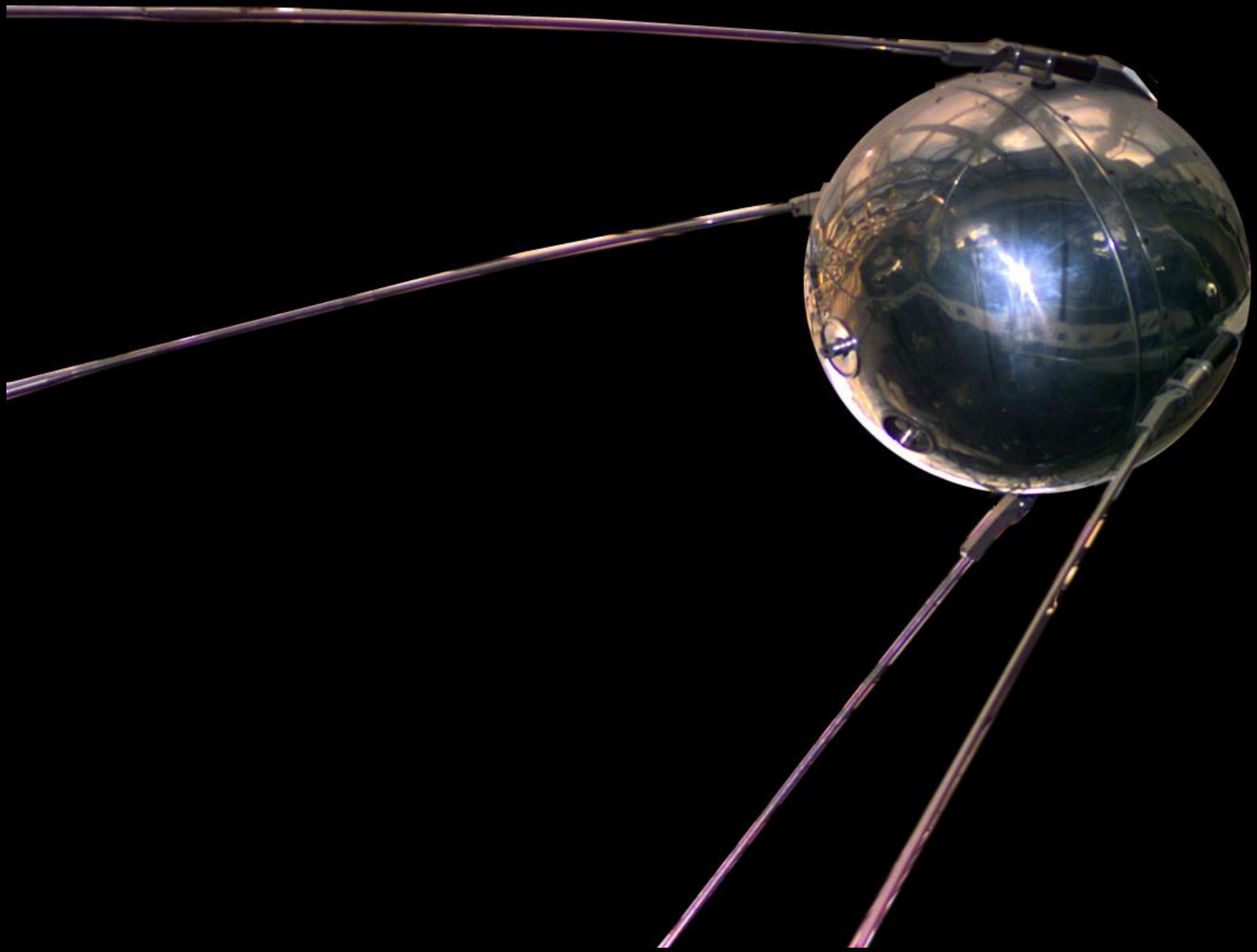
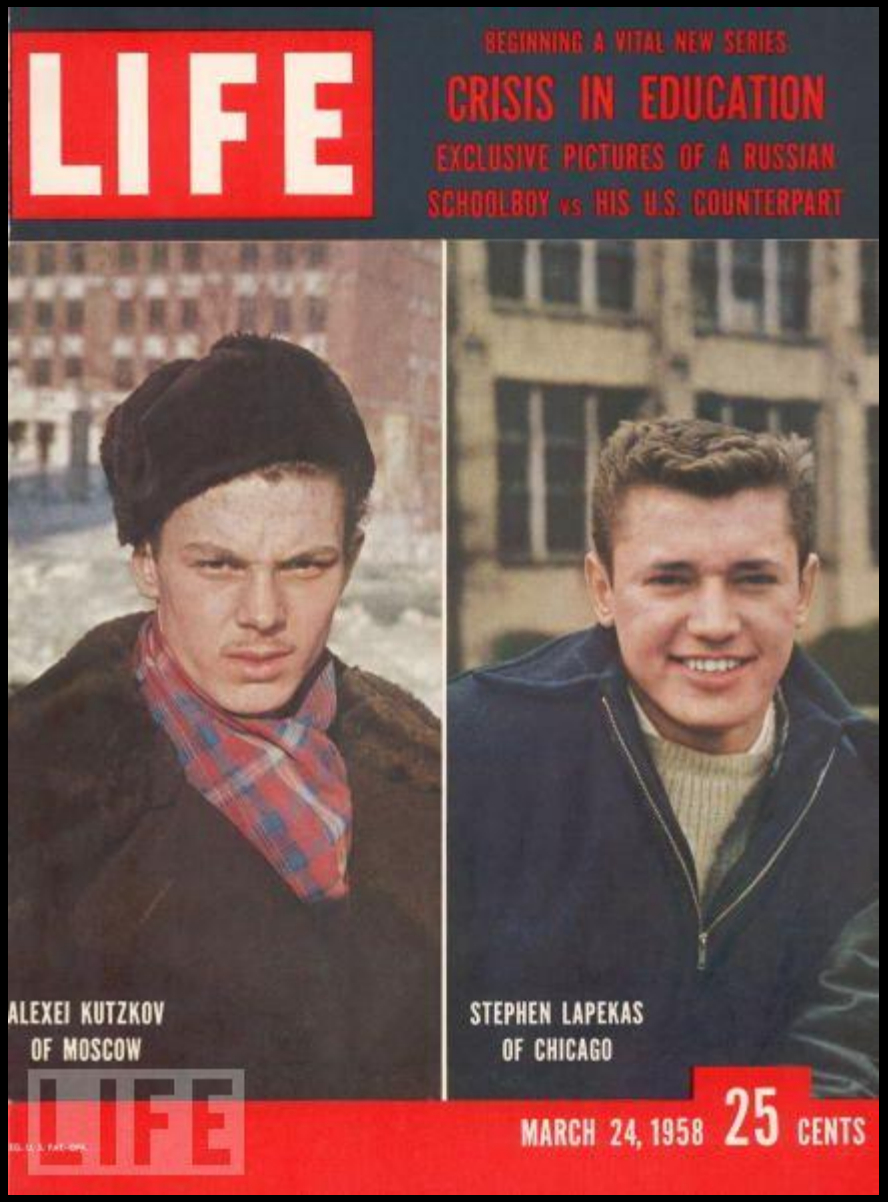
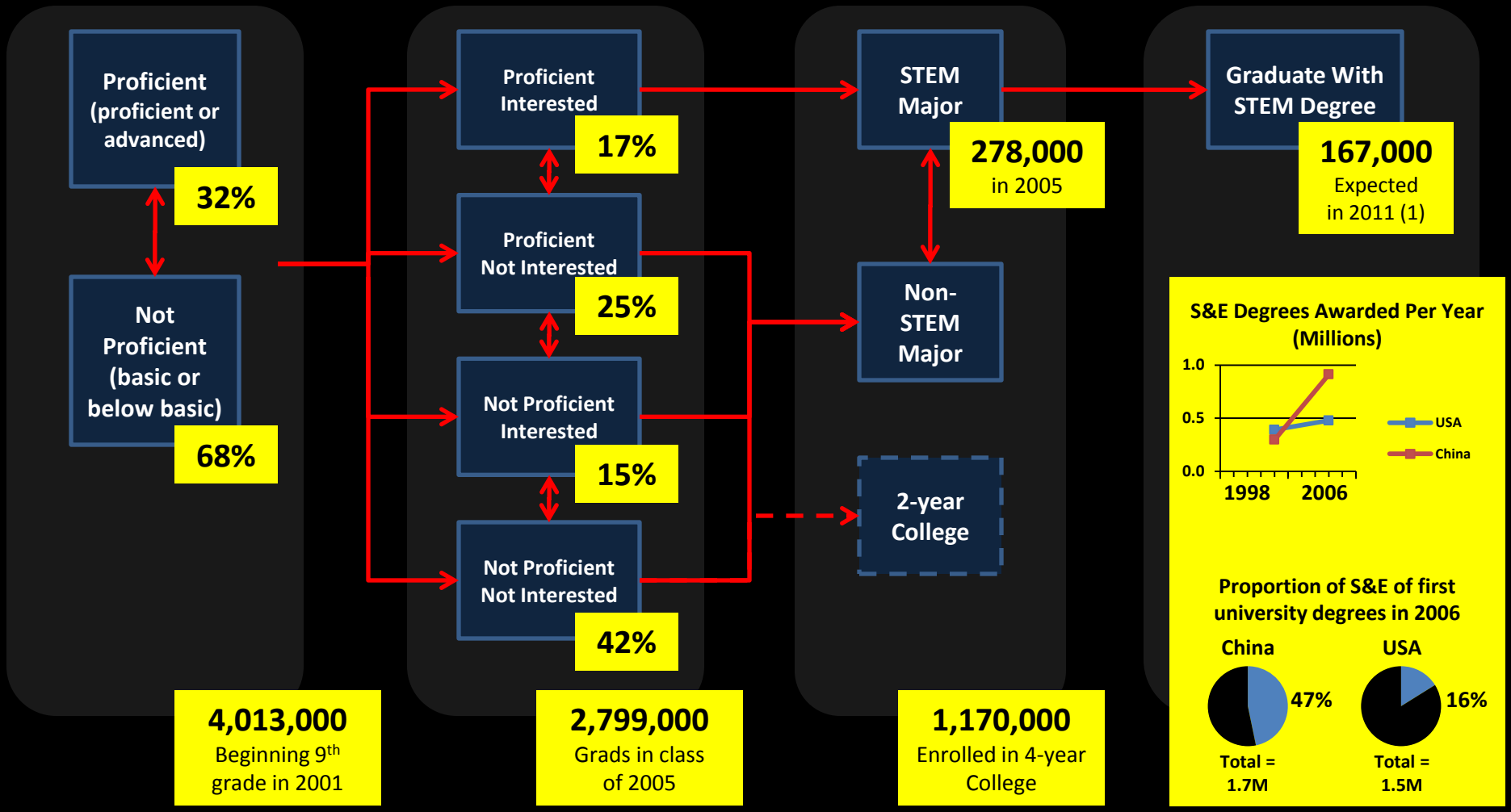

