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Superintendent of Schools

**TO:** Members of the Study Group  
**FROM:** Richard A. Simon  
**DATE:** March 3, 2011  
**RE:** Preparation for First Meeting

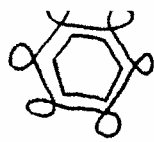
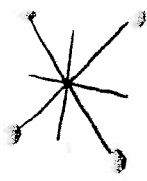
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The initial meeting of the West Islip Study Group 2011 is scheduled for **Tuesday, March 15, 2011 from 7:00-9:00 PM in the Beach Street Middle School's Library/Media Center.**

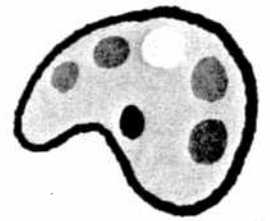
We will begin our work with a discussion and activities designed to identify the broad issues and context that public education faces in the 21<sup>st</sup> century. To these ends, I am enclosing two articles for you to read in preparation for the meeting. "What Students Really Need to Learn" by Lynne Munson is the lead article in the current issue of Educational Leadership, the journal for the Association of Supervision and Curriculum Development (ASCD). The second article is contained in the September 2009 edition of Educational Leadership, "21<sup>st</sup> Century Skills: The Challenges Ahead" by Andrew Rotherham and Daniel Willingham.

I am also enclosing a list of our Study Group members and the dates of our meetings. I look forward to a spirited and productive process that will help steer West Islip through these challenging times.

RAS:JLK  
C:Board of Education



$$\pi = \frac{c}{d}$$



# What Students *Really* Need to Learn

*Top-performing nations set their instructional sights on far more than basic reading and math skills.*

**Lynne Munson**

**S**tudents in the United States rank 17th in the world in reading, 23rd in science, and 31st in mathematics on the 2009 Programme for International Student Assessment (PISA). Our betters

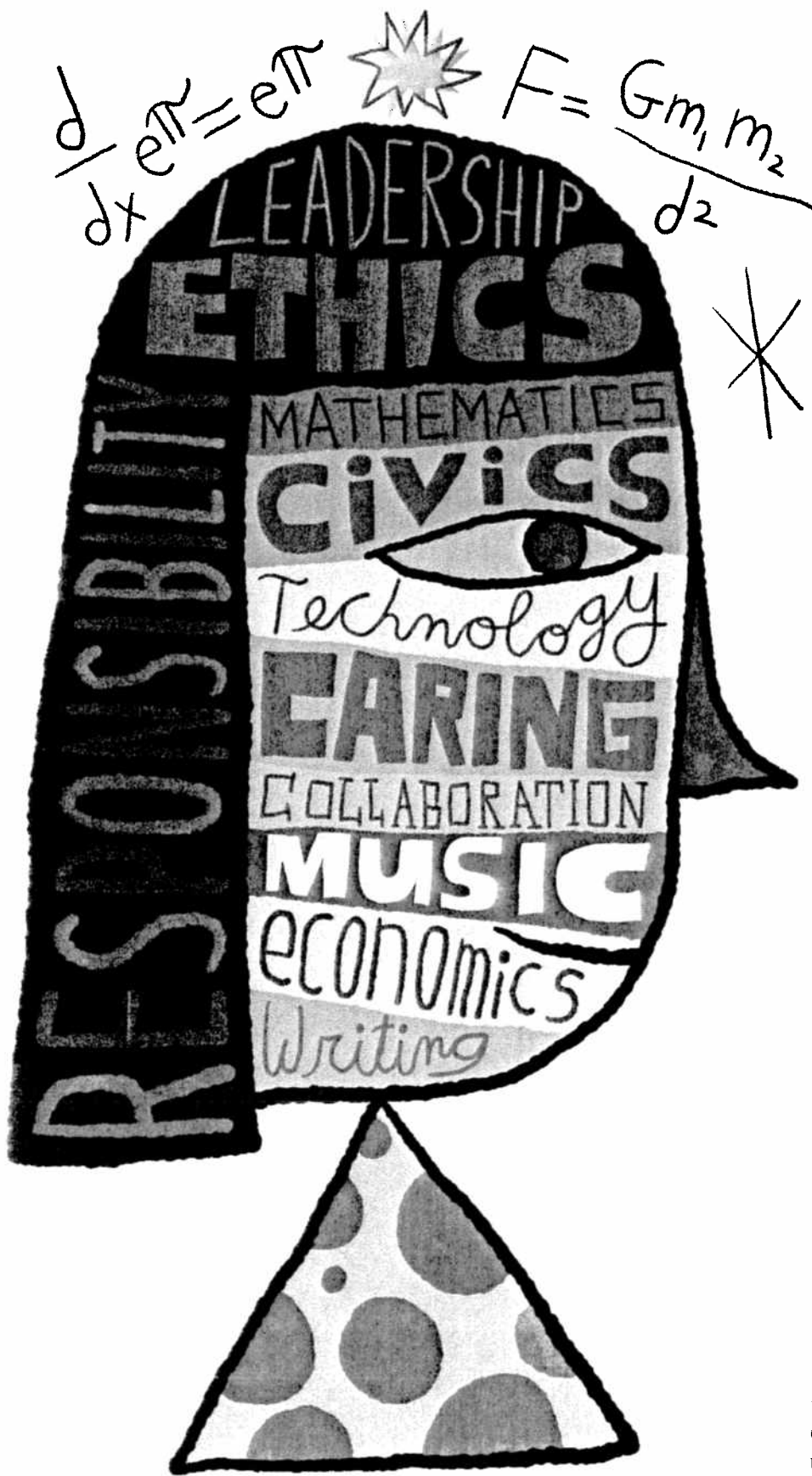
in math include Slovakia, Hungary, and Poland. Meanwhile, our economic competitors turn in performances that rank them at the top of global student achievement tests. We're far behind China, Singapore, Canada, Australia, and Japan—and we're increasingly aware of it.

