



# Increasing Student Achievement Using Proven Methods

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President and CEO

National Math and Science Initiative



# National Math and Science Initiative

**The National Math and Science Initiative is an agent of change focused on improving student achievement in math and science across the public school system.** NMSI brings best practices in management to the education sector by replicating proven programs on a national scale.

**Results from the 2008 – 2009 school year show that NMSI programs:**

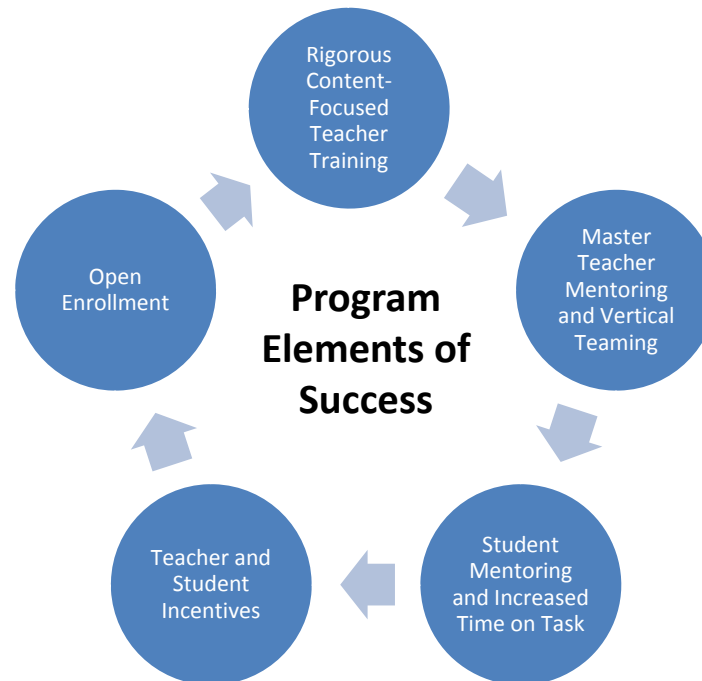
- Dramatically increase student achievement in rigorous math and science courses.
- Work for all students in all types of schools.
- Change the culture of expectations.
- Make American public school students more competitive globally.
- Help close the achievement gap in math and science education.





# Advanced Placement Training and Incentive Program

The Advanced Placement Training and Incentive Program (APTIP) is a comprehensive approach that increases teacher effectiveness and student achievement through training, teacher and student support, vertical teaming, open enrollment, and incentives. The program increases dramatically the number of students taking and passing AP math, science, and English exams, and expands access to traditionally under-represented students.

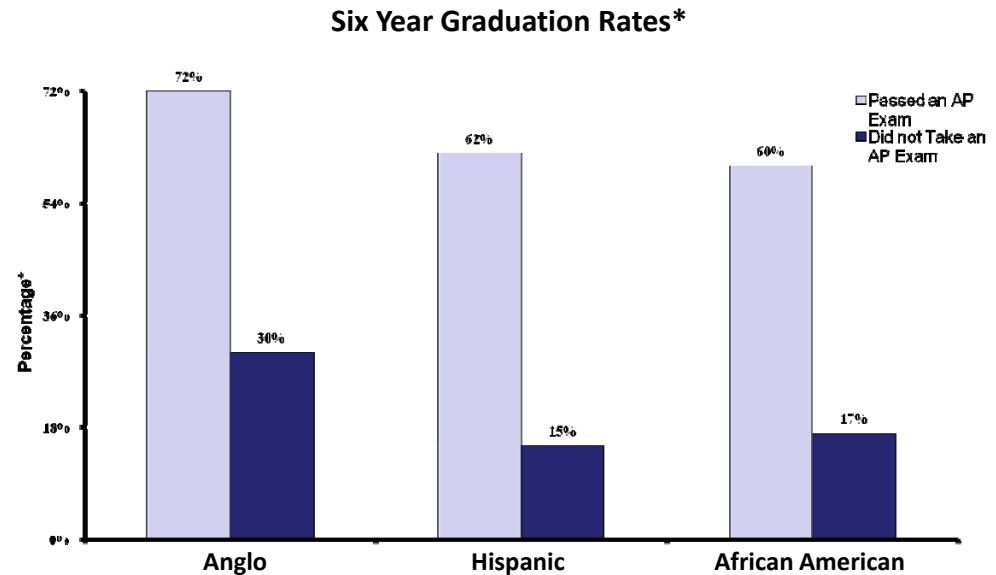




# APTIP expands access to rigorous college-level work and increases college graduation rates.

APTIP brings rigorous **college-level coursework** in math, science, and English to more students in public high schools.

Students who take and pass an AP exam are **more likely to graduate from college** than students who do not take an AP exam.\*



\*Source: National Center for Educational Accountability. Based on a study of 67,863 public high school students graduating in 1998, who enrolled in a Texas public college or university.



# NMSI programs increase international competitiveness of American students.

According to a recent U.S. Department of Education report, American 15-year-olds' scores in math now lag behind those of 31 countries.\* In science, our eighth graders' scores have dropped behind their peers in eight countries. America must do better to be competitive in the global economy.

NMSI is helping American high school students perform up to international levels in math and science.

