Will This Be Another American Century?
The Place of the American Educational System in an Age of Globalization

Jonathan Plucker
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Mini-University 2012
Overview

• What Does the 21st Century Hold in Store for the United States?

• How Do We Currently Compare to Other Education Systems Around the World?

• Where Are the “Pressure Points” to Solve Our Problems?

• What Can We Do About It?
Center for Evaluation and Education Policy (CEEP)

• CEEP promotes and supports rigorous program evaluation and nonpartisan policy research primarily, but not exclusively, for education, human service and non-profit organizations.

• In the area of K-12 education policy, CEEP’s mission is to help inform, influence and shape sound policy through effective, nonpartisan research and analysis.

• For more information about CEEP, go to: http://ceep.indiana.edu
THE 21ST CENTURY
• Increasing globalization
  – ... although not close to it yet
• Increasing levels and sophistication of technology
  – ... for good and evil
• Return to two major superpowers
• Developing countries nearing end of that process
• Probably more economic equality among countries, less within countries.
• Immigration/migration patterns are changing.
Figure 2-30
Internationally mobile students enrolled in tertiary education, by country: 2009
The 21st Century ...

• ... is clearly proving to be a brave new world where skills and talents that previously helped us achieve success need to be rethought.
HOW DO WE STACK UP AGAINST THE COMPETITION?
2009 R&D Spending as GDP %

Source: NSF National Center for Science and Engineering Statistics

Includes stimulus funding
U. S R&D Expenditures, in $ Billions

Source: NSF National Center for Science and Engineering Statistics
Public Attitudes

- 64% believe U.S. leadership in R&D is very important
- ... yet only 42% believe U.S. will be the global leader in 2020.
- 70% believe science and math education will have a major impact on the nation.

– Source: March 2012 Research!America poll of 1,005 likely voters
It’s All About the Pipeline

• “The success of the United States in the 21st century – its wealth and welfare – will depend on the ideas and skills of its population. These have always been the Nation’s most important assets.” (p. v)

• “Despite our historical record of achievement, the United States now lags behind other nations in STEM education at the elementary and secondary levels. ... On the [NAEP], less than one-third of U.S. eighth graders show proficiency in mathematics and science.” (p. v)

  – President’s Council of Advisors on Science and Technology (PCAST), 2010, *Prepare and Inspire: K-12 Education in Science, Technology, Engineering and Math (STEM) for America’s Future*
2009 PISA Results, Overall Ranks

<table>
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<tr>
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<th>Mathematics</th>
<th>Science</th>
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<tr>
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<td>UK – 28</td>
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<tr>
<td>UK – 25</td>
<td><strong>US – 31</strong></td>
<td>France - 27</td>
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</table>
However ...

- Asian Americans scored 541, 2\textsuperscript{nd} only to Shanghai
- White students scored 525, Top 10, on par with Singapore and Canada
- Hispanic students scored 466, \textasciitilde40\textsuperscript{th}, similar to Lithuania and Turkey
- Black students scored 441, \textasciitilde45\textsuperscript{th}, behind Serbia but ahead of Bulgaria
A Widening Excellence Gap

TIMSS may be a better international assessment on which to base policy, since it samples by grade and not age and is similar in many ways to NAEP.

Both in absolute and relative terms, it is clear the U.S. is at a huge disadvantage.
MIND THE (OTHER) GAP!
The Growing Excellence Gap in K-12 Education

Jonathan A. Plucker, Ph.D.
Nathan Burroughs, Ph.D.
Reiling Song
February 4, 2010
What is the Excellence Gap?

- There has been a lot of focus on minimum competency achievement gaps
  - the overall average gaps at low to medium levels of performance between demographic groups
- Comparatively little attention to gaps in performance among high ability students
  - In a good educational system we should see both equity AND excellence
  - Plenty of evidence this can happen
Super Awesome Quote!

• Education systems that fail to develop the potential of students from every background can make claims to neither excellence nor equity, neither quality nor equality.
Why Should We Care?

• Life prospects of students from disadvantaged backgrounds
• Equity of the Educational System
  – Shouldn’t there be roughly the same percentage of high-performing students from every background?
• Is minimum competency really enough?
• International Competitiveness & Pipeline Issues
Measuring the Excellence Gap

Percent Scoring at the Highest Level
For example …
Free and Reduced Lunch (FARM) : 6% Advanced
Non-Free and Reduced Lunch (Non-FARM) : 15% Advanced
15% - 6% = Excellence Gap of 9%

Can also measure using scores at a given high percentile, say the student at the 90th percentile (better for statistical reasons when tracking trends)
Excellence Gaps Using the NAEP

• The National Assessment of Educational Progress (NAEP) scored on a 0-500 point scale

• Roughly every two years by the U.S. Department of Education

• Performance Levels are Determined by Cut-Scores (Basic, Proficient, Advanced)

• Built on framework similar to TIMSS
2011 NAEP Math Results

**SMALL BUT PERSISTENT GENDER GAPS**

**LARGE, GROWING RACIAL GAPS**

**LARGE, PERSISTENT ELL GAPS**

**LARGE, GROWING SES GAPS**

<table>
<thead>
<tr>
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<th>Grade 8</th>
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<tr>
<td>Free</td>
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</tr>
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</table>
Summary of 2011 NAEP

- There are large gaps in the advanced achievement of under-represented groups relative to their peers on multiple assessments.
  Race, Socioeconomic Status, English Language Learners

- These populations are growing as a share of all students.

- These high potential students cannot “take care of themselves.”
TRENDS
% Advanced in Math Grade 4

NCLB

White
Black
Hispanic

CENTER FOR EVALUATION & EDUCATION POLICY

26
% Advanced in Reading Grade 8

NCLB

White
Black
Hispanic
Asian


0.0 0.3 0.5 0.5 0.6 0.8 0.8 0.4 0.7 0.8 1.0 0.7

3.3 3.4 3.8 3.7 4.3 4.1 3.8 3.8 4.7

27
Long-Term Trends in the Excellence Gap

• If we go back before the passage of NCLB, there isn’t much evidence that the gaps are shrinking – many have become much larger.

• In 2009 and 2011 the numbers for ELL students were especially discouraging, giving back most if not all previous gains over the last dozen years.
Projected Trends in Reading Grade 4
More Evidence for the Excellence Gap

% of Tests Receiving a 4 or 5 on AP Exams

Not “underrepresented”?
BUT THEY KEEP TELLING US THERE’S A RISING TIDE ...
A Distinct Problem

• The Excellence Gap is not the same phenomenon as the achievement gap

• Although achievement gaps are somewhat larger than excellence gaps, there are also closing more quickly and consistently

• This is especially true for lower-income students during the NCLB era

• (not that we’d call the rate achievement gaps are closing fast)
Achievement vs. Excellence Gaps, FARM students 2003-2009

Rising tide?
WHAT ABOUT POVERTY?
Correlates of Poverty

- underqualified teachers
- nutrition
- risky personal behaviors
- physical inactivity
- one- or no-parent homes
- mediocre or no early childcare /preschool
- weak political base
- violence
- stereotype threat
- lower aspirations
- unrealistic expectations for the future
- limited resources for interventions
- substance abuse
- lack of educational opportunities
- lack of economic opportunities
- underqualified educational leaders
- crime
- pollution
- underqualified teachers
- “tyranny of low expectations”
- poor educational facilities
- “tyranny of low expectations”
- Different cultural/ social norms and expectations
- limited resources for interventions
- underqualified teachers
State-by-State ...

- States with over 50% of students eligible for FRL: 17
- States with over 40% of students eligible: 35
- Range from 24% to 72%

- States with majority-minority school populations: 13
- States with near-majority-minority school populations: 10
- Range from 8-92%

Source: NCES, Condition of Education, 2011 and 2012
Figure 5.
Poverty Rates by Age: 1959 to 2010

Note: The data points are placed at the midpoints of the respective years. For information on recessions, see Appendix A.
Data for people aged 18 to 64 and 65 and older are not available from 1960 to 1965.
Child Poverty Rates in Industrialized Countries


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Four Best Indicators of Advanced Achievement

- Mathematics
- Science
- Writing
- Civics
NAEP Math 2009 by FRL Grade 4

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Note: NAEP Main National Data
NAEP Math 2009 by FRL Grade 12

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Note: NAEP Main National Data
NAEP Science 2009 by FRL Status

June 22, 2012
Note: NAEP Main National Data
NAEP Science Grade 8 Advanced Scorers

June 22, 2012
Note: NAEP Main National Data
NAEP Writing Grade 8
Advanced Scorers

Grade 4 is similar, Grade 12 is disgraceful.

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Note: NAEP Main National Data
NAEP Civics Grade 12
Advanced Scorers

Grade 4 and 8 data look worse.

June 22, 2012
Note: NAEP Main National Data
WHY SHOULD YOU CARE?
• The “excellence underclass” will soon be the majority of students in most states – It already is in many states.

• A culture that values talent in all students is of unestimable benefit to everyone.
BUT WHAT CAN WE DO ABOUT IT?
1. Reduce Poverty

Fig. 11a  Government spending on families and children compared to reductions achieved in relative child poverty due to taxes and transfers

Figure 5.
Poverty Rates by Age: 1959 to 2010

Note: The data points are placed at the midpoints of the respective years. For information on recessions, see Appendix A.
Data for people aged 18 to 64 and 65 and older are not available from 1960 to 1965.
Recommendations #2 and 3

• Make Closing the Excellence Gap a State and National Priority
  – Expose people to the data
  – That which is not visible is by definition invisible.

• Stop pretending the U.S. is “post-racial” or “beyond class distinctions”
  – Much criticism of G/T programs is deserved.
Recommendation #4

• