

# CLOSE-UP

## EDUCATION

### CLASS STRUGGLE

## Agenda For Better Education

By JAY MATHEWS  
The Washington Post

A research team led by Marc S. Tucker, a relentless advocate for adopting successful international practices in U.S. schools, recently concluded that we, in essence, are doing almost nothing right.

His investigators could find no evidence, Tucker said, "that any country that leads the world's education performance league tables has gotten there by implementing any of the major agenda items that dominate the education reform agenda in the United States, with the exception of the Common Core State Standards."

Congratulations, I guess, go to the 45 states implementing that new common curriculum. Other American approaches, such as charter schools, vouchers, computer-oriented entrepreneurs and rating teachers by the test scores of their students, are rarely found in the overseas systems showing the greatest gains, according to Tucker's new book *Surpassing Shanghai: An Agenda for American Education Built on the World's Leading Systems*.

On my earlier column, I listed several false assumptions Tucker, president of the National Center on Education and the Economy, says have caused us to go astray. They include our view that our mediocre scores on international tests are the result of too many diverse students, that more money would help schools improve and that it is better to focus on lowering class sizes than raising teacher salaries.

Today, I offer the solutions Tucker and his team propose. They are heavily influenced by what is working overseas, particularly in Japan, Korea, Finland, Shanghai, Singapore and Canada. Can these reforms blossom in our very different culture, with stronger local control of schools and less respect for teachers? I guess at the chances of success here for each suggestion.

1. Make admission to teacher training more competitive, pegged to international standards of academic achievement, mastery of subject matter and ability to relate to children. Most U.S. education schools can't survive financially without enrolling many average or below-average students, so this has only a 20 percent chance.

2. Raise teacher compensation significantly. Initially, this has the same bad odds, a 20 percent chance. But over time, standards and salaries could rise if education schools developed special academies — similar to undergraduate honors colleges — that were as selective as the Columbia, Harvard and Stanford education schools and the Teach For America program. Tucker says that with better pay, fewer teachers would quit, saving money now spent to train replacements.

3. Allow larger class sizes. More students per classroom means more money to pay teachers. The American trend toward smaller classes (down to an average of about 25 per classroom) has run its course. Some of the most successful public charter schools have 30 students in a class. Japan does well with large classes. Given those developments, chances are 70 percent this could be done.

4. End annual standardized testing in favor of three federally required tests to gauge mastery at the end of elementary school, 10th grade and 12th grade. The change has an 80 percent chance because it would save money and please many teachers and parents who think we test too much. Such tests overseas are of higher quality, not so much computer-scored multiple choice and would help raise American learning standards, Tucker says.

5. Spend more money on students who need more help getting to high standards. Based on data from the Organisation for Economic Co-operation and Development, Tucker favors a weighted pupil finance formula only a few U.S. districts have tried. There would be the usual per-pupil funds but extra money for students who need to be brought up to the standard. Americans favor more support for struggling students, but I give this only a 60 percent chance because of state and federal budget difficulties.

Making these changes seems daunting, but Tucker notes that the best school systems overseas took 30 to 100 years to get there.



"I began to see the connection between fundamental thinking patterns and how you represent them visually."

David Hyerle, on the development of his Thinking Maps

VALLEY NEWS — JENNIFER HAUCK

# A Thinking Man's Guide to Thinking

## Lyme's David Hyerle Maps an Approach To Learning

By NICOLA SMITH  
Valley News Staff Writer

When educator David Hyerle walks into a classroom of young children, the first question he asks them is, "How many of you already know how to think?" One hand may go up, then another, maybe a third, a little uncertainly. Often there is a prolonged silence while the children mull over his question. And then he waits.

In his experience, it can take some time before every hand in the classroom is finally raised. Then he tells the children, "You already know how to think," and asks them a second question: "How can we improve your thinking?"

Children are accustomed to being asked whether they can read, or whether they can do basic math, or whether they know the 50 states. When solving math problems, students are often asked to show how they get from one step to the next, which does illumine their thought processes.

But students are more used to being asked what they

know than how they think, a dichotomy that is often reinforced by content-based testing.

