

# EPLC Fellowship Project

## May 2012

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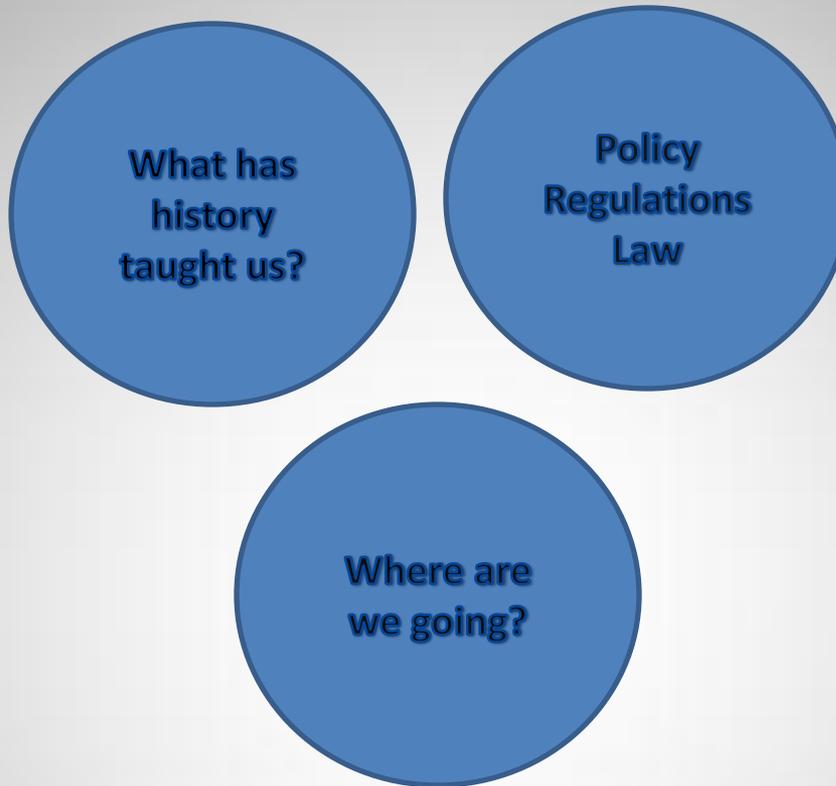
Mike Wilson

# Essential Question

In this era of accountability, how can educators and policymakers justify and support a broad and rich P-12 curriculum?

# Accountability

- Where we are...
- How did we get here...
- Where we should be...



## The Great Misalignment

# The U.S.

## The History of Bad Test Takers

## The First International Mathematics Study (FIMS)

- Year data collected: 1964
- Target Population: 13 year olds
- Participating Countries: Australia, Belgium, England, Finland, France, Germany (FRG), Israel, Japan, Netherlands, Scotland, Sweden, United States.
- US finished second to last (Sweden)

## A Long History of Bad Test-takers

- 1960s
  - FIMS: 12<sup>th</sup> out of 12 countries
  - FISS: 14<sup>th</sup> out of 18 countries
- 1970s/1980s
  - SIMS: 12, 14, 12, 12 out of 15 (number systems, algebra, geometry, calculus)
  - SISS: 14<sup>th</sup> (biology), 12<sup>th</sup> (chemistry), 10<sup>th</sup> (physics) out of 14
- 1990s—2007: TIMSS (8<sup>th</sup> graders)
  - 28<sup>th</sup> out of 42 in 1995
  - 15<sup>th</sup> in 2003
  - 9<sup>th</sup> in 2007

How has the U.S. performed  
during the last 40 years in spite of  
bad test results?

## 40 years later: Productivity

There is no relationship between FIMS scores and hourly output,  $r = -.03$ . In 2004, the average hourly output of those nations that outscored the U.S. in 1964 was 3.4% lower than U.S. productivity, though the three nations with higher hourly output all had higher test scores than the U.S.

## 40 years later: Rate of Growth

The nations that scored better than the U.S. in 1964 had an average economic growth rate for the decade 1992-2002 of 2.5%; the growth rate for the U.S. during that decade was 3.3%. The average economic growth rate for the decade 1992-2002 correlates with FIMS at  $r = -0.24$ .

Like the generation of wealth, **the rate of economic growth for nations improved as test scores dropped.**

## 40 years later: Wealth

FIMS scores in 1964 correlate at  $r = -0.48$  with 2002 PPP-GDP. In short, the higher a nation's test score 40 years ago, the worse its economic performance on this measure of national wealth.

