

The world needs all kinds of minds, Dr. Mel Levine tells us. What we are learning about how our brains work gives educators guidance on how to...

Celebrate Strengths,

A Conversation with Mel Levine

Marge Scherer

When Mel Levine was a youngster, he had what he describes as a “specialized mind.” That is, he excelled at a few things, like language and social awareness, and was not very good—more like awful—at a few others, like sports and gross motor abilities. Today a pediatrician, an internationally known author, and the cofounder of the nonprofit institute All Kinds of Minds, Levine is dedicated to expanding our understanding of differences in learning. He elaborates on the ideas that he presented at ASCD’s 2006 Annual Conference in this interview with Educational Leadership.

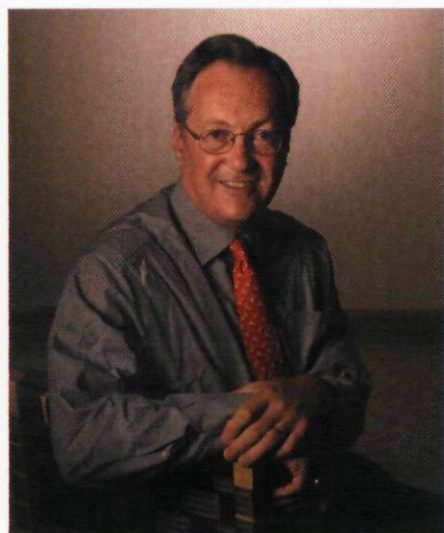


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Why do you say that the most important thing to know about a child is his or her strengths?

If we want to prepare kids for adulthood, one of the most important things we can do is to celebrate their strengths, those assets with which they’re going to find meaning in life and be able to make contributions. For the most part, adults who are leading worthy lives are doing so by mobilizing their strengths and affinities. What we should seek is a consonance between a student’s education and his future career.

You often use the word demystify when you talk about making students aware of their own strengths. Why is demystifying kids important?

It’s very hard for kids to work on something if they don’t even know what it’s called. Awareness is the flashlight that helps kids find their way to the switch that turns on an ability. I can’t emphasize enough how much kids need to understand what their issues are. It’s time to set aside labels—LD, for example—and be more specific. The labels are pessimistic. They don’t take into consideration the most important thing about you: your strengths.

Are we born with our strengths or do we develop most of them?

The status of a child’s functioning in a particular skill can change a lot over time. We don’t want kids to think that their brains are etched in stone, that their present functioning represents fixed hardware. Things can change significantly. For example, many people who had language difficulties in reading and spelling as children have wonderful language abilities as adults. They built up that language function over time.

There’s so much resiliency in the brain, so much plasticity. On the other hand, if a weakness isn’t known about, if it becomes like a muscle that never gets used, the weakness is going to worsen and resiliency will give way. I argue strongly for having a handle on the strengths and weaknesses of children and then stepping back to ask, What do they need to work on? And by the way, there’s nothing wrong with neglecting some weaknesses if we think they’re not important.

Do schools emphasize correcting the weaknesses too much?

Far too much. Within any school you can almost divide the student body into students who are well-rounded and those

Nurture Affinities



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who have highly specialized minds. We often punish the ones who have highly specialized minds. I'm not saying that kids ought to get out of anything. Everyone ought to be exposed to history, even if they're not good at it. And everybody needs to become mathematically

literate, even if math is anathema to them. But we shouldn't be punishing students because of their weaknesses.

If I were the Czar of Education, I would have a track in high school called the well-roundedness track. But I would also have specialty tracks in which you

take all the required classes but only get graded in two. In your areas of strength, we're going to push you hard because what we really care about is making sure that your strengths are getting stronger as you go through school. And we're not going to evaluate you on how

well you practice other people's strengths.

You're a strong opponent of retention in grade. Why is that?

Holding a kid back in a grade to punish him for the way he's wired is about the most humiliating experience most children can have.

