that the more you know the smarter you are. Our students become more intelligent when they know more. So does everybody. Researchers have been telling us this fact about human intelligence for many years. Intelligence increases with knowledge. General knowledge is the best single tool in a person’s intellectual armory.

It’s often asserted that a student’s home environment and socioeconomic status are the dominant factors in

determining school achievement. But it turns out that an even more important factor is a student’s breadth of general knowledge. The correlation between academic achievement and socioeconomic status (.42) is only about half the correlation between academic achievement and general knowledge (.81). “*Mere facts*” indeed! General knowledge proves to be more important for learning than parents, peers, and neighborhood combined (though of course those factors influence one’s breadth of knowledge).¹¹

So I’ll close with a little anecdote. A few days ago, a student asked me to fill out a recommendation form for admission to my university’s school of education, where disparagement of “mere facts” may still be heard. Nonetheless, the very first item on the admissions form asked for an estimate of the candidate’s breadth of knowledge. This is standard practice on admission forms, because studies have shown that general knowledge is the single most reliable index to a person’s ability to perform a variety of tasks. I wouldn’t have noticed this glaring inconsistency if I hadn’t been writing this piece, and clearly the contradiction hasn’t struck anyone in the education school. To avoid contradiction, our education schools will need to change their anti-fact slogans or they will need to change their admission forms. It’s clear from the consensus of scientific opinion that it’s the anti-fact slogans that ought to be changed.

That’s my last example from the research front. If we teachers convey general knowledge to our students in a coherent and effective way, and encourage them to read widely, we will give them the tools they need for lifelong learning. We will truly enable them to look things up.

1. This article was adapted from the closing address to The Ninth Annual Core Knowledge Conference in Anaheim, CA, March 18, 2000.

2. Charles Davenport, in a review of *The Conspiracy of Ignorance* by Martin Gross, Greensboro, NC *News and Record*, January 2, 2000.

3. G. A. Miller and P. Gildea, “How Children Learn Words,” *Scientific American*, September 1987, 94-99.

4. J. Larkin, H. A. Simon, et al., “Expert and Novice Performance in Solving Physics Problems,” *Science*, 208, (1980), 1335-42.

5. W. G. Chase and H. A. S. Simon, “Perception in Chess,” *Cognitive Psychology*, 4 (1973), 55-81.

6. Betty Hart and Todd Risley, *Meaningful Differences*, Baltimore, 1995.

7. B. Laufer, “The Lexical Plight,” in J. Coady and T. Huckin, eds., *Second Language Vocabulary Acquisition*, Cambridge, England, 1997.

8. A useful summary can be found in T. Landauer and S. Dumais, “How Come You Know So Much? From Practical Problems to New Memory Theory,” in D. Hermann et al., eds., *Basic and Applied Memory Research*, Vol. 1, Mahwah, NJ, 1996.

9. Computations from several sources converge on 80,000 words, and Miller (1987) estimates twice that rate for high-vocabulary children.

10. M. B. Wolfe, M. E. Schreiner, B. Rehder, D. Laham, P. W. Foltz, W. Kintsch & T. K. Landauer (1998), “Learning from Text Matching

Readers and Texts by Latent Semantic Analysis,” *Discourse Processes*, 25, 2&3, 309-336. See also B. Rosenshine and R. Stevens, “Teaching Functions,” in M. Wittrock, ed., *Handbook of Research on Teaching*, New York, 1986.

11. D. Lubinski and L. G. Humphreys, “Incorporating General Intelligence into Epidemiology and the Social Sciences,” in *Intelligence*, vol. 24 (1997), 159-202.

Why General Knowledge Should Be a Goal of Education in Democracy

I was once asked, “Why should scores go up on standardized tests in Core Knowledge schools if the tests aren’t tied to the Core Knowledge curriculum?” The reasons can be summarized in three statements that scientists have confirmed.

First, *knowledge makes you smarter*. I have a soft spot for Bill Gates because he has correctly told our youth that wide reading and general knowledge are critical to competence. You could say that Bill Gates is independent-minded, has higher-order accessing skills, is a critical thinker, engages in metacognition, and exhibits the various creative competencies that some people say are much more important than just knowing a bunch of facts.

But it happens that Bill Gates knows a lot of facts. He reads a lot, and always has. Cognitive psychologists tell us that if competent people like Gates didn’t know a lot of facts they *couldn’t* be critical, creative, independent thinkers. The research literature is very clear on this point: highly skilled intellectual competence comes after, not before, you know a lot of “mere facts.” First facts, then facility. It’s the only way for us to get deep understanding and attain all those higher-order thinking skills so widely praised by educational experts and so wrongly contrasted with “mere facts.”

Psychologists have discovered that knowing more makes you better able to learn new things, and better able to think critically. That fact has immense implications for public schooling in a democracy. But why does more knowledge make you smarter? Canadian researcher Keith Stanovich has shown that when two people have the same level and kind of IQ, the person who has more general knowledge will learn faster and function more competently than the person who has less general knowledge. That experiment has a particular relevance to American schools because we Americans tend to assume that academic competence is mainly a product of innate ability, as compared with effort and knowledge. It’s consoling to insist that all children do have some type of high intelligence, but, in the end, such an emphasis is misleading, because it overstates the importance of intelligence in schooling.