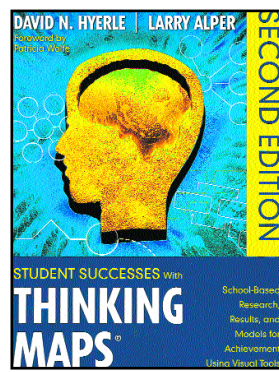
"We never say to kids, you already have these cognitive processes and how do we improve them?" Hyerle said in an interview at his home in Lyme. "If you asked a kid in an exit interview from high school, what are your thinking processes, it would draw a blank. We haven't given kids names for these processes."

Thinking about thinking is something that Hyerle has done for a living since the late 1980s when he developed the Thinking Maps model, a system intended to foster and improve reading comprehension, writing skills and problem solving. He is the president of Designs for Thinking, which implements the Thinking Maps model in schools in the U.S. and abroad.

Thinking Maps are visual representations, or diagrams, of eight cognitive processes that include cause-and-effect, categorization, sequencing, comparing and contrasting, and seeing analogies. "I began to see the connection between fundamental thinking patterns and how you represent them visually," said Hyerle.

In developing Thinking Maps, Hyerle drew on a wide range of research on cognitive and linguistic development in children, including that of the renowned Swiss psychologist Jean Piaget; David Perkins at the Harvard Grad-

uate School of Education; Reuven Feuerstein, the founder of the International Center for the Enhancement of Learning Potential in Jerusalem; George Lakoff, a cognitive linguist at Berkeley; and Art Costa, of Berkeley's Institute for Intelligent Behavior.



Thinking Maps are, in effect, a visual language for thinking. While all students can use the maps, it may prove particularly effective for students who are not as comfortable showing what they've learned through the more conventional classroom method of lectures and written reports. The maps are meant to encourage students to think more freely and expansively, as if they were brainstorming.

Hyerle uses the metaphor of a carpenter with a tool box. "It would be as if you had a tool box and you had some basic tools that every carpenter would use and you have ... a set of tools that work together," said Hyerle. "You can't build anything with just a hammer and a saw. These are fundamental thinking processes that we carry around with us and it's a matter of identifying them for students. ... You want students to take control of the tool box."

The diagrams include the bubble, circle, tree, brace, bridge, flow, double bubble and multi-flow maps. Each

See THINKING—A9

# Childhood Testing Made Him Curious

By NICOLA SMITH  
Valley News Staff Writer

Educator David Hyerle has often asked himself why it is he does what he does, and at least part of the answer lies in his childhood.

Born and raised in Berkeley, Calif., Hyerle received a B.A. in English literature, and a master's and doctorate in education from the University of California, Berkeley. He taught in the Oakland, Calif., public school system and has been a visiting scholar at the Harvard School of Education. He's lived in the Upper Valley since 1989 with his son Alex, now 18, and wife Sara Goodman, a textile artist who once led the elementary credential program at Dartmouth College.

From birth on, like his father and older brother before him, Hyerle was part of a longitudinal study at the Institute for Human Development at Berkeley that tracked how people develop mentally and physically, from birth through adolescence. His father, who was born in 1929, was part of the first cohort of more than 200 children who were part of the study; as part of the family cohort, Hyerle, born in 1955, was also evaluated, as were his older brother and younger sister.

"All the way through my childhood," Hyerle said, "I went into the Institute for Human Study every six months to be tested for intellectual, physical and social development."

His first test was given when he was but three days old and the last one in

his early 20s. He recalled going into a lab in the same building where he would later complete his doctorate, and being asked by a team of psychologists to answer questions, perform tasks and solve problems. "Did I get it right?" he would ask them. They never answered, to his immense frustration, but instead asked him how he was thinking about what he was doing.