DEPARTMENT OF EDUCATION
UNITED STATES OF AMERICA




Prepublication Copy
February 2006 Edition
RISING ABOVE THE GATHERING STORM
Energizing and Employing America for a Brighter Economic Future
Before
Road Ma
Imp
Math an
in the Na
National Science Foundatio
Ur e
Engi
Archived Information


LIFE
BEGINNING A VITAL NEW SERIES
CRISIS IN EDUCATION
EXCLUSIVE PICTURES OF A RUSSIAN SCHOOLBOY vs HIS U.S. COUNTERPART
ALEXEI KUTZKOV OF MOSCOW
STEPHEN LAPEKAS OF CHICAGO
LIFE
MARCH 24, 1958 25 CENTS


Proficient (proficient or advanced)
32%
Not Proficient (basic or below basic)
68%
4,013,000
Beginning 9th grade in 2001
Proficient Interested
17%
Proficient Not Interested
25%
Not Proficient Interested
15%
Not Proficient Not Interested
42%
2,799,000
Grads in class of 2005
STEM Major
278,000
in 2005
Non-STEM Major
2-year College
1,170,000
Enrolled in 4-year College
Graduate With STEM Degree
167,000
Expected in 2011 (1)
S&E Degrees Awarded Per Year (Millions)
1.0
0.5
0.0
1998
2006
USA
China
Proportion of S&E of first university degrees in 2006
China
47%
Total = 1.7M
USA
16%
Total = 1.5M
Elementary
Secondary
College
Career

"But I think all of you understand it will take far more than the work of government. It will take all of us. It will take all of you. And so today I want to challenge you to use your love and knowledge of science to spark the same sense of wonder and excitement in a new generation."

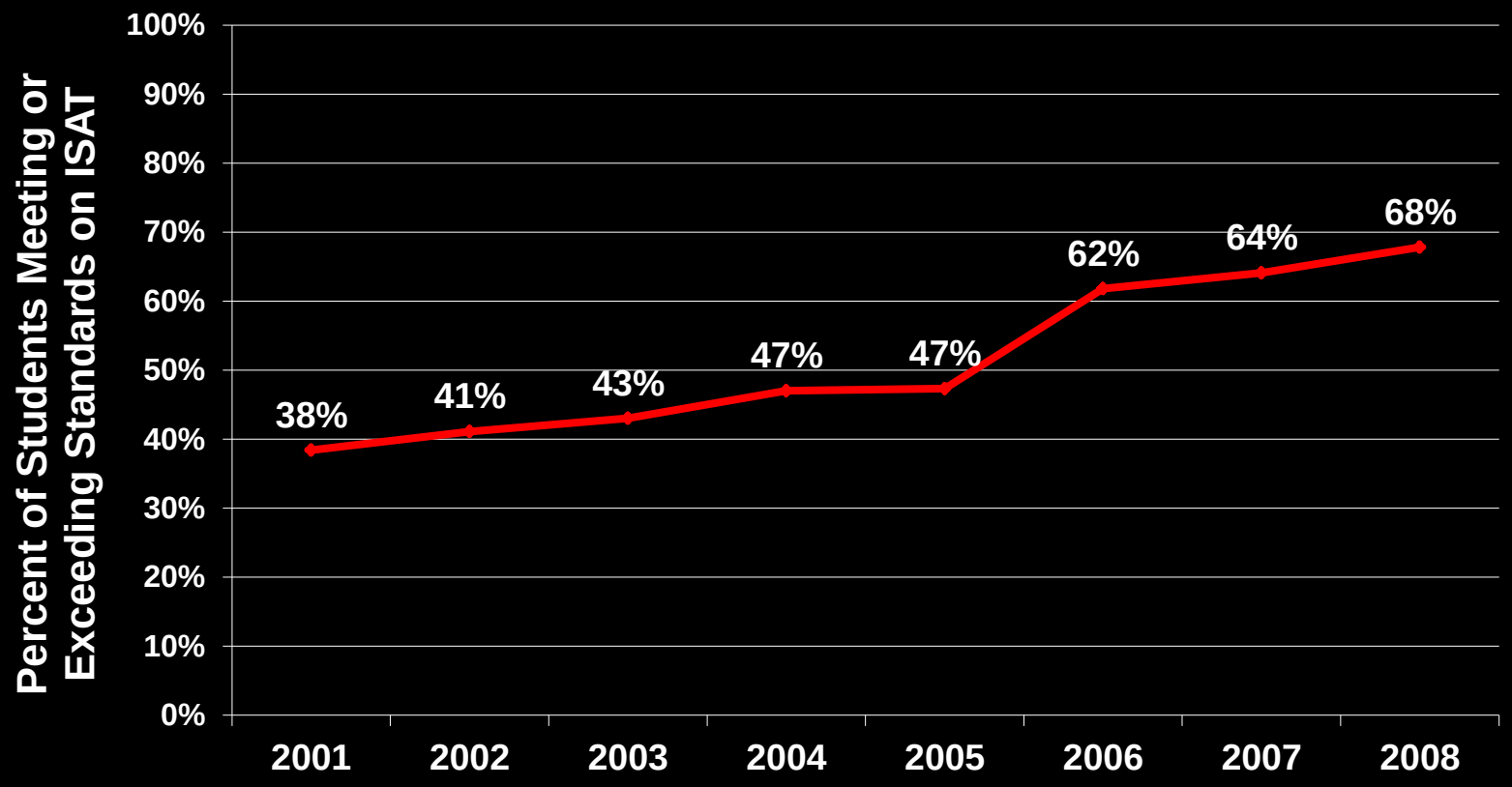
-- President Barak Obama, speaking to the National Academy of Science, April 27th, 2009