Innate talent is important, but our overemphasis on intelligence is a peculiarly American prejudice that stems from the origins of our culture in the 19th century Romantic movement. Harold Stevenson and others have shown that the Asian view emphasizing knowledge and effort is the more accurate view. We place so much stress on innate talent because we have been brought up on the romantic idea that the aim of

education is to follow “nature.” Notice that “nature” has the same root as “innate.” But psychologists have shown that the average differences in *innate* abilities are far less pronounced than the average differences in *achieved* abilities produced by knowledge and effort. Creativity is not spontaneous, as the romantics thought, but requires long study and mastery-knowledge. Even the most talented person needs about ten years of effort to reach an expert level, and creativity usually takes even longer. For instance, scientists have shown that having a genius for mental arithmetic is based less on innate talent than on knowledge and intensive practice. Knowledge and practice: these are the things that make you smart.

Why do experts learn new things faster and better than novices? Not because experts have more innate talent, but because they know more. What they know has become second nature to them, and frees their minds to focus on higher-level aspects of a problem. In a famous experiment, the Dutch psychologist de Groot showed that chess experts have no more innate mental ability on average than novices do, but are able to solve chess problems faster and better because their knowledge has become so integrated and “chunked” that their conscious minds can focus on just key features. Edison’s comment that “Genius is one percent inspiration and ninety-nine percent perspiration” holds even for the most talented.

This leads to point two: *the more broad general knowledge you have, the more broadly competent you become in dealing with the tasks of life*. The biggest factor in student achievement is teacher quality. And what is the single most consistent predictor of teacher quality leading to student achievement? It’s the score that a teacher made on the verbal SAT test. A person’s score on the verbal SAT rises dramatically as soon as a person knows more words. The verbal SAT is nothing more than a vocabulary test. Don’t jump to the conclusion that high SAT scores mean that a person is innately smart. The verbal SAT does *not* tell you how innately smart you are. Absolutely not. It tells you how many words you know. Correctly filling the blank in questions such as “X is to Y as P is to BLANK” depends less on brains than simply on knowing the meaning of X, Y, and P, and the realities those words represent. So a test like the SAT is not *just* a test of words, because words stand for things, and for knowledge of things. The verbal SAT is a test of general knowledge.

That explains the findings about student achievement and the teacher’s verbal SAT. You tend to be a good teacher if you tend to be a generally competent person,

and you tend to be a generally competent person if you have a lot of general knowledge. What is true for teachers is also true for their students. Knowledge makes them more competent, too. I'll give one further example of this connection between general knowledge and general skill. The armed forces give every recruit a test called the Armed Forces Qualification Test. Like the SAT, it's not an IQ test, but a test of general knowledge. Given to millions of people, this test has offered scientists a huge field of research. There are several studies on the question: Does a higher score on that general knowledge test make you a more competent soldier? The answer is emphatically yes, whether the soldier's job is in electronics, or in just being a foot soldier. General knowledge makes you more competent on average no matter what job you do, whether it's being a clerk, a mechanic, or a platoon

Biography of E.D. Hirsch, Jr.

The Core Knowledge movement has grown out of ideas first expressed in *Cultural Literacy: What Every American Needs to Know* (1987) and developed in *The Schools We Need & Why We Don't Have Them* (1996), both by E. D. Hirsch, Jr., a professor of education and English at the University of Virginia.

In *Cultural Literacy*, Professor Hirsch demonstrated that true literacy requires not only the ability to "decode" or sound out the words on a page but also familiarity with a broad knowledge taken for granted by writers and speakers in the United States. "To be truly literate," Professor Hirsch noted, "citizens must be able to grasp the meaning of any piece of writing addressed to the general reader." Those who possess this shared background knowledge can, for example, understand a reference in a newspaper to an "appellate court decision" or "trading competition from the Pacific Rim" or a sportscaster's account of the rise of an unlikely champion as "a Cinderella story." But those who lack the assumed knowledge are excluded from

leader. There's an economic twist to this story. That same test was used in a sociological study called "The Longitudinal Study of Youth." This ongoing study has found that general knowledge correlates with annual income regardless of which racial or ethnic group you come from. So the more you know, the better you do in life. This has enormous implications for social justice and education. Knowledge makes people competent regardless of race, class, or ethnicity. It is the great social equalizer.

This brings me to my last point: *Giving everybody more knowledge makes everybody more competent, and creates a more just society.* Since knowledge is the great equalizer, schools have a huge opportunity and responsibility to provide more equal life chances for all students, no matter where they come from.

understanding many messages in various media, and are thus excluded from full participation in our national life.

This emphasis on knowledge, however, goes against many ideas that have long dominated American education. These ideas – expressed in such phrases as "child-centered schooling," "critical thinking skills," and "multiple intelligences" – have resulted in a widespread prejudice against factual knowledge in schooling. In *The Schools We Need*, Professor Hirsch analyzes the sources of these theories and points out their shortcomings. He takes a pragmatic look at the most fair and effective educational practices around the world, especially the compelling evidence that "every nation that manages to achieve universal readiness in the early grades for all its children . . . does so by following grade-by-grade standards. In large, diverse nations as well as small, homogenous ones, a common core curriculum appears to be the only practical mean for achieving universal readiness at each grade level."