**American students who take AP math and science courses rank higher than most of their international counterparts.\*\***



\*Source: U.S. Department of Education: U.S. Performance Across International Assessments of Student Achievement: Special Supplement to 'The Condition of Education 2009.'

\*\*Source: 'How Well Do Advanced Placement Students Perform on the TIMSS Advanced Mathematics and Physics Tests?' The International Study Center, Lynch School of Education, Boston College, June 2001.



# NMSI selected APTIP for national replication because it produces dramatic achievement gains in rigorous math and science courses.

## **Program Demand**

In 2007, non-profits from 28 states applied to replicate the APTIP program. NMSI selected non-profit partners in six states for five-year funding and NMSI program management support.

## **Program Expansion**

NMSI is replicating APTIP in **Alabama, Arkansas, Connecticut, Kentucky, Massachusetts, and Virginia**. To sustain long term improvement in math and science education in their public schools, NMSI's state affiliates have built extensive coalitions with strong support from leaders in business, state government, education, and their communities.

## **Program Implementation**

Implementation began during the 2008 – 2009 school year and will expand to include a new cohort of public high schools each year over the five-year grant period. In 2008 – 2009, NMSI affiliates implemented the APTIP program in 67 public high schools. This fall, they will be implementing the program in 142 public high schools.

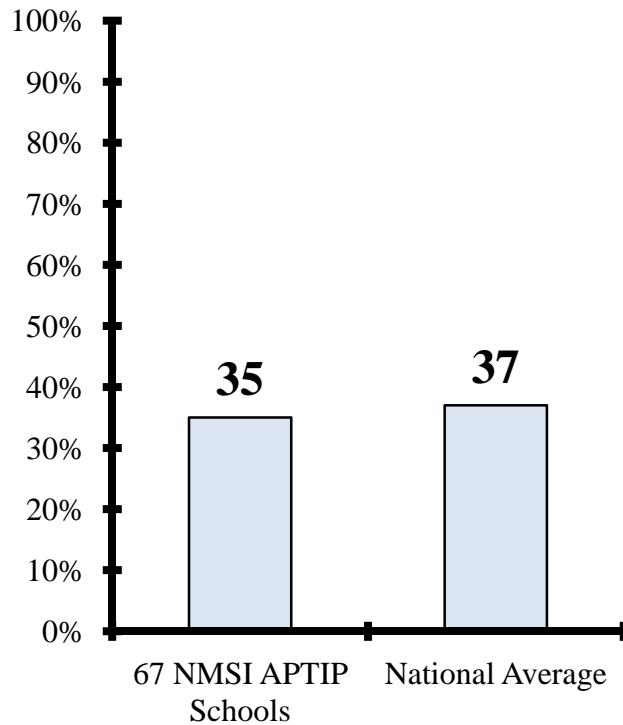
**If our NMSI high schools were a state, it would have the 33<sup>rd</sup> largest student enrollment and the 28<sup>th</sup> largest African American and Hispanic student enrollment.**



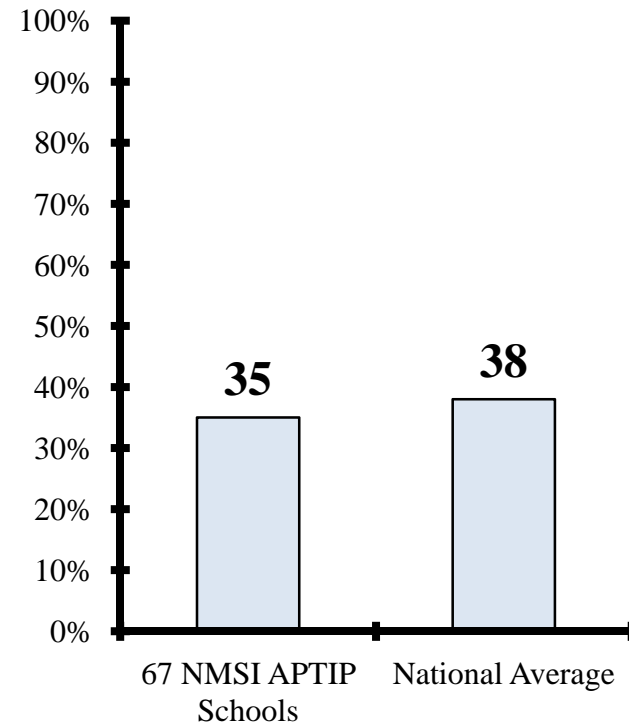


# NMSI program schools reflect the national profile for public high schools.

African American and Hispanic student population



Economically disadvantaged student population





# AP Training and Incentive Program Results 2008 – 2009 School Year

**NMSI program results demonstrate that it is possible to rapidly improve student performance in math and science through expanding proven programs.**