I saw a boy in my office recently who had been held back in 7th grade. When we evaluated Joseph, we found that he had some significant problems with memory. He couldn't get anything on automatic pilot: When he did a math problem, it would take him six or seven seconds to remember how much 6×7 is. In reading, he had to figure out each time how to decode words that he had seen repeatedly. So much effort was going into decoding the individual words that there wasn't much left for understanding the whole paragraph. He had a wonderful scientific mind, but the memory demands kept exceeding his capacity.

How did you counsel him?

First of all, we told him that to get something in automatic memory, you have to study it right before you go to sleep. Everything you study then gets three or four instant replays after you fall asleep. And, although we certainly wanted him to learn his math facts, we also wanted him to become adept with a calculator so his lack of automatic recall of math facts didn't stand in the way of learning algebra. We tried to bypass a weakness at the same time we strengthened a skill.

By the way, what we did for Joseph didn't take one penny from the school's budget. If we understood the specific

breakdowns in learning better, we'd save a fortune on special education.

What about the costs of identifying students' problems?

Right now we overrely on testing to identify problems. There are so many issues that affect learning that are not on any test. We're trying to teach teachers how to recognize the phenomena involved in breakdowns rather than shunting a kid off for testing.

Teachers can learn so much through good observation. It's knowing what you're looking for, knowing what the possibilities are, knowing what to prescribe. You go to a dermatologist because he or she knows what all the rashes look like. Teachers should know what the 5th grade math rashes look like or what the rashes that cause a student to get a *D* in physics look like.

The more teachers become familiar with the breakdowns, the more obvious the treatments become.

Give me an example of how to identify the 5th grade rashes in math.

To be successful at solving word problems in 5th grade, you need factual memory so you can remember how much 3×9 is. You need procedural memory so you can remember how to do multiplication. You need pattern recognition so you can look at a math problem and say, "I've seen that kind of problem before." You need spatial ability because you do math best if you can picture what's going on in the problem. You need sentence comprehension. You need to focus on small details because math problems are full of details, and if you're a big-picture kid, you could have trouble.

If you have a kid in your class who's doing miserably on word problems, you can ask, Is it factual memory? Is it procedural memory? Is it pattern recognition? Is it sentence comprehension? You can pinpoint where the breakdowns occur. And no one's in a better position to do this than a well-trained classroom teacher.

How do you train educators to do this?

We have a program called Schools Attuned, which is part of our nonprofit



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institute, All Kinds of Minds. Teachers and principals spend a year studying this approach with some of our faculty. They use case studies and online resources to learn how to think about brain functions in relation to learning and how to demystify kids about their weaknesses and strengthen their strengths.

A lot of our readers are familiar with Howard Gardner's theory of multiple intelligences. There are differences between the neurodevelopmental functions that you identify and his intelligences. For example, he identifies music as an intelligence of its own, with its own perception and memory functions. Do your theories conflict?

If anything, our models complement each other and certainly are not diametrically opposed. One difference is that he is a psychologist and I'm a clinician. A clinician's model naturally

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identifies where breakdowns are occurring. When Gardner talks about musical intelligence, I can talk about some of the brain functions—sequencing ability and motor-rhythmic abilities—that would contribute to musical intelligence. Various neurodevelopmental functions in a sense are the ingredients of each of his intelligences.

Mine is more of a splitter's model and he's a bit more of a lumpner. We need both models.

We have some articles in this issue suggesting that boys have strengths

that are neglected in the classroom. In your research, is there anything to indicate that boys have different neurodevelopmental strengths?

First of all, in any given case, all bets are off. All the generalizations break down when you look at individuals.

On the other hand, a lot of the data show that boys underperform in college compared with what their SATs suggest they could achieve. And girls are over-achievers. They do better than their tests predict. A lot of girls have trouble taking multiple-choice tests.