CHICAGO
PUBLIC
SCHOOLS

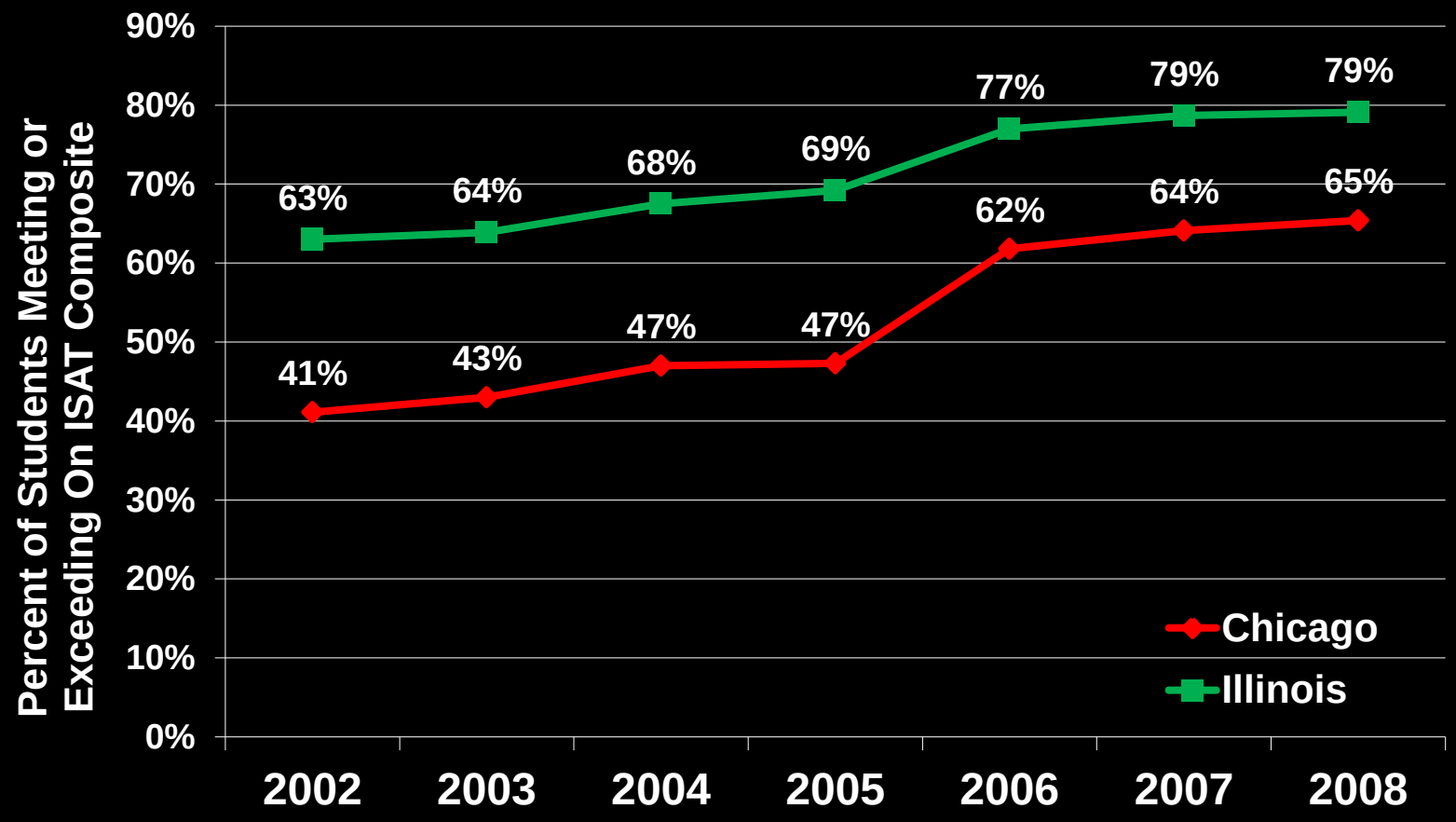
CPS

c(m+s)i

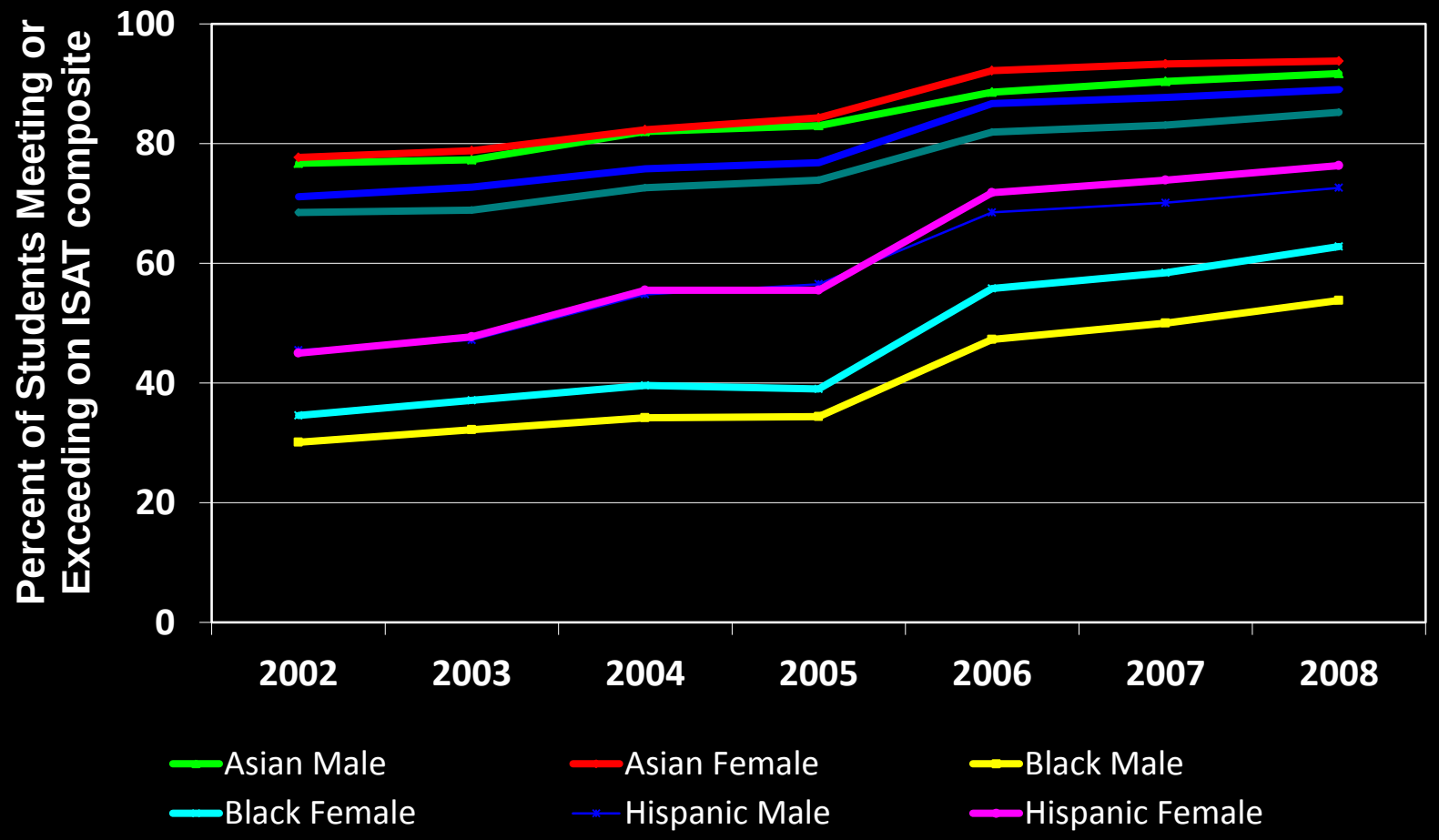
Chicago Math & Science Initiative



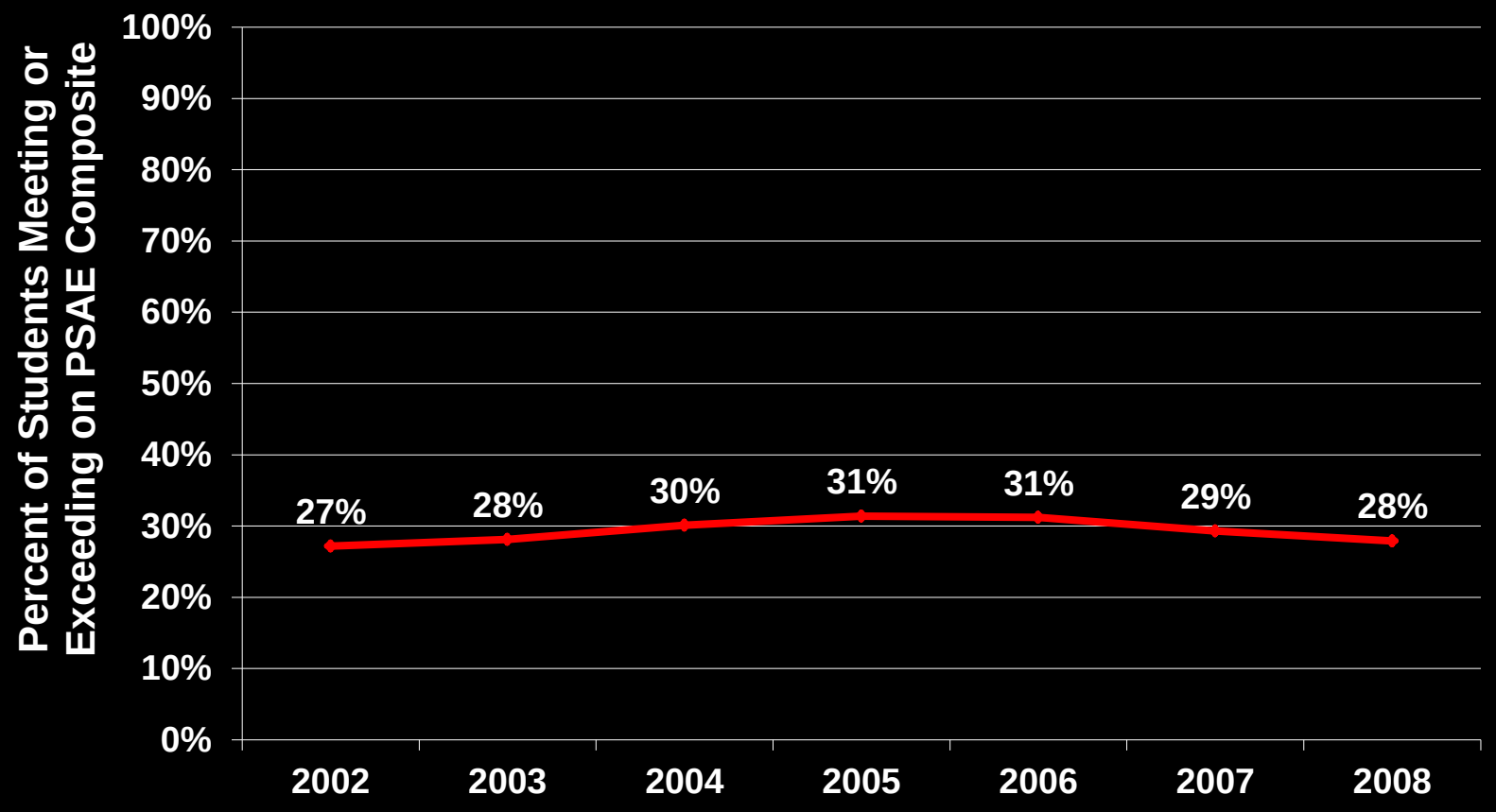