## Highlights

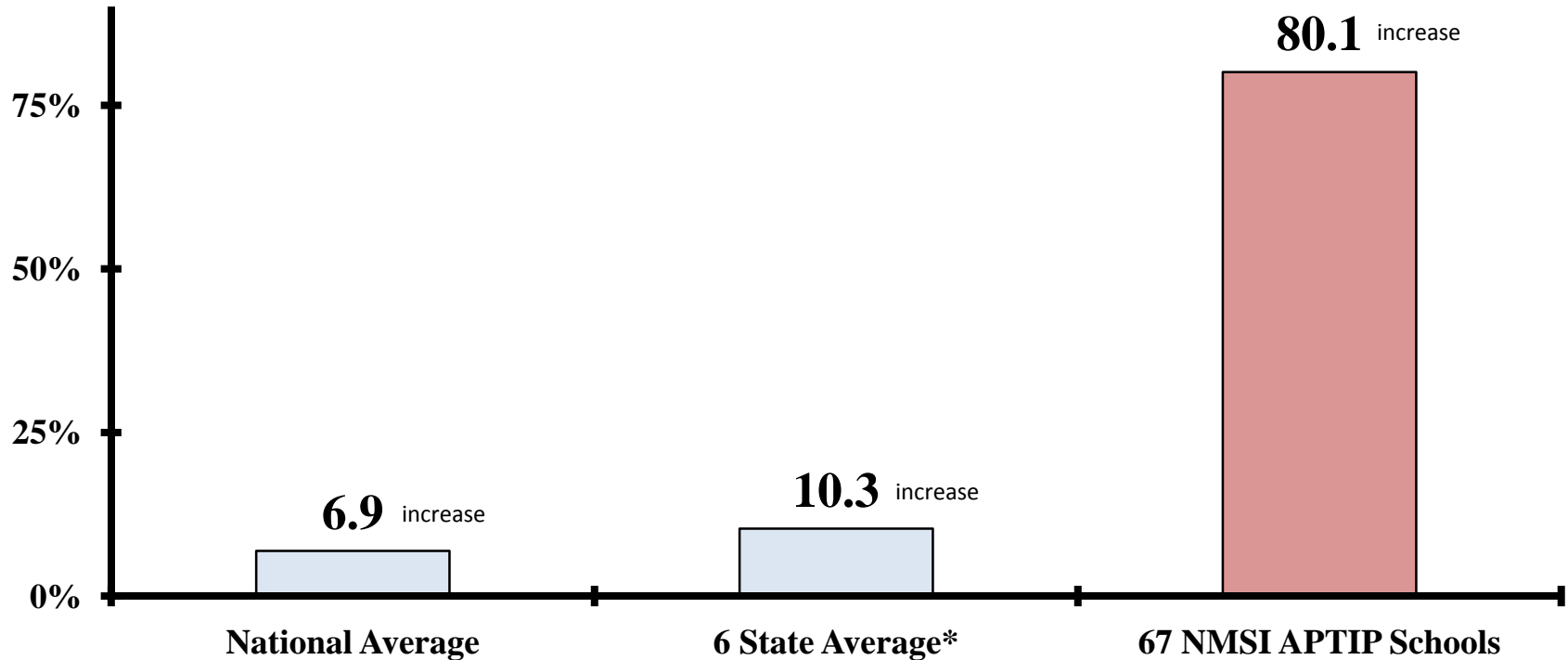
- NMSI's state affiliates partnered with 67 public high schools in 49 local school districts to implement APTIP.
- NMSI trained 478 AP teachers in curriculum development, pedagogy, and content in the following subjects: biology, calculus, chemistry, computer science, English language, English literature, environmental science, physics, and statistics.
- Over 12,500 exams **taken** by AP students in math, science, and English, which is an 80.1 percent increase over the previous school year.
- 51.4 percent increase in AP exams **passed** in math, science, and English, which is over 9 times the national average.
- 134.3 percent increase in AP math, science, and English exams **taken** for **African American and Hispanic students**.
- 71.2 percent increase in AP exams **passed by African American and Hispanic students** in math, science, and English.
- 54.7 percent increase in AP exams **passed by female students** in math, science, and English.
- State affiliates raised \$27 million in state matching funds, outpacing NMSI's matching requirement.