## 40 years later: Quality of Life

The average rank on the Quality of Life Index for nations that scored above the U.S. on FIMS was 10.8. The U.S. ranked seventh (lower numbers are better). **FIMS scores correlated with Quality of Life at  $r = -0.57$ .**

## 40 years later: Democracy

On the Economy Intelligence Unit's Index of Democracy, **those nations that scored below the median on FIMS have a higher average rank on achieving democracy (9.8) than do the nations that scored above the median (18).** Once again, the U.S. scored higher on attaining democracy than did nations with higher 1964 test scores.

## 40 years later: Livability

An alternative to the Quality of Life Index, the Most Livable Countries Index, shows that **six of the nine countries that scored higher on FIMS than the U.S. are worse places to live.** Livability correlates with FIMS scores at  $r = -.49$ .

## 40 years later: Creativity

The number of patents issued in 2004 is one indicator of how creative the generation of students tested in 1964 turned out to be. **The average number of patents per million people for the nations with FIMS scores higher than the U.S. is 127. America clobbered the world on creativity, with 326 patents per million people.** However, FIMS scores do correlate with the number of patents issued:  $r = .13$  with the U.S. and  $r = .49$  without the U.S.

## **China Daily, November 27, 2010**

The survey covering 21 countries, conducted by International Educational Progress Evaluation Organization, showed Chinese students excelled at math, beating their peers from other countries. But when it came to using their imagination, they were tied for the last place. And in creativity, they were fifth from the bottom.

The survey results are not shocking, given the way our children are taught in schools and at home. But they are a stern reminder to our educators and parents to change their ways.

The global study should make us swing into action and help our students to throw open their young minds to imagination and creativity. It is time our education officials and educators asked themselves what they should do to let our children's imagination and creativity blossom.

<http://www.cdeclips.com/en/opinion/fullstory.html?id=55917>

“No uniform textbooks, no standardized tests, no ranking of students, this is American education in the eyes of a Chinese journalist... American classrooms don't impart a massive amount of knowledge into their children, but they try every way to draw children's eyes to the boundless ocean of knowledge outside the school; They do not force their children to memorize all the formulae and theorems, but they work tirelessly to teach children how to think and ways to seek answer to new questions; They never rank students according to test scores, but they try every way to affirm children's efforts, praise their thoughts, and protect and encourage children's desire and effort.”

*Gao Gang, Encountering American Education*, #2 most popular item in the category of reportage in China 2003.

[http://www.360doc.com/content/07/1114/10/50242\\_820904.shtml](http://www.360doc.com/content/07/1114/10/50242_820904.shtml)

# What matters?



## U.S. Schools Are Still Ahead -- Way Ahead

**By Vivek Wadhwa**  
**Business Week**

updated 1/13/2011 7:00:00 PM ET

The independence and social skills American children develop give them a huge advantage when they join the workforce. They learn to experiment, challenge norms, and take risks. They can think for themselves, and they can innovate. This is why America remains the world leader in innovation; why Chinese and Indians invest their life savings to send their children to expensive U.S. schools when they can. India and China are changing, and as the next generations of students become like American ones, they too are beginning to innovate. So far, their education systems have held them back.

[http://www.msnbc.msn.com/id/41057676/ns/business-bloomberg\\_businessweek/from\\_toolbar](http://www.msnbc.msn.com/id/41057676/ns/business-bloomberg_businessweek/from_toolbar)

Today, Indian engineers make \$7,500 a year against \$45,000 for an American engineer with the same qualifications. If we succeed in matching the very high levels of mastery of mathematics and science of these Indian engineers — an enormous challenge for this country — **why would the world's employers pay us more than they have to pay the Indians to do their work?** They would be willing to do that only if we could offer something that the Chinese and Indians, and others, cannot.

—New Commission on the Skills of the American Workforce (2007). Tough Choices or Tough Times

Why are we placing such emphasis  
on PSSA testing?

Is the floor becoming the ceiling?