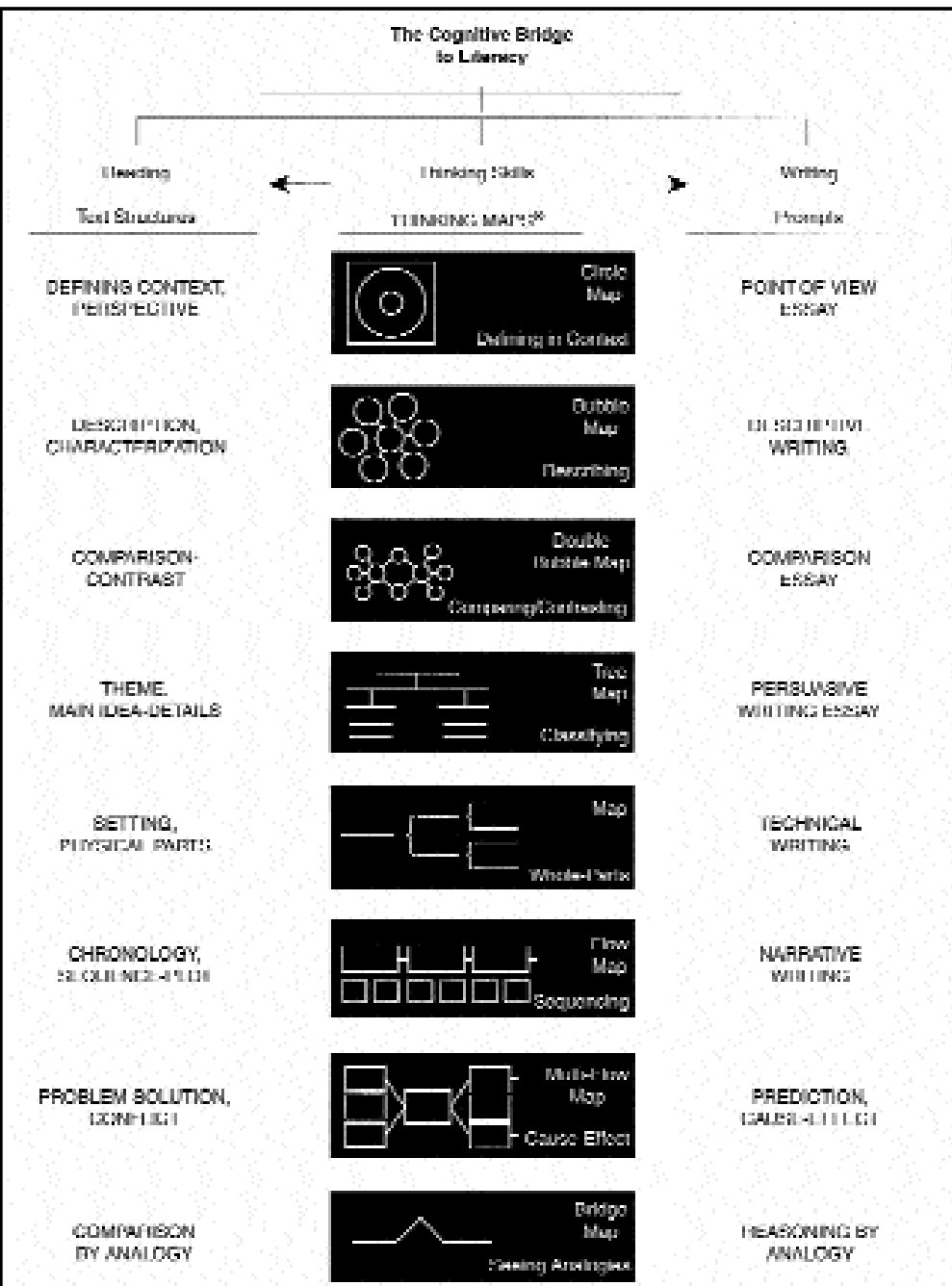
As an adult he now has mixed feelings about the study. The scientists were kind, he said, and in a sense, by instilling in him from such a young age a preoccupation with how people think, they gave him a gift. "Personally it provided me with a metaphor for how I see the work that we do," Hyerle said.

What's problematic, he said, is that the study was "part of a larger pattern of trying to discover what intelligence was, with the idea that brain development was static." There is also the question of bias attached to which children were evaluated, and how they were evaluated. The children were white and middle class.

Recent research shows, however, that the brain, far from being an organ that reaches a peak of development in the early 20s and is then more or less set, is capable of continual growth, or what researchers call plasticity. "We know there's .... dynamism and growth in the brain. We can facilitate students' development and thinking and that's exciting," Hyerle said.

There are numerous prescriptions

See CHILDHOOD—A9



An illustration from *Student Successes With Thinking Maps*.



# Young Writers Project: These Are What Dreams Are Made Of

## This Week: Dreams

Each week, Young Writers Project receives several hundred submissions from students all over Vermont and New Hampshire. This week we publish responses to the prompt, Dreams: Write about the craziest dream you've ever had. To read more great student writing, go to [youngwritersproject.org](http://youngwritersproject.org).

About the Project YWP is an independent nonprofit that engages students to write, helps them improve and connects them with authentic audiences.

### Next prompt:

One wish. If you had just one wish, what would it be? Alternate: Wild animal. You come upon an injured wild animal in the woods. What do you do? What does the animal do? Due Jan. 20.

### CRAZY OR NOT?

By Kyle Coburn  
Grade 10, Chelsea Public School

The craziest dream I've ever had? I dreamt of a place once, where everything was perfect. A place where there was light in every heart.

A place where nobody strayed from their path.

A place where happiness was always within grasp.

A place where "Don't worry, everything will be all right" was never a lie, but more of an unwritten law.

It is in the perfection of such a place that lies the craziness of it; it's too good to be true.

### GAME OVER

By Gwen Williams  
Grade 11, Oxbow High School

The pieces were falling. They fell slowly, one at a time, in jolty movements that forced them down into their blocky surroundings. They were made out of small squares and their colors were bright. As they fell, they twisted and turned so they could land flat or on their side in a way that would allow them all to fit

together perfectly with no spaces in between. As layers were formed, the completed lines disappeared with a flash and everything around them dropped down to the ground. Lines kept disappearing and more blocky shapes kept falling. But now they were falling faster and faster, until there wasn't enough time for them to turn and move into an open space. They fell faster, as if in a panic, and piled up higher. There were spaces between the blocks, preventing full lines from forming and disappearing. The colorful mass continued to grow. The blocks were reaching the top of their world. They were so close. And then they were there.

There was nothing they could do to fix the mess they were in.

But there I was, just woken up, and wondering exactly how bad my Tetris addiction was.

### THE TRAIN STORY

By Kyle Koehler  
Grade 7, Richmond Middle School

I went to bed and woke up in my dream. I went to the window, and all of a sudden I saw train tracks. There were five tracks with platforms. When I went outside, I heard a train coming up to my house, because it was the train station. When the train came to a stop, I went to the engine and saw a conductor sitting in the seat; I asked him if he could show me how to drive the train. He said, "Hop in. I will show you." After I hopped in, the conductor introduced himself: "Hi. My name is Bob." The train had five cars that were red.

He said, "First I will show you how to back up," and he let me pull the lever down. I got to put coal into the fire. The fire felt really hot, and it could have made glass. After the coal was in, I got to pull the whistle. The whistle was really loud, and it meant that the train was leaving the station!

When I was on a roll, the train schedule said that we had to stop at Dan & Whit's. Some passengers got off there, and we got some new

passengers on the train. The conductor and I got back on schedule and moved on. When I was really sleepy, I went to one of the cars and went to sleep.

But before I knew it, I was awake. That was the end of my wonderful dream!

### THE RAINFOREST

By William Heathman  
Grade 11, Oxbow High School

I was walking up a very steep hill. There was no vegetation on the hill; it was just rock and dirt. I was in a big line of people, slowly climbing the hill. At the top I could see a huge rainforest. When I finally got to the top, I nonchalantly wandered into the rainforest, only to find myself alone. Soon, I realized that there was a T-Rex behind me, so I started to run. He was chasing me, but not catching up to me. I came to a small clearing that had my bed randomly lying in the middle of it. I hid under my bed, and the T-Rex didn't know where I went, so he wandered off. I continued to lie under my bed because I was scared. After a little while, some weirdly dressed people came walking through the clearing. Still scared, I stayed hidden under the bed. Then I woke up.

### A SWEET, SWEET DREAM

By Nicole Pierpont  
Grade 11, Chelsea Public School

What a beautiful, simple dream. It was so real it seemed.

Off into the distance I sailed.

In the dream, my plans never failed.

One moment, I may lie on a beach. The next there he could be. Waiting for me; My one true love I could see.

Or perhaps we traveled across the world. And on a single night we danced, we twirled. Until the endless hours of the night, Until there was only he and I in sight.

Maybe my dreams would come true. And we'd never have to bid adieu. Forever together simply as one. With a love as bright as the rising sun.

While in a dream, it is only you. You, in days great and grand, never blue; Days that won't

ever end. Because a dream is truly a godsend.

A dream, so perfect and innocent. A dream that is forever constant. It does what you want it to do. And in such a dream, it is only he and you.

### A CRAZY FAMILY TRIP

By Hailey Noble  
Grade 10, Woodstock Union High School

The craziest dream I've ever had was when my family won a trip to the Bahamas. We were flown down in a private jet and got free tickets to see Will Farrell play in a basketball game. While at the basketball game I got very sick, and was rushed to the hospital. While in the hospital Beyonce visited me, and decided to name her child after me. After leaving the Bahamas we were flown to the Alps, and went skiing every day. We had hiked to the top, and it started snowing Jelly Beans, so my sisters and I caught all the Jelly Beans we could, and started eating them. It was so bizarre, but so enjoyable at the same time. We were then flown to China and somehow I knew how to speak Chinese, and while I was there I bought a blimp that said something weird in Chinese and we used that to fly home. But somehow I tripped and fell out of the blimp. Then I woke up because I jolted in my bed, because it felt like I was really falling. It was the craziest dream I have ever had, and it seemed never ending.

### COLORFUL TRAIN EXPERIENCE

By Finn McFarland  
Grade 10, Woodstock Union High School

As we went into the train station, my mom walking calmly and me skipping in front of her unable to contain my excitement, crowds bustled around us and a constant roar of people, trains, voices on loudspeakers and wheels of suitcases rolling across the platforms deafened our ears. I had never been on a train before and could not wait to see what my adventure would hold! My mom and I looked around for my dad and grandma in the crowd and saw them sitting at a red metal picnic table next to the escalator. I jumped

up and down and waved.

This is weird. Why aren't Dad and Grandma with us already? I thought subconsciously.

When I got to them I gave each a huge hug and big smile as they commented on how much I had grown and how much older I looked. Then a voice came over the loud speaker, "The next train leaves in five minutes! Five minutes!"

Where did she say that train was going? My grandma picked up my suitcase and ushered us all up the elevator to the platform. I hopped up each moving stair, dodging people and suitcases. When we reached the top I looked around for the train, but it was nowhere to be seen; at least not the kind I had seen in movies. What I did see were reclining lawn chairs that one might find next to a swimming pool lined up on the tracks. There were no sides or seatbelts and I wondered if it was possible to fall off.

What is going on? My dad instructed me to choose the best seat. Stunned by the new experience I walked slowly over to the chairs. I looked down the tracks where thousands of these colorful plastic recliners waited to be taken. After quickly scanning the selection, I chose a bright pink one in the middle. Better to be between people and be safe than be on the edge and risk falling out. My mom chose the orange one next to me, my dad the green one behind and my grandma the blue one next to him.

The conductor yelled out, "All aboard!" Before I knew it the engine had started and we were off! I jolted awake just as the train picked up speed. I quickly recalled all the events in my mind and wondered why I hadn't stayed asleep long enough to see what happened on the train. In my pitch black room where I could just make out shadows cast by the street lights through the window shades. The creepiness made me think of the worst possible things. Maybe I had almost died and woke up before that could happen. Maybe the train was going to be attacked or blown up. Whatever was going to happen next, I was glad I had woken up before I could have seen it.

## A Thinking Man's Guide to Thinking; David Hyerle's Maps Illustrate Another Approach

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map represents a way of both eliciting information and organizing thoughts to help a student explore a problem, question or set of facts.

In an example from the book *Student Successes with Thinking Maps* by Hyerle and his frequent collaborator Larry Alper, a teacher asked a first-grader to describe a carrot in writing. First, the child drew a tree map, which looks similar to a genealogical family tree, to help elicit details that would go into the report.

At the top the child wrote the word carrot, and off that drew three branches. The first branch asked, what do carrots look like? The second branch asked, how do they taste? And the third asked, how do they grow? Below each branch, the child had drawn lower branches, and below those had written details that answered the questions. From there the child was able to organize the facts into a concise report.

By referring to the Thinking Maps, students are able to make correlations and analyze data in a way that is not wholly reliant on a linear timeline or standard outline, said Sarah Curtis, now an assistant principal at the Ray School in Hanover, who used Thinking Maps when she taught fourth and fifth grades at the Hanover Street School in Lebanon. (They are not presently in use at the Ray School,

**In the past decade, according to Hyerle, 5,000 schools in the U.S. have gone through a full year of training to institute Thinking Maps in the curriculum.**

however.) Thinking Maps are also used at State Street School in Windsor.

She recalled being asked to teach a social studies curriculum that incorporated such seemingly disparate subjects as the Meso-American period, the Renaissance and the American Civil War. The challenge was not only how to help students remember such a broad range of material, but to get them to analyze similarities and differences. "The Thinking Maps enabled students to look for patterns, for cause and effect," she said. "What makes people move, change, grow and fight. We started looking at patterns over time. It was an incredible tool."

Thinking Maps are being used in 300 schools in the U.K., Australia, Singapore, Malaysia, Canada, South Africa and New Zealand and

Ethiopia, said Hyerle. They are in use in 40 states, as well as such major cities as New York and Los Angeles. In the past decade, according to Hyerle, 5,000 schools in the U.S. have gone through a full year of training to institute Thinking Maps in the curriculum.

Alper, who lives in Brattleboro and is the co-director of Designs for Thinking, first became familiar with the program in the 1990s when he was an elementary school principal in Brattleboro. What struck him about it, he said in a phone interview, was that "here was an opportunity to really bring a focus to teaching for thinking that wasn't going to be prescriptive, and that had a foundation in what we've come to know and understand about how the brain works."

"It didn't impose content or interfere with things that teachers would still want to have input into and make decisions on," he said, "but it would provide a coherent framework for teaching." And for students, he adds, "(Thinking Maps) gives them the strategies and tools to think deeply about the content that they're learning."

"It will work when teachers understand that this is a tool that students own," Curtis said. "Look beyond the graphic at the thinking. It's not about you, it's about the kids."

Hyerle believes that refocusing education on cognitive processes, rather than relying on mastery of content alone, has a role to play in recalibrating a 21<sup>st</sup>-century American public school system that is educating generations of children who are as deft at navigating and manipulating iPods, Facebook, texting and other social forms of communication and technology as they are at reading printed books.

Hyerle insisted that he doesn't want to present Thinking Maps as the "be-all and end-all. There are a lot of other approaches." Nor does he bad-mouth teachers, who he says are unfairly targeted for not turning out prepared and competent students, when it is the education system as a whole that is stuck in a 1950s factory model.

"Thinking Maps reflect what teachers already do," he said, in terms of looking at how to approach content, but it makes it explicit and shifts the attention to how students think about content, not just its regurgitation. "We need to provide kids with tools that help them filter and evaluate the content, not just remember it," he said. And then he paused. "And I'm not even going to pretend it's easy."

"You have to do it developmentally in line with children's thinking,

and do it whole school," he added. "It's a long road. It's not easy to shift. You have to be patient and do a lot of follow-up."

What is increasingly clear to him and other educators is that the text-only model of learning and thinking is not sufficient to the challenges ahead in American education, said Hyerle.

When students go out into the world, the problems will be "multi-disciplinary," he said. The days of an assembly-line worker using manual labor to complete one task that is repeated over and over are all but finished. Now sophisticated technology that requires advanced training plays a significant role.

Students need to be educated to adapt to any number of work scenarios in a global economy in which it is possible that they will hold seven or eight jobs in their lifetime, not the one job that their parents or grandparents

relied on. "They're going to have to be innovative and adaptive all the way through," Hyerle said.

So, Hyerle said, paraphrasing another educator, "If we're not teaching for thinking, then what's this all about?"

Alper echoed this from another angle. So much of schooling is focused on what we know. But the real question is this: What do you do when you don't know? "Our job as educators is to constantly put (students) in the position of not knowing," Alper said. "It's always through questions that greatest learning occurs."

Rather than looking at a deficit of knowledge as a failing, embrace it as an opportunity. "You always know how to think," said Alper.

## Childhood Testing Made Him Curious

CONTINUED FROM PAGE A8

for how to fix what is perceived by many as a failing public education system, from the development of charter schools to the Bush Administration's No Child Left Behind to the Obama Administration's Race to the Top to the national adoption by states of a common core curriculum, which would make what is taught and tested consistent across the nation.

As Hyerle sees it, the challenge is how to encourage students who are deemed under performing or in need of special education. One way to do that is to shift the focus from what they can't do or don't know to how they think, and how to sharpen the thinking skills they already have.

Part of the problem with the public education system, said Hyerle, is that it is a rigid super-structure that tends to treat under-performing students as if they are mentally deficient by shutting them into remedial programs. As a young teacher in Oakland, he saw "African-American students failed by the system," he said. "They were taught in remedial fashion, as if they can't get it — and they can't get it again."

When the system uses the same tests and methods, with the same woe-ful results, time and again, on under-performing students it doesn't address the root causes of why they

under perform, and as a result it perpetuates what Hyerle calls "generational educational inequities."

"Instead of saying to a child, we're going to support you in your thinking, we keep using the same approach with them. If you end up taking a remedial track, your abilities diminish. (Children) end up saying I'm dumb. ... "You're not facilitating cognitive development by doing it the

same old way," he said.

While it's true that an inspired teacher can have an enormous effect on a child, this is serendipity, not design — and children shouldn't have to rely on the luck of the draw to get a decent education. "You'll hear about super-human teachers and super-human principals who just make kids transform themselves," said Hyerle. "But you really have to

get schools to change themselves. If a kid has to wait until fifth grade for a super teacher, it's almost too late."



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## Your Rx for Living Well

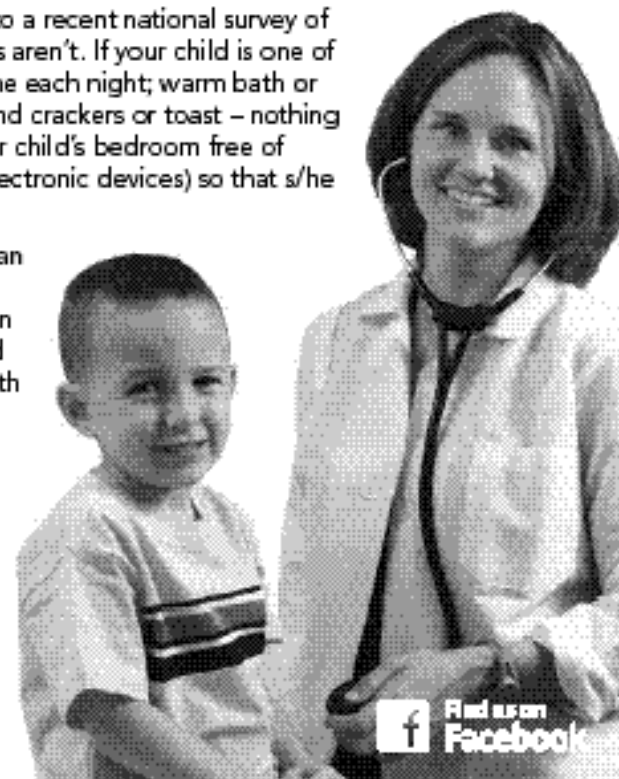
Is your child getting enough sleep? According to a recent national survey of children's health, 15 million US children and teens aren't. If your child is one of them, try setting a bedtime routine: same bedtime each night; warm bath or shower; and possibly a light snack (low-fat milk and crackers or toast - nothing sugary) within 2 hours of bedtime. Also keep your child's bedroom free of distractions (TV, video games, computer, other electronic devices) so that s/he is focused on sleeping.

Dr. Tara Thurston is a board-certified pediatrician at Newport Health Center, in collaboration with the Children's Hospital at Dartmouth. Dr. Thurston offers full-time, comprehensive care for your child from birth through adolescence in partnership with Cecilia Vicuna-Keady, APRN.



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