ISAT composite scores have increased steadily since 2001



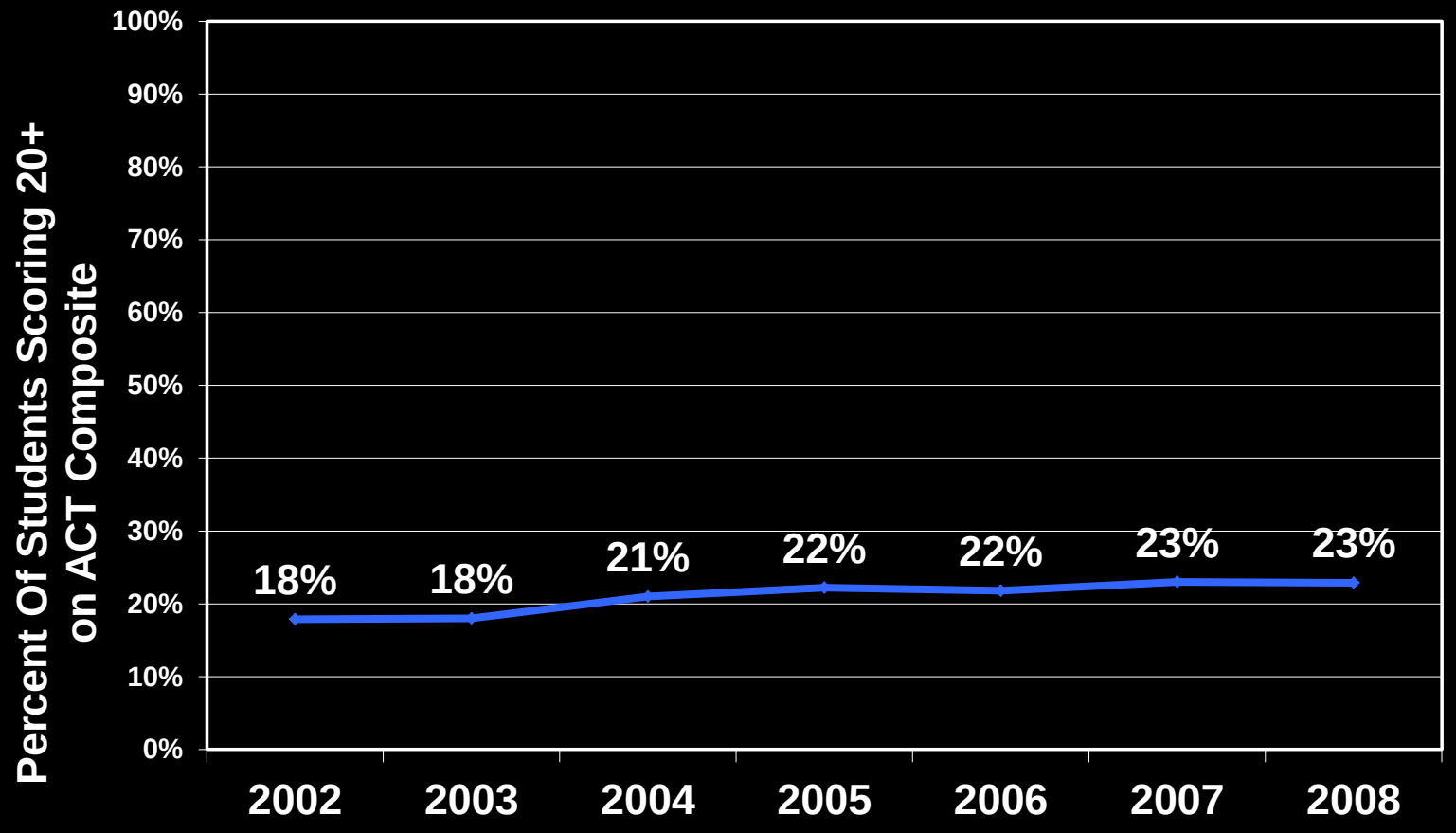
ISAT composite scores show CPS is closing the gap with the state…



…yet achievement gaps by race and gender persist.