# What is a Great School?

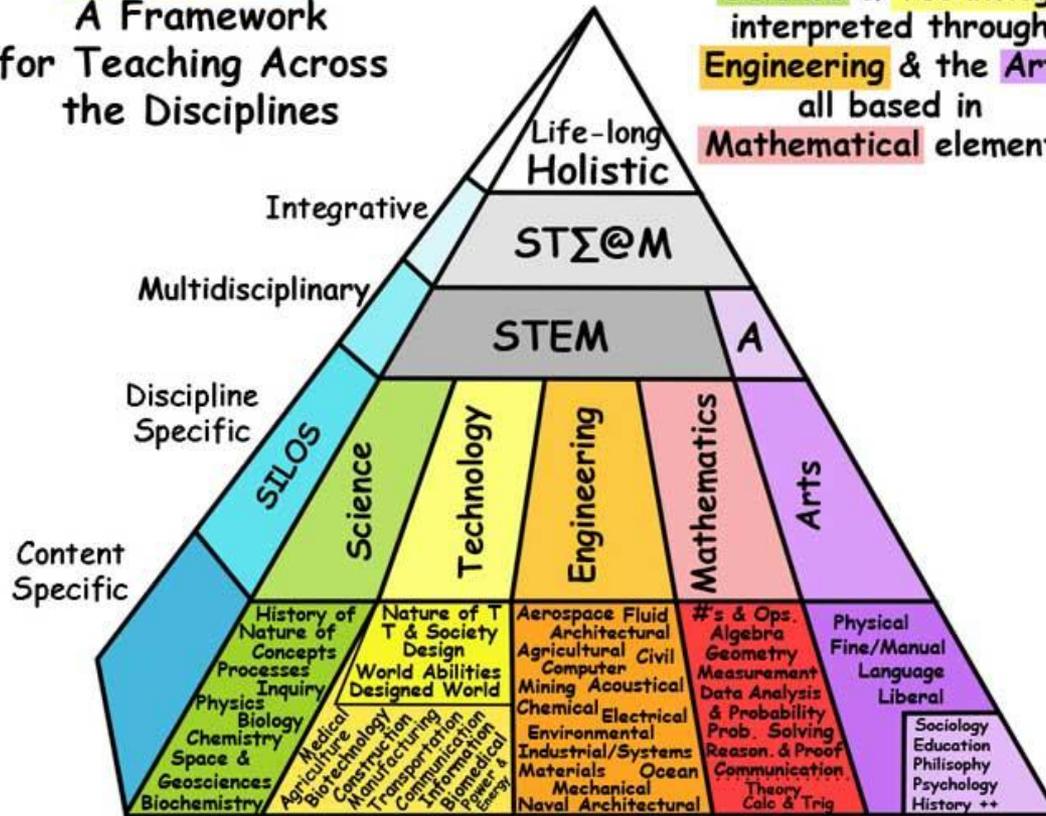
Great Schools...

**WHAT IS THE  
CEILING?**

# The Ceiling:

**STΣ@M:**  
 A Framework  
 for Teaching Across  
 the Disciplines

**STΣ@M =**  
 Science & Technology  
 interpreted through  
 Engineering & the Arts,  
 all based in  
 Mathematical elements.



www.STEAMedu.com

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# Research Study

During the spring of 2010, PDE commissioned a research study to analyze and make recommendations regarding the current planning processes and tools used by LEAs and their alignment with the school improvement processes and tools. The study identified the need for a comprehensive process and tool that aligns LEA planning and school-level planning.

# Comprehensive Planning Project

- Under the direction of PDE, Capital Area Intermediate Unit and Delaware County Intermediate Unit are collaborating to design and develop a single, streamlined, yet systemic, comprehensive planning process and plan management system for LEAs and schools within the Commonwealth to ensure that:
  - LEAs and their schools are using the same proven planning practices.
  - All planning is collaborative, coordinated and representative of the participation of all stakeholders.
  - School-level data analysis informs district-level planning; and district resources and activities directly support school improvement.

# Rationale for Comprehensive Planning

Comprehensive Planning is a continuous process used to ensure that all students are achieving at high levels. All districts can create better environments so that more students are successful. Continuous planning of public districts is essential to providing increased student performance and quality results. Innovative, exemplary, and research-based programs, coupled with staff development, focused and aligned resources and public participation in planning, are critical factors in districts that demonstrate continuous growth.

## Legislative Highlights

Submission will consist of a single LEA Comprehensive plan containing up to six goals every three years. Single plan will meet legislative requirements including, but not limited to Chapter 4, 12, 14, 16 and 49.

As educational leaders, we have a constitutional obligation to ensure that Pennsylvania meets the constitutional mandate of a “thorough and efficient” system of public education now and into the future.

To meet this obligation, we must create learning environments that fit our “great schools” criteria and will support a broad and rich P-12 curriculum that will meet the needs of the whole child. Successful implementation of that curriculum is not measured by a single indicator such as a test score, but a more comprehensive approach to assessment that includes:

- This can be achieved through the current system that ensures a comprehensive approach to measuring the alignment of curriculum, instruction, and assessment to the Pennsylvania Common Core Standards

# Q and A Session