Levine's Neurodevelopmental Constructs

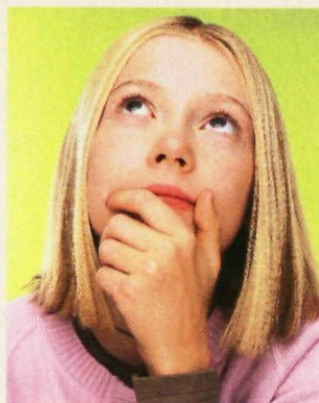
Levine profiles an individual's strengths and weaknesses on the basis of eight neurodevelopmental constructs. Below are a few of the subskills included in each construct.

Attention. Alertness, mental effort, saliency determination, focus maintenance, facilitation, inhibition, pacing, self-monitoring.

Temporal Sequential Ordering. Sequential perception and memory, time management.

Spatial Ordering. Spatial awareness and perception, materials management.

Memory. Short-term, active, and long-term memory; memory access and consolidation.



Language. Phonological processing, sentence comprehension, articulation and fluency, semantic use, word retrieval, verbal elaboration.

Neuromotor Functions.

Gross motor, fine motor, and graphomotor functions.

Social Cognition. Communication, conversational technique, humor

regulation, self-marketing, collaboration, conflict resolution, political acumen.

Higher-Order Cognition. Concept formation, critical thinking, creativity, problem solving, reasoning, logical thinking, mental representation.

The girls seem way ahead of the boys in elementary school in language processing. As school becomes increasingly verbal and linguistically dense, the girls develop more of an advantage. The boys have better spatial abilities, which are useful in kindergarten and 1st grade but become increasingly irrelevant to the curriculum as you proceed through school. To a great extent, you can thrive without spatial abilities in school. You can't thrive without language abilities in school.

Also, boys seem to learn through direct, hands-on activities and don't do as well sitting and listening because of their patterns of attention. Boys seem to relish experiential learning. Then again, that's a generalization; there are exceptions on both sides.

Teachers often are mandated to teach a particular curriculum and simultaneously are urged to differentiate their instruction. How important is maintaining that balance between standardizing and differentiating instruction, and on what side should teachers err?

I think they can balance these very well, but it's best to err on the side of being compassionate and humane. The key is to focus on the big ideas and concepts of the curriculum for all kids and differentiate how each child will gain access to them and be evaluated.

Schools need to reexamine this whole issue of coverage, which is bizarre in view of the fact that our hard drive is now on our desk. So many of the kids who are struggling in school have good ideas and are good at critical thinking, but they may not be quite as good with taking in and retaining information. Assignments and tests ought to be more flexible so that different kinds of minds can be effective. We allow this to happen all the time in the adult world.

Is the high-stakes testing movement in opposition to what you are advocating?



My philosophy is kind of swimming upstream but not entirely so because you can still embrace what I'm talking about and foster accountability. We need to have more than one way of evaluating a child. If we are going to preserve accountability, we're morally obligated to make sure we really understand the kids who are struggling and the reasons for their struggles, and we have to have some plans for helping them rather than punishing them.

We also have to be careful that we're

not punishing their teachers. If you have a class of kids who really have difficulties with learning, you shouldn't be subjected to punitive action if those kids are not doing well on tests.

I do think that testing is a necessary evil. There have to be hard criteria for looking at how someone is performing. But there should be more than one test, and a test should not be given every year in every school. Standardized tests should be scheduled randomly so that teachers aren't teaching to the test.

That's one of ASCD's beliefs—that we should have multiple kinds of assessments.

I totally concur. As a clinician, I can say that what we know about different patterns of learning almost mandates that there be different patterns of testing. It would be sad if we judged all grownups according to the same criteria. I live way out in the country here in North Carolina and when a kid is sick, I can help him because I'm a pediatrician. When my tractor's broken, my neighbors come and fix the tractor. I would not want to be judged on my mechanical aptitude, and they shouldn't be judged on their medical expertise.

Recently Educational Leadership published two issues on educating adolescents (The Adolescent Learner, April 2005; and Teaching the Tweens, April 2006). What is important for educators to know about how the adolescent brain works?