High school PSAE scores are largely flat…



…and the percent of students scoring 20+ on ACT is essentially flat as well

Core Strategies

Instructional Excellence

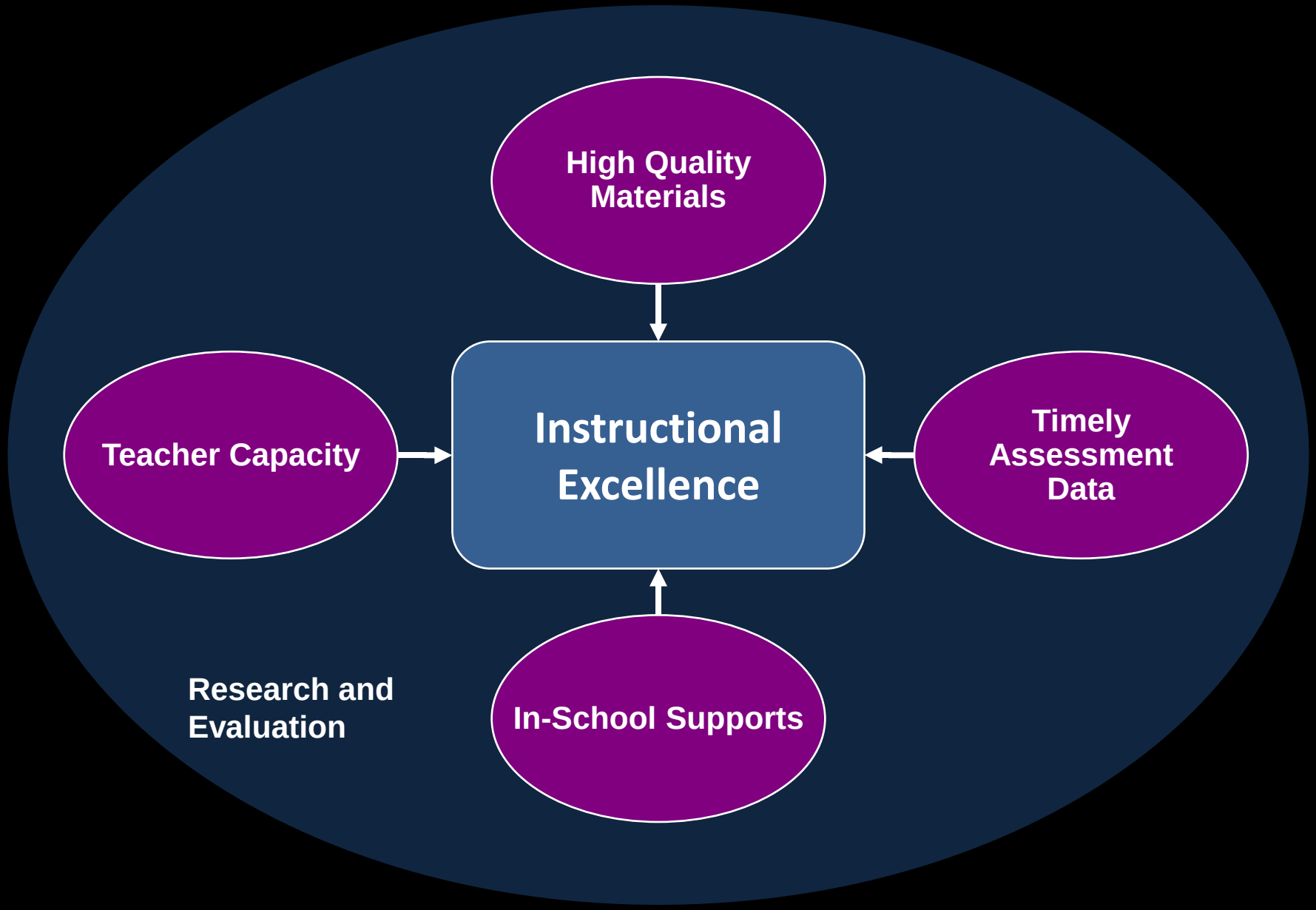
Talent Attraction and Development

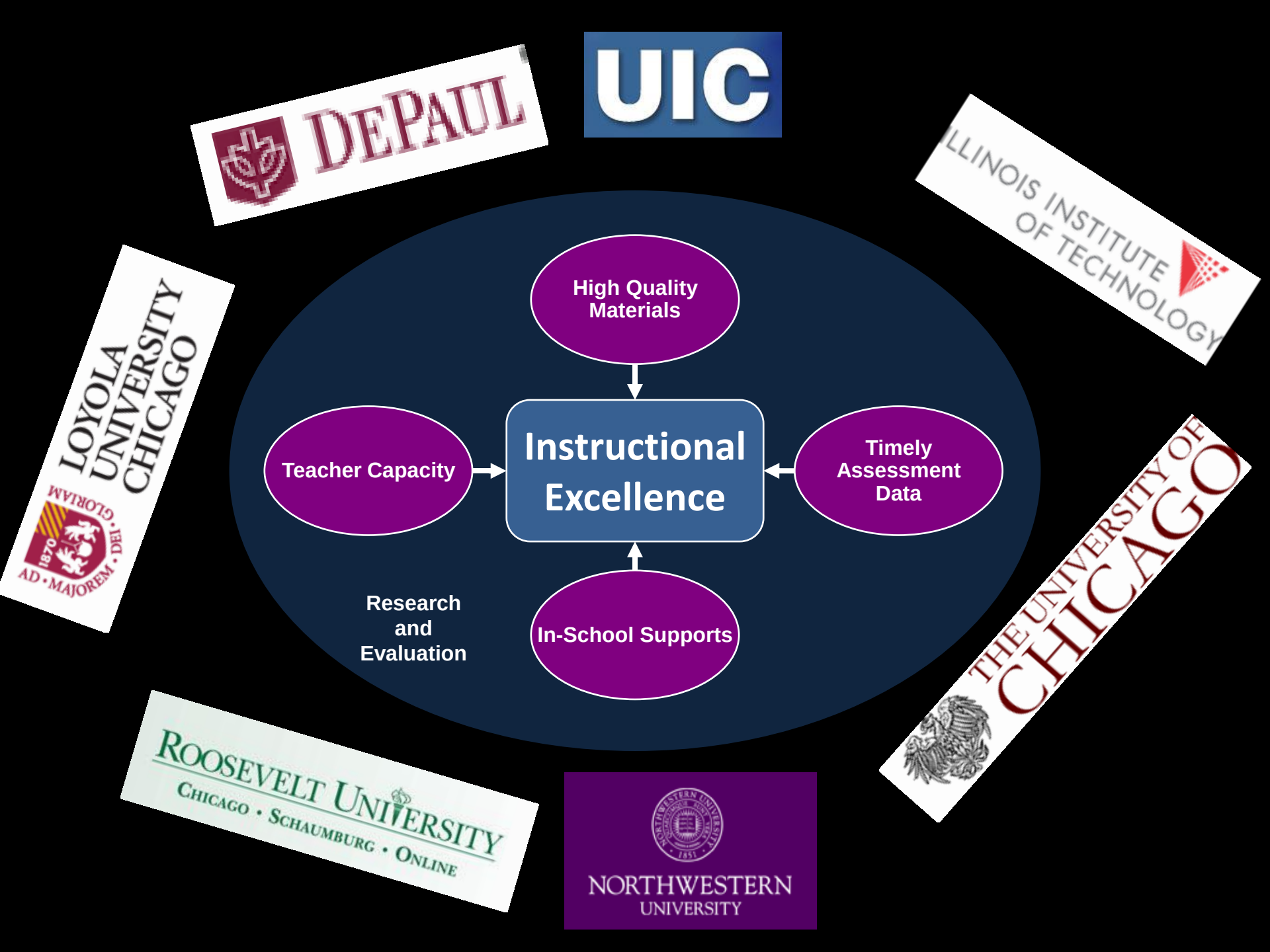
Expanded Options and Opportunities

Supporting Strategies

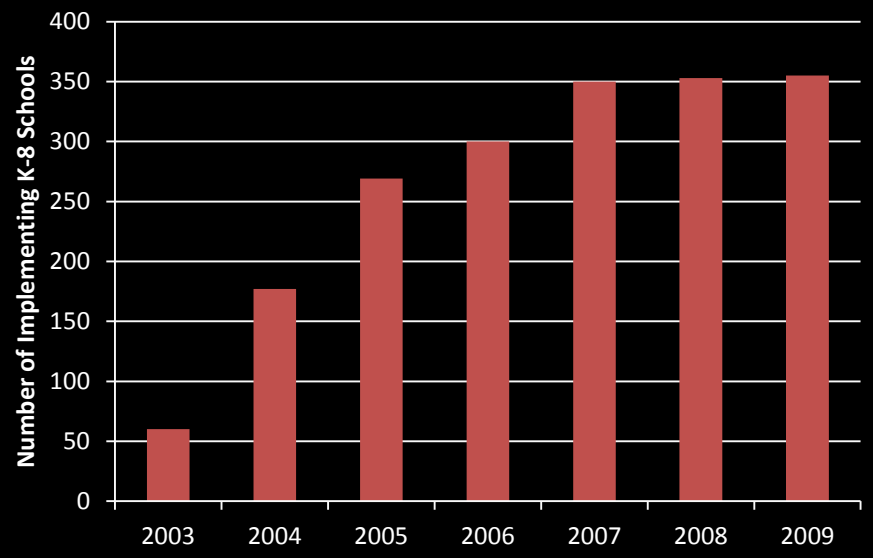
Performance Management

Resource Alignment

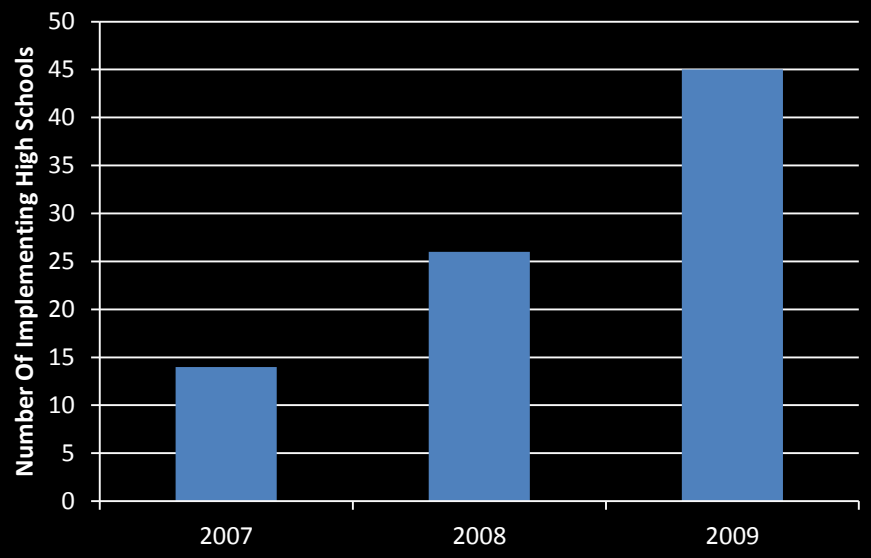

High Quality Materials
Teacher Capacity
Instructional Excellence
Timely Assessment Data
Research and Evaluation
In-School Supports