Most U.S. researchers have reacted to these scores by zealously examining the country's education structures. Studies and reports abound on such topics as standards and testing, class and school sizes, and professional development. Both our data systems and our

professional development do need improving. But such structural improvements alone appear unlikely to reverse the course of the United States' education decline.

## **When Learning Expands**

We at the nonprofit research organization Common Core (not to be confused with the Common Core State Standards) spent a year looking into whether the United States' mediocre standing on international comparison tests is due to differences in the content that various nations teach (2009). We concentrated on nine nations that consistently outrank the United States on PISA: Finland; Hong Kong (a territory); South Korea; Canada; Japan; New Zealand; Australia; the Netherlands; and Switzerland.



There appears to be little agreement among these nations about what has become the United States' most recent education obsession—standards and testing. Some high-performing nations have national standards, but some do not. Some test at the state level, some at the national level. Some of those tests are tied to important outcomes, but some are not. This is not surprising, considering that these high-performing nations span four continents, embrace vastly different forms of government, and boast very different demographics and cultural traditions. Educationally and otherwise, the nations have little in common—which makes the one similarity we did find stand out so prominently: The nations whose students score at the top of international education tests share a dedication to providing their students with a comprehensive education across the liberal arts and sciences.

In nearly all of the top-performing nations, the study of the arts, literature, history, geography, civics, reading, science, foreign language, and mathematics is compulsory. Meanwhile, students in only three U.S. states are required to take a foreign language to graduate from high school (Education Commission of the States, 2007). A perusal of the official curriculums, standards, and examinations used in these nations illustrates both the breadth and depth of top nations' dedication to educating their students across the liberal arts. Here are some examples of what other countries are asking their students—both in standards and on national, state, and provincial examinations—to know and be able to do:

- To meet the learning objectives in the visual arts national curriculum framework, 4th graders in Hong Kong visit an artist's studio, study Picasso's *Guernica*, and analyze the works of modernist sculptor Henry Moore.
- Finnish 5th and 6th graders

are required to study the effects of the French Revolution and how the invention of writing changed human life; they trace a topic, such as the evolution of trade, from prehistory until the 19th century.

- Seventh graders in South Korea are expected to know not just about supply and demand, but also about equilibrium price theories, property rights, and ways to improve market function.

- Japanese 7th to 9th graders conduct experiments to find out that pressure is related to the magnitude of a force and the area to which the force is applied.

- Eighth graders from the Canadian

1962 proclamation without a thorough understanding of communism and the Cold War.