We're learning a lot about brain function in adolescents and, in particular, the development of the frontal lobes of the brain behind your forehead. One of the characteristics of the frontal lobes is that as you mature, they work slower and slower so that you become a more thoughtful, reflective person rather than an impulsive or impetuous one. And that's what starts taking place in the student's brain in high school.

So one thing I would ask high school teachers is, How can you justify pop quizzes and timed SATs? A teenager should be given extra credit for taking more time on a test.

I would give kids space limits, not time limits. So you say to a student, "You can take as long as you want to write this essay but you're only allowed to write two pages." That's how the adult world works. When you have an article to write for *Educational Leadership*, your editor doesn't care how long you spent writing the article. That's your

problem—if you want to stay up all night or whatever. But you're going to be given 18 inches of space.

You said something that, as an editor, I really liked: "Writing is the largest orchestra a kid's mind has to conduct."

Right, because writing combines so many different brain functions: language, memory, motor function, the ability to generate ideas, the ability to

thoughts. His language is flowing but his handwriting's hard to read and it's taking too much work. And he just completely breaks down. His teachers accuse him of being a slacker when, in reality, the written output is too much of a struggle for him. He's wonderful in a class discussion. But what he gets down on paper sounds like the output of a child three or four years younger. And so he stands accused of not really trying.

"One of the ways we can leverage skills is by continually pegging them to a child's affinities."

understand and apply rules, the ability to organize. You can make a long list of the different functions that have to flow together on paper.

That's why kids shouldn't perceive writing as an emergency procedure. Ernest Hemingway once said, "Writing is rewriting." I just spent the whole morning improving two chapters of my new book. I couldn't do that impulsively. I had to slow down and, paragraph by paragraph, work it over. A lot of time, kids perceive writing as a crisis. It shouldn't be speed writing. It should be thoughtful writing.

And speaking of the adolescent mind, writing is especially challenging between the ages of 11 and 14.

Why is that?

Because those are ages where the writing demands increase. If kids have a weakness in one of those areas I just mentioned, they can develop output failure and give up on themselves. For example, you might see a child whose fingers have a motor dysfunction. His fingers can't move as quickly as his

Schools are much more compassionate when it comes to children with reading problems than they are when it comes to helping kids with output problems.

Can you give me an example of how a teacher can uncover a hidden asset and enable students to work on a particular weakness?

Let me give you two examples.

A math teacher sees a girl in her class who is struggling with math—she just doesn't have the concepts and takes a long time to solve problems. But the teacher has found out that this girl is a whiz at summarizing stories she's read and enriching a class discussion. That math teacher realizes that this is a student who's going to have to use her expressive language abilities to learn math. In a sense, she's not going to understand math until she teaches it to someone else.

And so the girl gets a tape recorder. Every time she learns a math concept, she goes home and dictates an explanation of it. She recasts math in her own

language in order to conceptualize it. She learns to use her strong expressive language abilities to leverage her weak mathematical abilities.

Here's another example. A content affinity is an area of content toward which a child is drawn for some obscure reason. A particular kid loves cars. Someone else is into sports statistics. Another child loves fashion. It is so important to identify these content affinities. When I was a little boy, I loved animals. No one else in my family had anything like my affinity for animal life. Now I live on a huge farm in North Carolina, surrounded by animal life. As I look out the window while we speak, I see my donkeys, my geese, my pheasants, my peacocks, six dogs, eight cats—it's way out of control. But animals were always my affinity.

I'm the one in my family who likes animals, too.

It's called biophilia—a strong attachment to animals. It's irrational, but for those of us who have it, it's powerful. Friends of mine who come to our farm just look at me, and say, "Why aren't you playing golf?" I can't play golf. I can't hit the ball. That's part of it. But the other part is I'd much rather be doing chores on my farm.

What if a student says to you, "I don't have any affinities"?

We hear that all the time. And our response is, "You'd better go find them." It's an emergency. Often students do have affinities but people close to them don't see clearly what the child is drawn to. You know, this kid has always been



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intrigued with fast-moving objects or this child just loves the outdoors. You try to find, first of all, the broadest possible theme and then focus on the motifs. What keeps coming back in this child's life? What are her inclinations?