DePaul
UIC
Illinois Institute of Technology
Loyola University Chicago
High Quality Materials
Teacher Capacity
Instructional Excellence
Timely Assessment Data
In-School Supports
Research and Evaluation
The University of Chicago
Roosevelt University
Chicago • Schaumburg • Online
Northwestern University

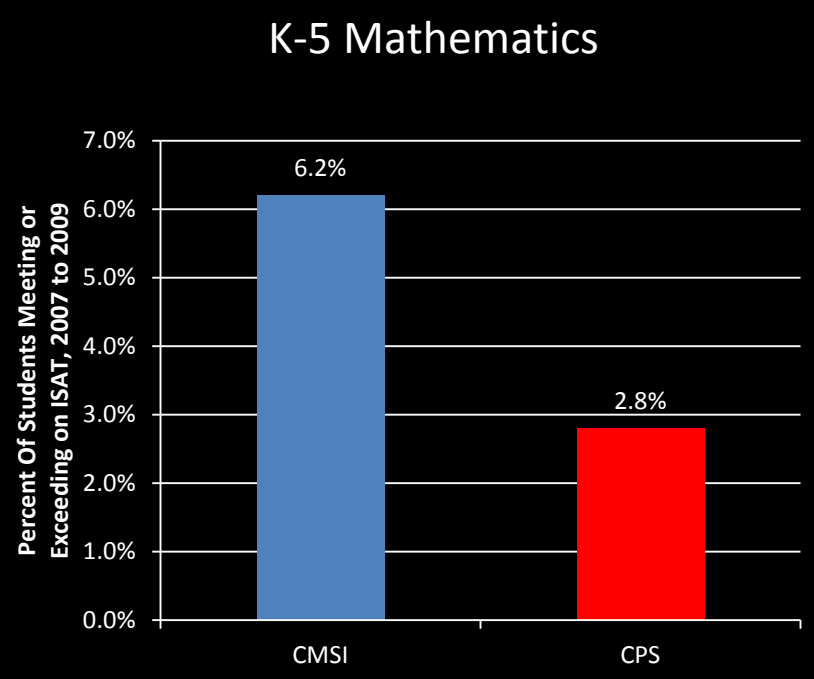
K-8 Mathematics

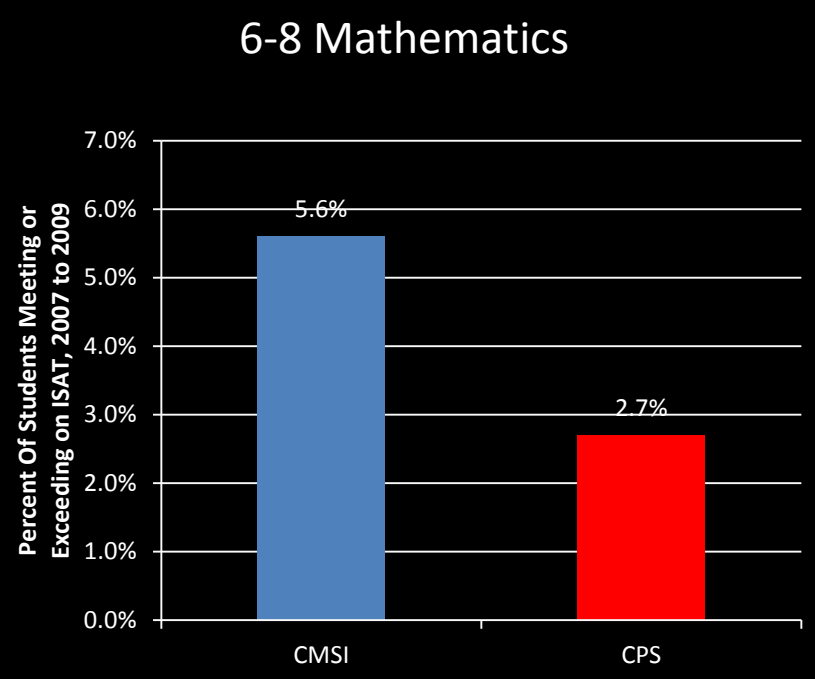


HS Mathematics and Science



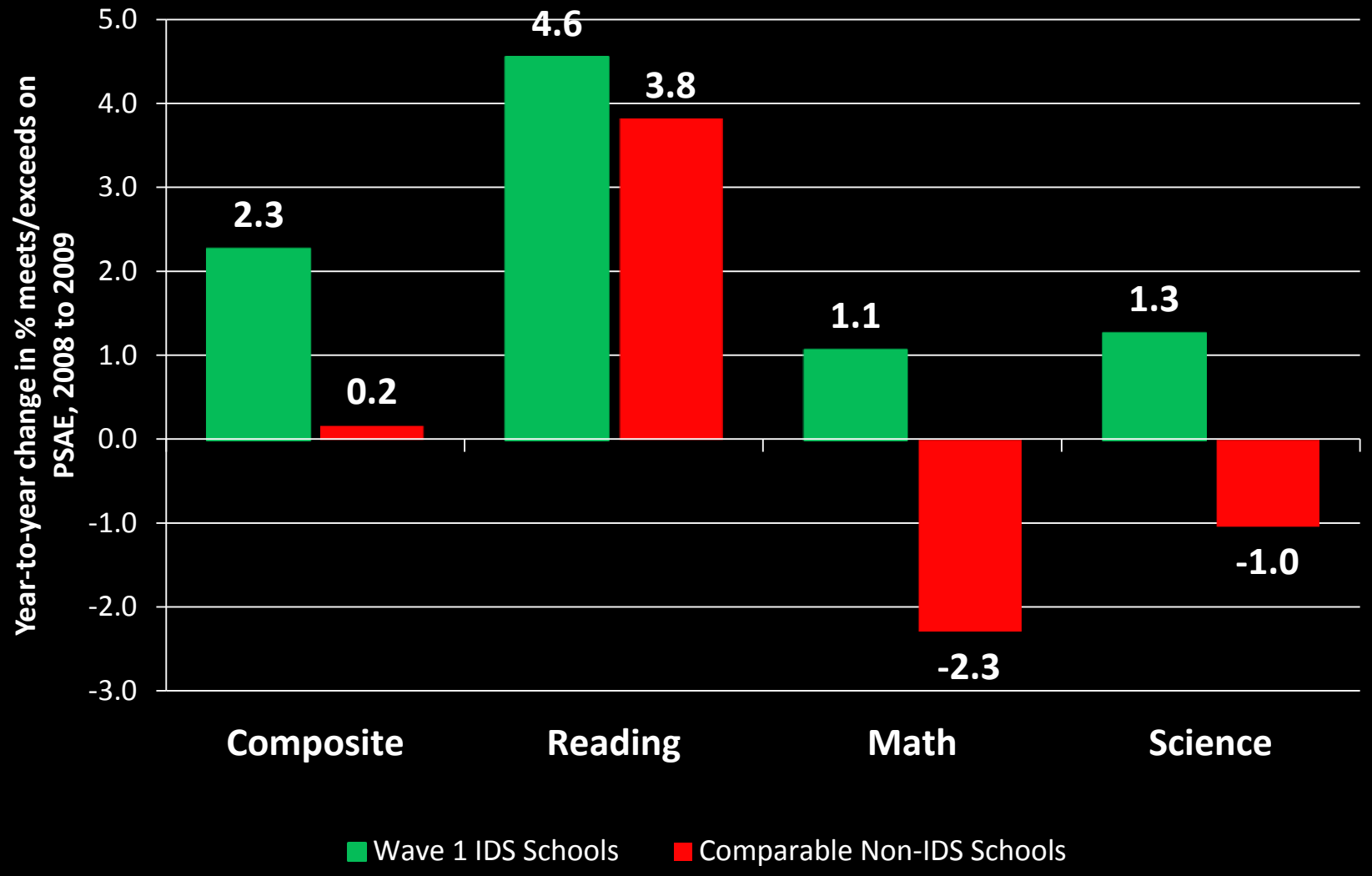
Rapid scale up to 500 K-8 schools and 100 high schools.