# NMSI is changing the culture of expectations by increasing student participation in rigorous courses.

**Percent increase in AP exams taken in math, science, and English for 2008-09 school year**



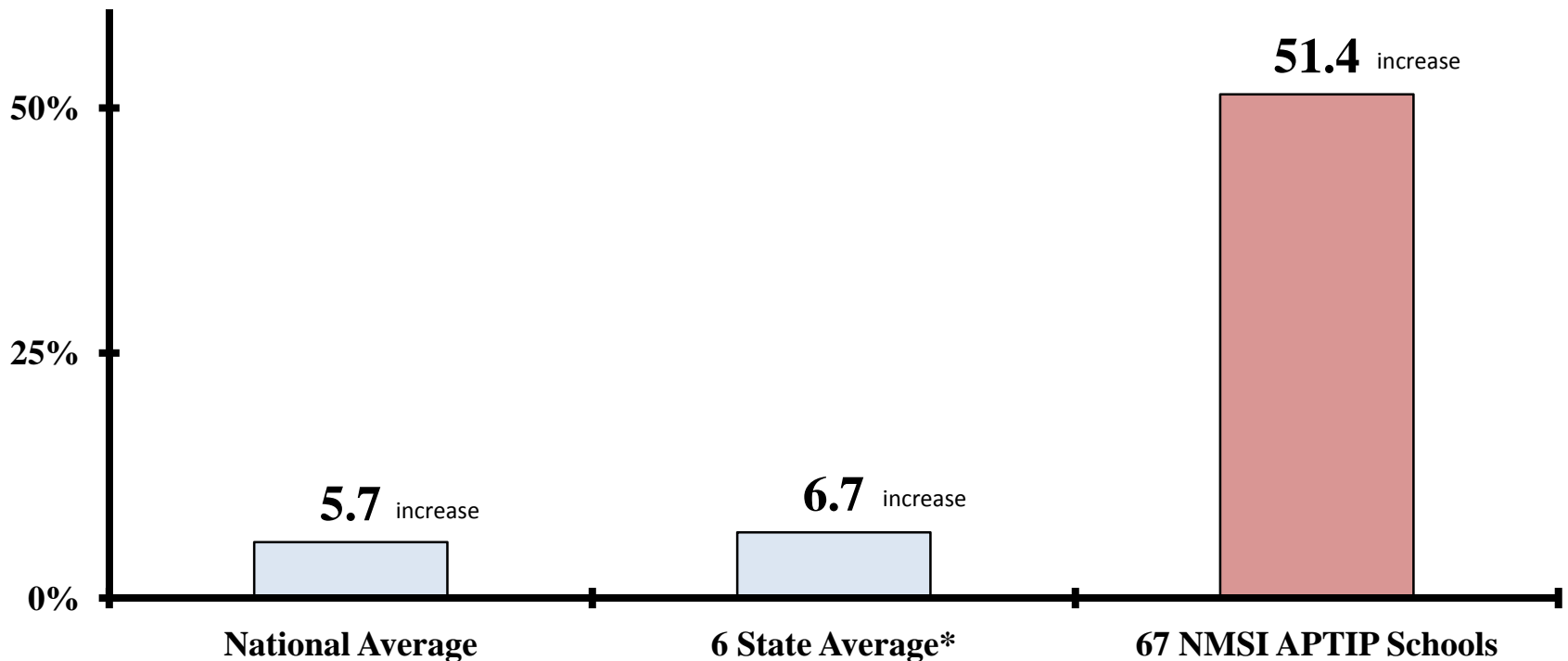
Source: College Board. National average is for public schools only.

\*NMSI is funding replication of the APTIP program in 6 states: AL, AR, CT, KY, MA, and VA.



# Student performance in NMSI program schools demonstrates the untapped student potential across NMSI program states.

**Percent increase** in AP exams **passed** in math, science, and English for 2008-09 school year



Source: College Board. National average is for public schools only.

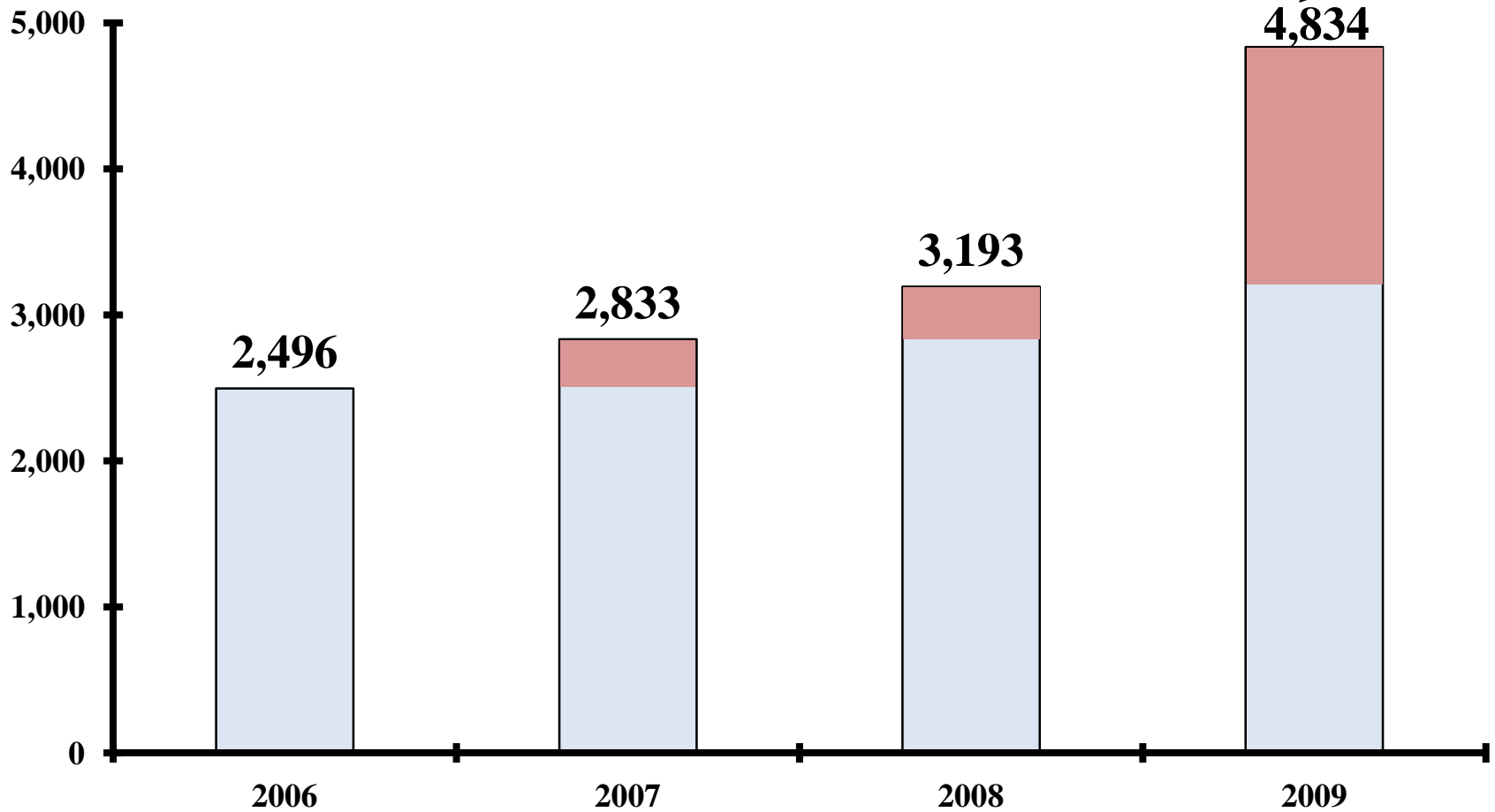
\*NMSI is funding replication of the APTIP program in 6 states: AL, AR, CT, KY, MA, and VA.