By the way, parents don't get to pick the affinities. Affinities just arrive on the scene and you wonder where they came from or where this kid came from.

How does a teacher use students' affinities to teach skills?

It's been shown that the best way to learn how to read well is to read about something you know a lot about and feel passionate about. One of the ways we can leverage skills is by continually pegging them to a child's affinities.

If I were the principal of a school, I would establish a policy that every 4th grader picks a topic he's going to stick with. And at the end of three years, the student makes a series of formal presentations. In the meantime, he reads every book in the library on spiders, and he

does three art projects and four science projects on spiders. When the family goes on vacation, they photograph spider webs. And at school when there's a spider in the boys' restroom, he's called in for a consultation.

An awful lot of important skills can ride the coattails of your affinities. If you combine affinities with strengths, you begin to carve out a potential career.

So you find your affinities in your recreation, and you use your strengths in your career?

Exactly. There are all kinds of interesting questions that arise about the ways you use your affinities and strengths—whether, in fact, you want them to be part of making a living or some kind of a side dish. But at least you can address those questions.

Are affinities brain-based?

To some extent they're cultural, environmental, and family-influenced. But

“We want kids to work on their weaknesses at the same time they’re striving to build their strengths.”

to some extent, they seem to be inborn in kids rather than acquired. And, as parents know, you can have three children in your family whose interests are totally diverse. Same parents, same everything else.

We have often published articles and theme issues on brain-based learning. Would you address the extent to which educators should relate what we’re learning about the brain to their instructional practice?

We have to be somewhat cautious not to overapply what we’re learning from medical and scientific research—not to overuse it or think of it as particularly miraculous. However, I think it would be a big mistake for educators to turn their backs on what we’re learning about learning. I favor a middle ground in which we’re not going to become zealots for just any kind of strategy that stakes a claim in brain-based research. Instead we should ask, What can we extract for practice from

what we are learning about the brain? What has direct implications, first of all, for teaching all kids, and second, for understanding differences among them and responding to those differences? The science of learning shouldn’t be thought of as the salvation of education, but it can be helpful.

One of the main goals of education is helping kids over time figure out who they are. **EL**

Mel Levine, M.D., is Professor of Pediatrics at the University of North Carolina Medical School and the cofounder of All Kinds of Minds. He is the author of several books including *A Mind at a Time*; *The Myth of Laziness*; and, most recently, *Ready or Not, Here Life Comes* (Simon & Schuster, 2005); www.allkindsofminds.org. **Marge Scherer** is Editor in Chief of *Educational Leadership*; mscherer@ascd.org.

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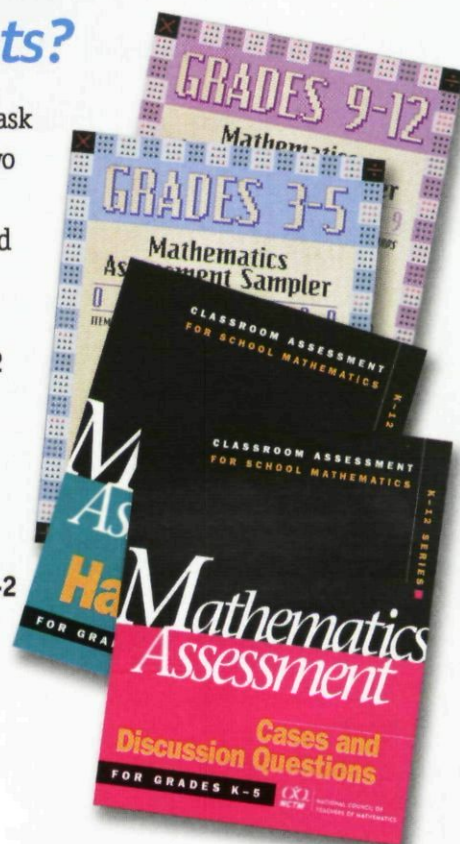
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