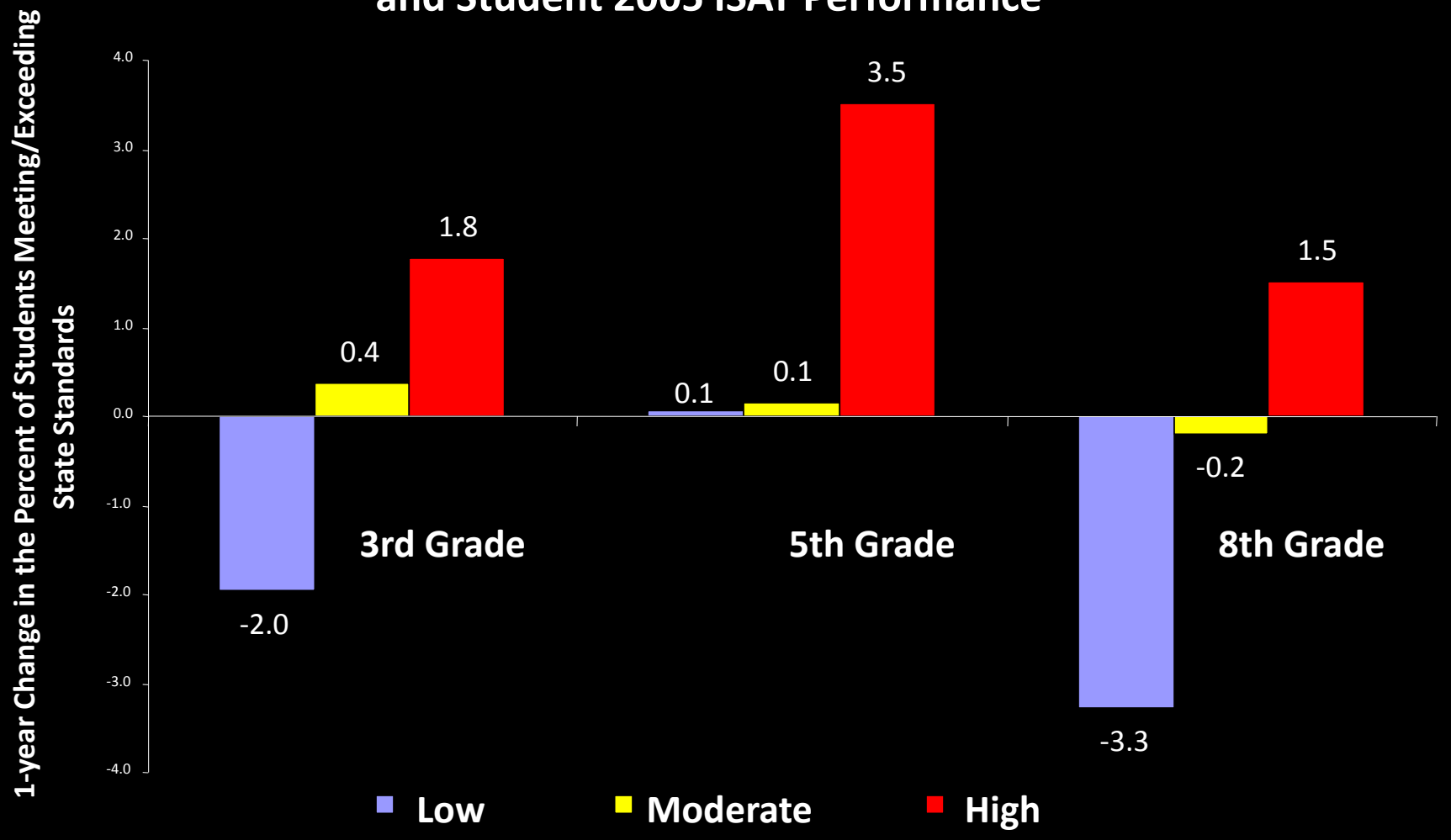
CMSI Implementing Schools
Non CMSI Schools

For K-8 mathematics, implementing schools improve faster.



For HS reading, mathematics, and science, implementing schools improve faster.

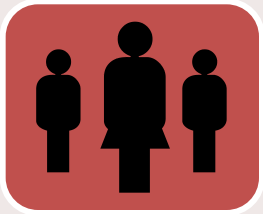
Relationship between CMSI Professional Development Attendance and Student 2005 ISAT Performance



- 1 -

STEM education reform is part of education reform.

Raise **standards** and improve **assessments**.



Recruit, retain & support **effective educators**, and ensure equitable distribution.

Build robust **data systems** that track student progress and improve practice.

Turn around **low-performing schools**, focusing on dropout factories and their feeder schools.

Published Online: January 11, 2010

Schools and the Stimulus

Complete Coverage

COMMENTARY

STEM Education: A Race to the Top

By Edward E. Kaufman

In a recent speech, former President Bill Clinton compared the United States today to the European Union in the 1990s. During that period, he said, many EU countries were creating "a slew of new jobs in energy." Notably ahead of the green-revolution curve, they now have the strong, growing employment in green jobs we hope to launch with new initiatives and much innovation.

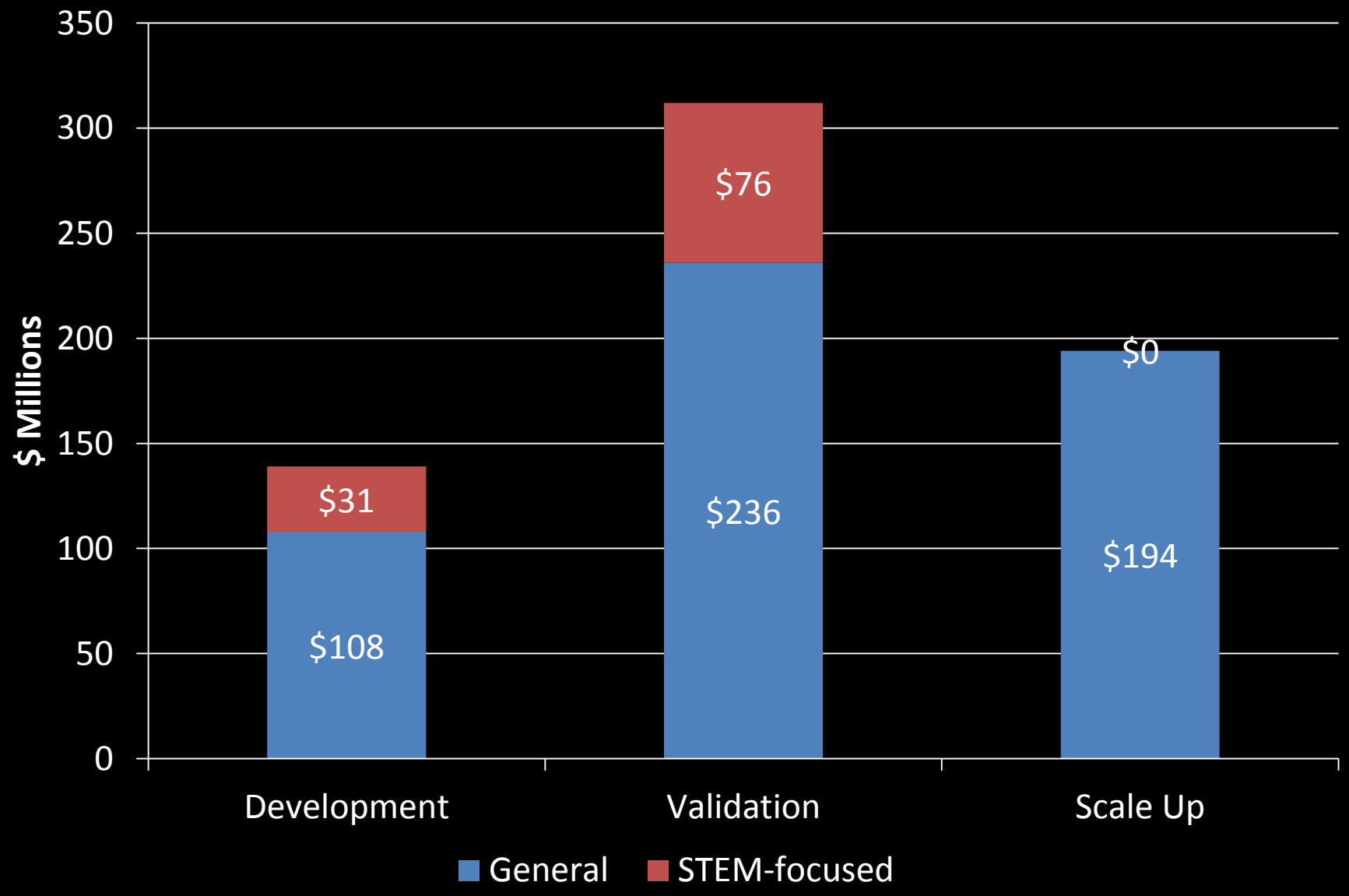
If America is to rebuild its economy, it must develop new opportunities with room for growth.