# Public high schools can improve dramatically in just one year using proven methods.

AP exams passed in math, science, and English in 67 NMSI APTIP schools for 2008-09 school year

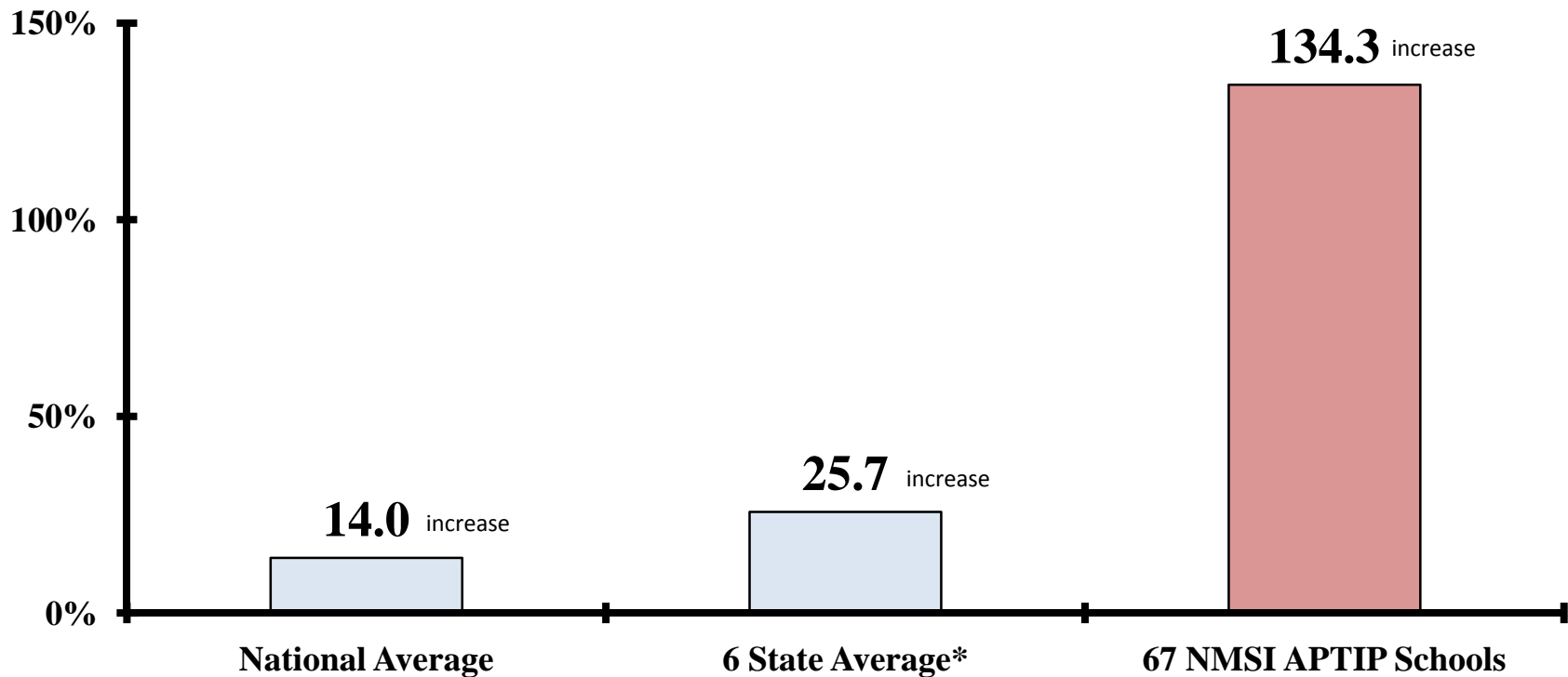
First year of APTIP





# NMSI increases access to college-level work for African American and Hispanic students.

**Percent increase in AP exams taken in math, science, and English for African American and Hispanic students for 2008-09 school year**