### **When Learning Contracts**

While students in high-performing countries read literature, do chemistry experiments, make music, and delve into important historical topics, U.S. students spend countless hours preparing to take tests of their basic reading and math skills. No Child Left Behind (NCLB) is not the only culprit. In recent years, NCLB's intense focus on reading and math skills has dumbed down the curriculum, but so have

students all subjects, their ability to read falters. Cognitive scientists like Daniel Willingham at the University of Virginia's Department of Psychology argue that teaching content is teaching reading. Prior knowledge across subjects enables students to comprehend. According to Willingham (2009a),

Remarkably, if you take kids who score poorly on a reading test and ask them to read on a topic they know something about (baseball, say, or dinosaurs) all of a sudden their comprehension is terrific—better than kids who score well on reading tests but who don't know a lot about baseball or dinosaurs.

## **No nation that scores competitively on the PISA exam puts skills before content or focuses chiefly on reading and math.**

province of Ontario are expected to create musical compositions, conduct a group of musicians, and know musical terms in Italian.

- Dutch 12th graders must know enough about seven events connected to the Crimean War to be able to put them in chronological order.

- Canadian 12th graders in British Columbia are expected to identify the poet who wrote, "Thou art slave to fate, chance, kings, and desperate men" and understand what U.S. Admiral Nimitz meant when he said, "Pearl Harbor has now been partially avenged."

- On a Swiss examination, 12th graders write an essay analyzing John F. Kennedy's October 1962 proclamation that led to the Cuban Missile Crisis.

You simply cannot put events in the Crimean War in chronological order without a deep knowledge of that conflict or analyze Kennedy's October

trends such as the 21st century skills movement, which promotes teaching students skills like entrepreneurship and being media savvy in a manner that is disconnected from content of any significance.

Cognitive scientists have long recognized that the key to acquiring knowledge and mastering skills is to possess a considerable amount of background knowledge (Willingham, 2009b). Yet in the United States, we consistently devalue content mastery as a solution to raising student achievement, asserting that mastery of basic reading and math skills is our top education priority. When asked, "What book should students read?" too often in the United States we answer, "Any book, just as long as they learn to read!"

But reading and knowledge acquisition are not independent—they are intertwined. When we fail to teach

### **Learning from the Best**

As reauthorization of the Elementary and Secondary Education Act (ESEA) approaches, the federal government should hold states accountable for providing comprehensive, high-quality liberal arts education. As currently written, ESEA requires states to care for little beyond basic reading and math skills.

Common Core (the organization) advocates a renewed focus on content knowledge and warns against over-emphasis on skills alone. Requiring states to adopt rigorous prekindergarten through 12th grade standards in a wider range of subjects—including the arts, history, foreign language, and civics—would broaden ESEA's emphasis. This also would encourage states to build arts and foreign language programs, rather than making them the first on the chopping block when times are tough.

# When we fail to teach students all subjects, their ability to read falters.

The national education standards in the United States ensure that states will revamp their assessments. Forty-three states and the District of Columbia have adopted the Common Core State Standards, setting high expectations for all students. But the standards will mean little if implemented ineffectively. As the standards themselves state,

Standards are not curriculum. This initiative is about developing a set of standards that are common across states. The curriculum that follows will continue to be a local responsibility. (Common Core State Standards Initiative, n.d.)

As teachers align their curriculums to meet the Common Core State Standards, states and districts should use this opportunity to provide and promote content-rich learning material that will ensure that students acquire the necessary base of knowledge to reach the expectations that the standards set forth.<sup>1</sup>

## Content Is Key

More and more research is emerging to suggest that we need to make the *content* of education the centerpiece of discussions about education reform. Two studies by ACT have shown that students benefit most from an education that is both broad and deep.

*Mind the Gaps* (ACT, 2010) found that students are more likely to earn a B or higher in their first-year college courses in every subject tracked—from English to calculus to American history to biology—when they have taken a rigorous core curriculum in high school. Students who have taken a challenging core curriculum are less likely to drop out or need remediation. This reinforces ACT's 2006 finding: Students who take a core curriculum in high school, including four years of English

and three years each of mathematics, science, and social studies, achieve higher ACT scores than those who do not, regardless of gender, family income, or ethnic background.

Far more research should be conducted into the relationship between education content and student achievement. The U.S. Department of Education's Institute for Education Sciences has begun good work in this area through its What Works Clearinghouse. Grover "Russ" Whitehurst (2009), former director of the Institute for Education Sciences and now a senior fellow at the Brookings Institution, recommends that the federal government fund many more comparative effectiveness trials of curriculums and other interventions. Moreover, he points out that states and districts should be supported in choosing curriculums that have demonstrated effectiveness.

## First Things First

Every day, the United States seems to move closer to a skill-based, content-free approach to education. Class time once devoted to social studies and art has ceded to more study of reading and math. And our approach to teaching reading has lost to a considerable degree a focus on literature and quality nonfiction.

No nation that scores competitively on the PISA exam puts skills before content or focuses chiefly on reading and math. We must join our desire to compete with other nations with a willingness to learn from them. **EL**

The nonprofit research organization Common Core has developed a content-rich curriculum map that is shaped around the new Common Core English Language Arts standards. The map is available to the public at [www.commoncore.org](http://www.commoncore.org).

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# 21st Century

## Skills:

# The Challenges Ahead

*To work, the 21st century skills movement will require keen attention to curriculum, teacher quality, and assessment.*

**Andrew J. Rotherham and Daniel Willingham**

A growing number of business leaders, politicians, and educators are united around the idea that students need “21st century skills” to be successful today. It’s exciting to believe that we live in times that are so revolutionary that they demand new and different abilities. But in fact, the skills students need in the 21st century are not new.

Critical thinking and problem solving, for example, have been components of human progress throughout history, from the development of early tools, to agricultural advancements, to the invention of vaccines, to land and sea exploration. Such skills as information literacy and global awareness are not new, at least not among the elites in different societies. The need for mastery of different kinds of knowledge, ranging from facts to complex analysis? Not new either. In *The Republic*, Plato wrote about four distinct levels of intellect. Perhaps at the time, these were considered “3rd century BCE skills”?

What’s actually new is the extent to which changes in our economy and the world mean that collective and individual success depends on having such skills. Many U.S. students are taught these skills—those who are fortunate enough to attend highly effective schools or at least encounter great teachers—but it’s a matter of chance rather than the deliberate design of our school system. Today we cannot afford a system in which receiving a high-quality education is akin to a game of bingo. If we are to have a more equitable and effective public education system, skills that have been the province of the few must become universal.

This distinction between “skills that are novel” and “skills that must be taught more intentionally and effectively” ought to lead policymakers to different education reforms than those they are now considering. If these skills were indeed new, then perhaps we would need a radical overhaul of how we think about content and curriculum. But if the issue is, instead, that schools must be more deliberate about teaching critical thinking, collaboration, and problem solving to all students, then the remedies are more obvious, although still intensely challenging.

### **What Will It Take?**

The history of U.S. education reform should greatly concern everyone who wants schools to do a better job of teaching students to think. Many reform efforts, from reducing class size to improving reading instruction, have devolved into fads or been implemented with weak fidelity to their core intent. The 21st century skills movement faces the same risk.

To complicate the challenge, some of the rhetoric we have heard surrounding this movement suggests that with so much new knowledge being created, content no longer matters; that ways of knowing information are now much more important than information itself. Such notions contradict what we know about teaching and learning and raise concerns that the 21st century skills movement will end up being a weak intervention for the very students—low-income students and students of color—who most need powerful schools as a matter of social equity.

The debate is not about content versus skills. There



*Be careful what you give children, for sooner or*

is no responsible constituency arguing against ensuring that students learn how to think in school. Rather, the issue is how to meet the challenges of delivering content and skills in a rich way that genuinely improves outcomes for students.

What will it take to ensure that the idea of “21st century skills”—or more precisely, the effort to ensure that all students, rather than just a privileged few, have access to a rich education that intentionally helps them learn these skills—is successful in improving schools? That effort requires three primary components. First, educators and policymakers must ensure that the instructional program is complete and that content is not shortchanged for an ephemeral pursuit of skills. Second, states, school districts, and schools need to revamp how they think about human capital in education—in particular how teachers are trained. Finally, we need new assessments that can accurately measure richer learning and more complex tasks.

For the 21st century skills effort to be effective, these three elements must be implemented in concert. Otherwise, the reform will be superficial and counter-productive.

### **Better Curriculum**

People on all sides of this debate often speak of skills and knowledge as separate. They describe skills as akin to a function on a calculator: If your calculator can compute square roots, it can do so for any number; similarly, if a student has developed the ability to “think scientifically,” he or she can do so with any content. In this formulation, domain knowledge is mainly important as grist for the mill—you need something to think *about*.

Skills and knowledge are not separate, however, but intertwined. In some cases, knowledge helps us recognize the

underlying structure of a problem. For example, even young children understand the logical implications of a rule like “If you finish your vegetables, you will get a cookie after dinner.” They can draw the logical conclusion that a child who is denied a cookie after dinner must not have finished her vegetables.



## **Curriculum, teacher expertise, and assessment have all been weak links in past education reform efforts.**

Without this familiar context, however, the same child will probably find it difficult to understand the logical form *modus tollens*, of which the cookie rule is an example. (*If P, then Q. Q is false. Therefore, P is false.*) Thus, it's inaccurate to conceive of logical thinking as a separate skill that can be applied across a variety of situations. Sometimes we fail to recognize that we have a particular thinking skill (such as applying *modus*

*tollens*) unless it comes in the form of known content.

At other times, we know that we have a particular thinking skill, but domain knowledge is necessary if we are to use it. For example, a student might have learned that “thinking scientifically” requires understanding the importance of anomalous results in an experiment. If you're surprised by the results of an experiment, that suggests that your hypothesis was wrong and the data are telling you something interesting. But to be surprised, you must make a prediction in the first place—and you can only generate a prediction if you understand the domain in which you are working. Thus, without content knowledge we often cannot use thinking skills properly and effectively.

Why would misunderstanding the relationship of skills and knowledge lead to trouble? If you believe that skills and knowledge are separate, you are likely to draw two incorrect conclusions. First, because content is readily available in many locations but thinking skills reside in the learner's brain, it would seem clear that if we must choose between them, skills are essential, whereas content is merely desirable. Second, if skills are independent of content, we could reasonably conclude that we can develop these skills through the use of *any* content. For example, if students can learn how to think critically about science in the context of any scientific material, a teacher should select content that will engage students (for instance, the chemistry of candy), even if that content is not central to the field. But all content is not equally important to mathematics, or to science, or to literature. To think critically, students need the knowledge that is central to the domain.

The importance of content in the development of thinking creates several challenges for the 21st century skills

*later you are sure to get it back.* —Barbara Kingsolver

movement. The first is the temptation to emphasize advanced, conceptual thinking too early in training—an approach that has proven ineffective in numerous past reforms, such as the “New Math” of the 1960s (Loveless, 2002). Learning tends to follow a predictable path. When students first encounter new ideas, their knowledge is shallow and their understanding is bound to specific examples. They need exposure to varied examples before their understanding of a concept becomes more abstract and they can successfully apply that understanding to novel situations.

Another curricular challenge is that we don't yet know how to teach self-direction, collaboration, creativity, and innovation the way we know how to teach long division. The plan of 21st century skills proponents seems to be to give students more experiences that will presumably develop these skills—for example, having them work in groups. But experience is not the same thing as practice. Experience means only that you use a skill; practice means that you try to improve by noticing what you are doing wrong and formulating strategies to do better. Practice also requires feedback, usually from someone more skilled than you are.

Because of these challenges, devising a 21st century skills curriculum requires more than paying lip service to content knowledge. Outlining the skills in detail and merely urging that content be taught, too, is a recipe for failure. We must plan to teach skills in the context of particular content knowledge and to treat both as equally important.

In addition, education leaders must be realistic about which skills are teachable. If we deem that such skills as collaboration and self-direction are essential, we should launch a concerted effort to study how they can be taught effectively rather than blithely assume

that mandating their teaching will result in students learning them.

### **Better Teaching**

Greater emphasis on skills also has important implications for teacher training. Our resolve to teach these skills to all students will not be enough. We must have a plan by which teachers can succeed where previous generations have failed.

Advocates of 21st century skills favor student-centered methods—for example, problem-based learning and

Even advocates of student-centered methods acknowledge that these methods pose classroom management problems for teachers. When students collaborate, one expects a certain amount of hubbub in the room, which could devolve into chaos in less-than-expert hands. These methods also demand that teachers be knowledgeable about a broad range of topics and are prepared to make in-the-moment decisions as the lesson plan progresses. Anyone who has watched a highly effective teacher lead a class by simultane-

## **We don't yet know how to teach self-direction, collaboration, creativity, and innovation the way we know how to teach long division.**

project-based learning—that allow students to collaborate, work on authentic problems, and engage with the community. These approaches are widely acclaimed and can be found in any pedagogical methods textbook; teachers know about them and believe they're effective. And yet, teachers don't use them. Recent data show that most instructional time is composed of seat-work and whole-class instruction led by the teacher (National Institute of Child Health and Human Development Early Child Care Research Network, 2005). Even when class sizes are reduced, teachers do not change their teaching strategies or use these student-centered methods (Shapson, Wright, Eason, & Fitzgerald, 1980). Again, these are not new issues. John Goodlad (1984) reported the same finding in his landmark study published more than 20 years ago.

Why don't teachers use the methods that they believe are most effective?

ously engaging with content, classroom management, and the ongoing monitoring of student progress knows how intense and demanding this work is. It's a constant juggling act that involves keeping many balls in the air.

Part of the 21st century skills movement's plan is the call for greater collaboration among teachers. Indeed, this is one of the plan's greatest strengths; we waste a valuable resource when we don't give teachers time to share their expertise. But where will schools find the release time for such collaboration? Will they hire more teachers or increase class size? How will they provide the technology infrastructure that will enable teachers to collaborate with more than just the teacher down the hall? Who will build and maintain and edit the Web sites, wikis, and so forth? These challenges raise thorny questions about whether the design of today's schools is compatible with the goals of the 21st century skills movement.

For change to move beyond administrators' offices and penetrate classrooms, we must understand that professional development is a massive undertaking. Most teachers don't need to be persuaded that project-based learning is a good idea—they already believe that. What teachers need is much more robust training and support than they receive today, including specific lesson plans that deal with the high cognitive demands and potential classroom management problems of using student-centered methods.

## Devising a 21st century skills curriculum requires more than paying lip service to content knowledge.

Unfortunately, there is a widespread belief that teachers already know how to do this if only we could unleash them from today's stifling standards and accountability metrics. This notion romanticizes student-centered methods, underestimates the challenge of implementing such methods, and ignores the lack of capacity in the field today.

Instead, staff development planners would do well to engage the best teachers available in an iterative process of planning, execution, feedback, and continued planning. This process, along with additional teacher training, will require significant time. And of course none of this will be successful without broader reforms in how teachers are recruited, selected, and deselected in an effort to address the whole picture of education's human capital challenge.

### **Better Tests**

There is little point in investing heavily in curriculum and human capital without also investing in assessments to

evaluate what is or is not being accomplished in the classroom. Fortunately, as Elena Silva (2008) noted in a recent report for Education Sector, the potential exists today to produce assessments that measure thinking skills and are also reliable and comparable between students and schools—elements integral to efforts to ensure accountability and equity. But efforts to assess these skills are still in their infancy; education faces enormous challenges in developing the ability to deliver these assessments at scale.

The first challenge is the cost. Although higher-level skills like critical thinking and analysis can be assessed with well-designed multiple-choice tests, a truly rich assessment system would go beyond multiple-choice testing and include measures that encourage greater creativity, show how students arrived at answers, and even allow for collaboration. Such measures, however, cost more money than policymakers have traditionally been willing to commit to assessment. And, at a time when complaining about testing is a national pastime and cynicism about assessment, albeit often uninformed, is on the rise, getting policymakers to commit substantially more resources to it is a difficult political challenge.

Producing enough high-quality assessments to meet the needs of a system as large and diverse as U.S. public schools would stretch the capacity of the assessment industry, and incentives do not exist today for many new entrants to become major players

in that field. We would need a coordinated public, private, and philanthropic strategy—including an intensive research and development effort—to foster genuine change.

Substantial delivery challenges also remain. Delivering these assessments in a few settings, as is the case today, is hardly the same as delivering them at scale across a state—especially the larger states. Because most of these assessments will be technology-based, most schools' information technology systems will require a substantial upgrade.

None of these assessment challenges are insurmountable, but addressing them will require deliberate attention from policymakers and 21st century skills proponents, as well as a deviation from the path that policymaking is on today. Such an effort is essential. Why mount a national effort to change education if you have no way of knowing whether the change has been effective?

### **A Better, But Harder, Way**

The point of our argument is not to say that teaching students how to think, work together better, or use new information more rigorously is not a worthy and attainable goal. Rather, we seek to call attention to the magnitude of the challenge and to sound a note of caution amidst the sirens calling our political leaders once again to the rocky shoals of past education reform failures. Without better curriculum, better teaching, and better tests, the emphasis on "21st century skills" will be a superficial one that will sacrifice long-term gains for the appearance of short-term progress.

Curriculum, teacher expertise, and assessment have all been weak links in past education reform efforts—a fact that should sober today's skills proponents as they survey the task of dramatically improving all three. Efforts to

create more formalized common standards would help address some of the challenges by focusing efforts in a common direction. But common standards will not, by themselves, be enough.

The past few decades have seen great progress in education reform in the United States—progress that has especially benefited less-advantaged students. Today's reformers can build on that progress only if they pay keen attention to the challenges associated with genuinely improving teaching and learning. If we ignore these challenges, the 21st century skills movement risks becoming another fad that ultimately changes little—or even worse, sets back the cause of creating dramatically more

## Skills and knowledge are not separate, but intertwined.

powerful schools for U.S. students, especially those who are underserved today. **EL**

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February 2011

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9. Dr. Anthony Bridgeman-High School Principal
10. Tim Horan-Athletic, Physical Education, Health & Recreation Director
11. Bernie Jones-Art, Dance, Music Director
12. Deborah Vertovez-Special Education & Pupil Personnel Services Director
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15. Adam Clegg-12<sup>th</sup> grader at WI High School
16. Andrew Federico-12<sup>th</sup> grader at WI High School
17. Chris Doyle-Parent-Kirdahy Elementary School
18. Adam Inzirillo-Parent-Kirdahy Elementary School
19. Michelle Guadalupe-Parent-Manetuck Elementary School
20. Kristina Delaney-Parent-Oquenock Elementary School
21. Megan Noble Aubin-Bayview Elementary School
22. Natalie Prevette-Bellew Elementary School
23. Tracie Cinquemani-Westbrook Elementary School
24. Laura Ferrugiari-Parent-Beach Street Middle School
25. Ron Maginniss-Parent-Udall Road Middle School/SEPTA
26. Suzanne Sternkopf-Parent-WI High School
27. Steve Lenowicz-Community Member
28. Susan Lipman-Community Member
29. Linda Pfaffe-Administrative Intern/Parent-WI High School
30. Shawn Wallace-WI Business Teacher/11<sup>th</sup> Grade Dean
31. Theresa Robertson – WISE Teacher – Oquenock Elementary School
32. Donamarie Belford – Special Education Teacher – Beach Street Middle School
33. Deborah Farnworth – Foreign Language Teacher – Udall Road Middle School
34. Joe Dixon – Science Teacher/ WITA President - High School

**WI**

**West Islip Public Schools**  
The Michael and Christine Freyer Administration Building  
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**RICHARD A. SIMON**  
Superintendent of Schools

# West Islip Study Group

## Meeting Information

DATE	TIME	LOCATION
Tuesday, March 15 <sup>th</sup>	7:00 PM – 9:00 PM	Beach St. Library
Tuesday, March 29 <sup>th</sup>	7:00 PM – 9:00 PM	Beach St. Library
Tuesday, April 26 <sup>th</sup>	7:00 PM – 9:00 PM	Beach St. Library
Tuesday, May 17 <sup>th</sup>	7:00 PM – 9:00 PM	Beach St. Library
Wednesday, June 15 <sup>th</sup> (Public Hearing)	7:00 PM – 8:30 PM	To Be Determined
Tuesday, June 21 <sup>st</sup>	7:00 PM – 9:00 PM	Beach St. Library