This means creating green jobs to produce safe water, clean, renewable energy, and

ARTICLE TOOLS
Printer-Friendly
Email Article
Reprints
Comments (4)
Tweet 0
BOOKMARK
ARTICLE TOOLS SPONSORED BY:

21st Ce
Literacy
CHAT OCT. 2
SIGN UP FOR

Viewed | E
1. Teachin
2. Obama
3. Poll: Lea
4. Rick Hes
5. Chinese


350
300
250
200
150
100
50
0
$ Millions
$31
$108
$76
$236
$0
$194
Development
Validation
Scale Up
General
STEM-focused

- 2 -

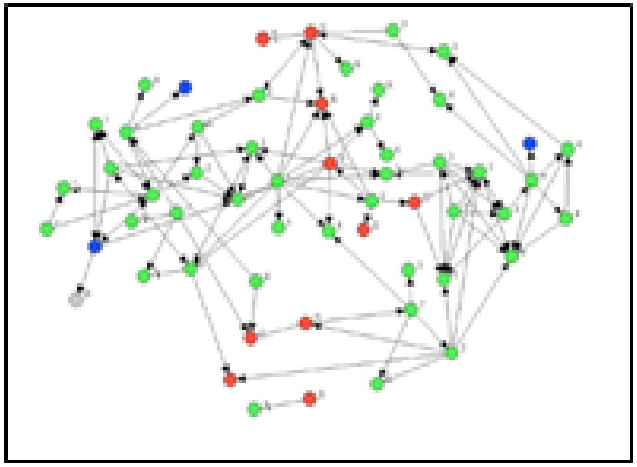
The nature of STEM demands specializes strategies.

Subject Matter & Leaders' Mental Scripts

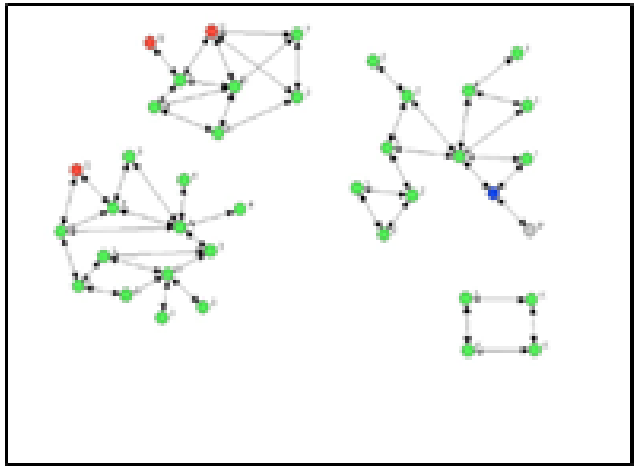
Subject-Matter Views	Literacy	Math
•Core to curriculum	80%	83%
•Skills support learning in other subjects	83%	17%
•Skills should be taught in a particular sequence	16%	53%
•School has primary expertise	80%	13%
•External community has primary expertise	2%	63%

Knowledge/Advice Networks

Language Arts Network



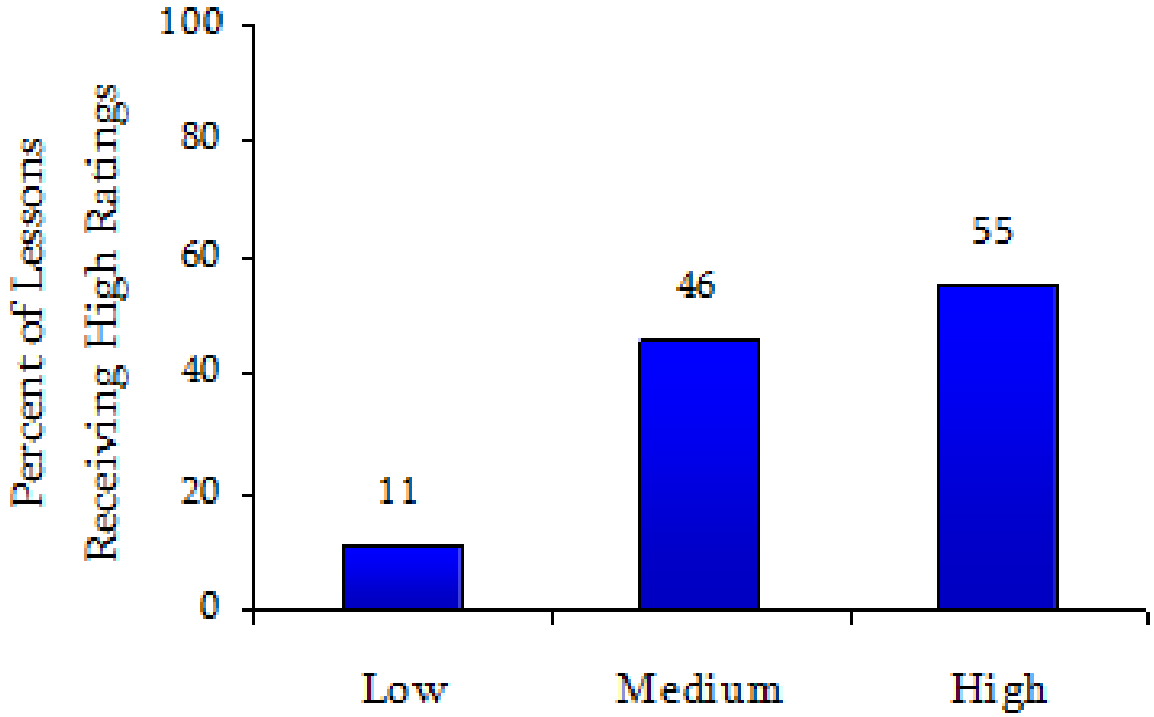
Mathematics Network



- teachers
- principal/assistant principal
- specialists
- teacher leaders

Iris Weiss

Lesson Quality is Associated with Adherence to District-Designated Materials



Horizon RESEARCH, INC.

- 3 -

Motivation and Inspiration and Matter


easyCPRO
1902


Na
Mg
Ti
V
K
Ca
Sc
Mn
Mo
Tc
Nb
Rb
Sr
Y
Zr
W
Re
Hf
Ta
Cs
Ba
Lu
Sg
Bh
Fr
Ra
Lr
Rf
Db

ROCK STARS SCIENCE

Being a rock star is about the same amps, thunder, and art it's always been, but these days a rock star can be anyone whose genius moves the crowd—whether they're onstage or in the lab.

The musicians you'll know—they're icons. As for the other guys, they're the doctors whose work has brought us closer to cures for **Cancer**, **HIV/AIDS**, and **Alzheimer's disease**. These fellows won't set your soul on fire like Sheryl Crow, but they're lighting up the future with something just as powerful. Hope.

GEOFFREY BEENE

GBGB

GIVES BACK

(Rudy Tanzi) black sateen "cotton-rich" shirt msrp $49.50, (Francis S. Collins) white sateen "cotton-rich" shirt msrp $49.50, available at Macy's, Bon-Ton. (All by Geoffrey Beene)

OCTOBER 23, 2005

ONION

WEEKENDER

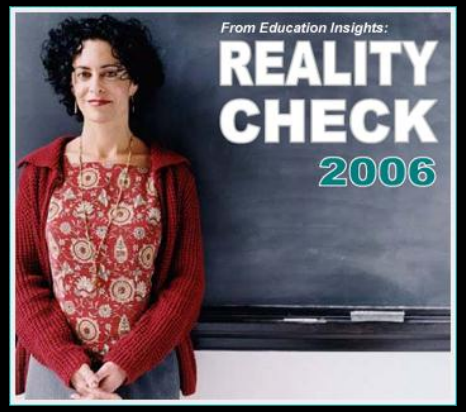
When a chance peek over 11-year-old Taylor's shoulder revealed a biology worksheet, she realized a teacher she'd trusted had been secretly teaching her only son about the physical world and its mechanics for almost a year.

"They Tried To Teach My Baby Science"

By Rick Cantrell

Inside: Five Valuable Lessons In Humility I Opt To Ignore – By Donald Trump

PUBLIC AGENDA



"Despite forceful calls from business leaders and policymakers to upgrade math and science education, most superintendents (59%) and principals (66%) say this is not a serious problem in their local schools."

CBMS

“Aligned To Standards”

School Leaders $\neq$ Mathematics Leaders

michael.lach@ed.gov