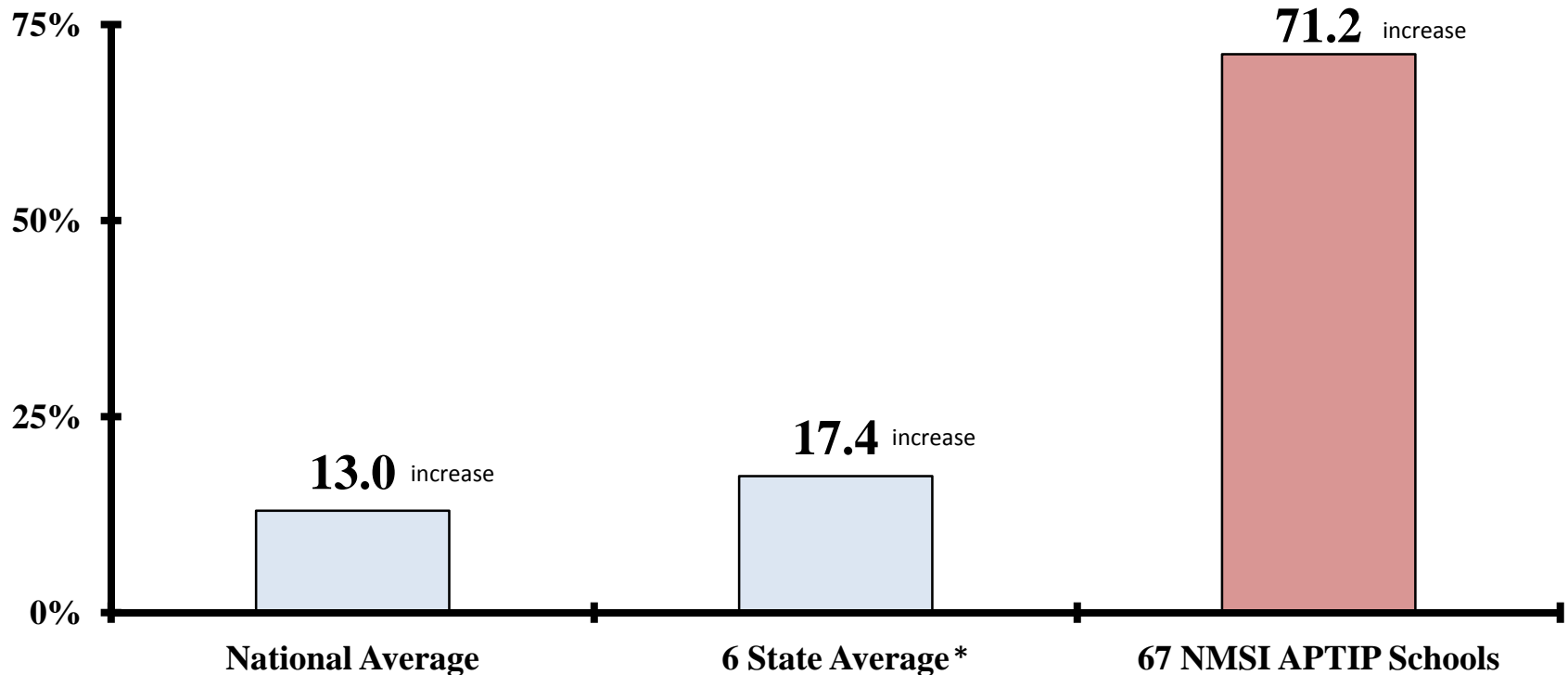
Source: College Board. National average is for public schools only.

\*NMSI is funding replication of the APTIP program in 6 states: AL, AR, CT, KY, MA, and VA.



# APTIP is closing the achievement gap in math and science for African American and Hispanic students.

**Percent increase in AP exams passed in math, science, and English for African American and Hispanic students for 2008-09 school year**



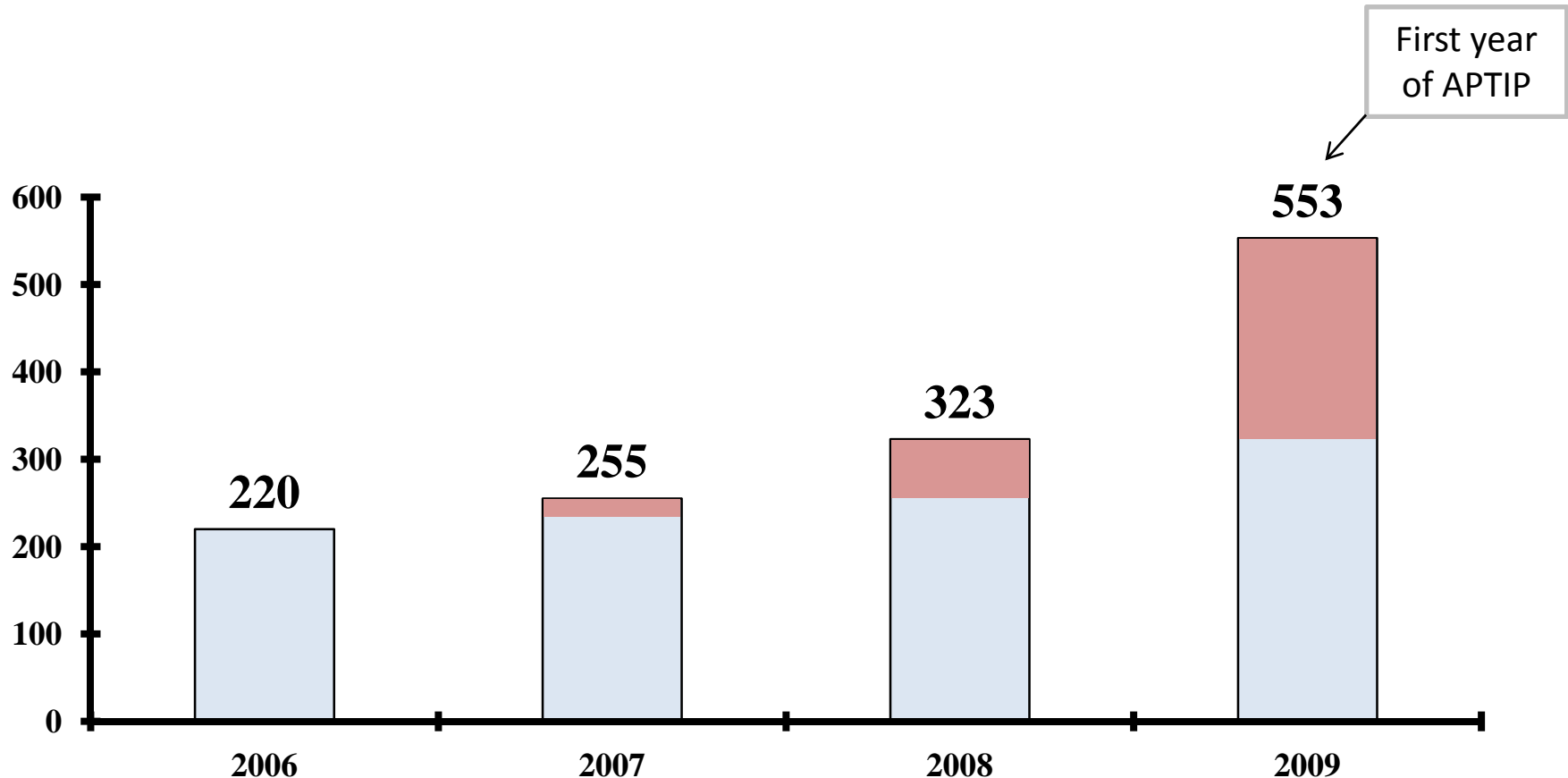
Source: College Board. National average is for public schools only.

\*NMSI is funding replication of the APTIP program in 6 states: AL, AR, CT, KY, MA, and VA.



# U.S. students can succeed at math and science, when we equip them.

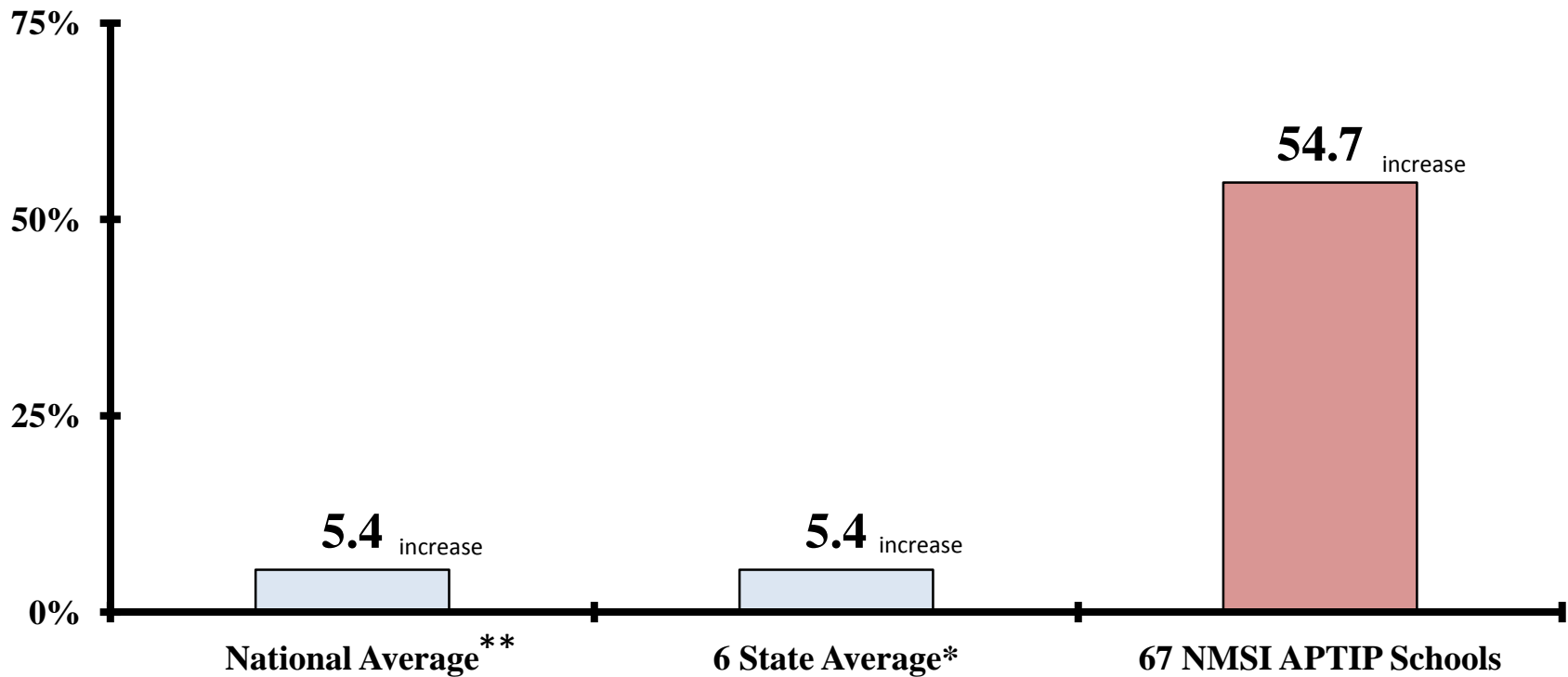
AP exams passed in math, science, and English for **African American and Hispanic students** in 67 NMSI APTIP schools for 2008-09 school year





# NMSI is expanding opportunity for female students, who are traditionally under-represented in math and science.

**Percent increase in AP exams passed in math, science, and English for females for 2008-09 school year**



Source: College Board. National average is projected and for public schools only.

\*NMSI is funding replication of the APTIP program in 6 states: AL, AR, CT, KY, MA, and VA. \*\*Based on data available 8.20.09.



# This proven program has the potential to impact even greater numbers of American students.

## Next Steps: Goals for the 2009 – 2010 School Year

- 1,000 NMSI-trained teachers.
- Over 27,000 AP exams taken by students in AP math, science, and English courses.
- Over 10,000 AP exams passed in math, science, and English.

**“I feel like I have truly grown into such a better AP chemistry teacher...You have helped me so much, so that I can help my kids even more.”**

*-Note from an AP Chemistry teacher in Virginia to NMSI's Director of Standards and Quality*

## Looking Ahead: NMSI Five-Year Goals

- NMSI affiliates with sustainable operations in 350 public high schools.
- 2,500 NMSI-trained teachers.
- Over 150,000 exams taken in AP math, science, and English.



# Investing in proven methods is improving math and science education in American public schools.

**A special thank you to NMSI's generous financial and program partners for making these results possible and for your commitment to improving math and science education in America.**

## **Founding Partners**

Bill & Melinda Gates Foundation  
ExxonMobil Corporation  
Michael & Susan Dell Foundation

## **Supporting Partners**

IBM  
O'Donnell Foundation  
Perot Systems

## **State Partners**

### **A+ College Ready**

A+ Education Foundation  
Alabama Mathematics, Science, and Technology Education Coalition  
Alabama Power Foundation  
Alabama State Department of Education  
AZ Technology  
Boeing  
Belzon  
COLSA Corporation  
Compass Bank  
ERC, Inc.  
First Commercial Bank  
Governor Bob Riley  
Montgomery Ed Foundation  
Public FA, Inc.  
RBC Bank  
Regions Bank  
Science Applications International Corporation  
System Studies and Simulation, Inc.  
WILL Technology

### **Arkansas Advanced Initiative for Math and Science**

Arkansas Advanced Placement Development Center  
Arkansas Department of Education  
University of Arkansas – Little Rock  
Walton Family Foundation

### **AdvanceKentucky**

Appalachian Regional Commission  
Commonwealth of Kentucky  
Kentucky Council on Postsecondary Education  
Kentucky Department of Education  
Kentucky Higher Education Assistance Authority  
Kentucky Science and Technology Corporation  
Partnership for Successful Schools  
US Department of Education AP Incentive Program

### **Project Opening Doors**

Connecticut Academy for Education in Mathematics, Science and Technology  
Connecticut Business and Industry Association  
Connecticut Department of Higher Education  
Connecticut Science Center  
Connecticut State Department of Education  
Northeast Utilities  
US Department of Education

### **Virginia Advanced Study Strategies**

Altria  
Dominion  
Halifax Educational Foundation, Inc.  
Institute for Advanced Learning & Research  
Old Dominion Electric Cooperative  
Revitalization Commission  
Virginia Tobacco Indemnification and Community  
Southern Virginia Higher Education Center

### **Massachusetts Math and Science Initiative**

Alden Trust  
Abbott Bioresearch Center  
American Honda Foundation  
Boston Foundation  
Commonwealth of Massachusetts  
Davis Foundation  
Fuller Foundation  
Genzyme  
Jane's Trust  
Liberty Mutual Foundation  
Linde Family Foundation  
Massachusetts Department of Elementary and Secondary Education  
Massachusetts Department of Higher Education  
MassMutual Insurance  
Microsoft Corporation  
Morgan-Worcester, Inc.  
Motorola  
Nellie Mae Education Foundation  
Noyce Foundation  
State Street Foundation, Inc.  
UMass Medical Center  
Unum  
Worcester Polytechnic Institute



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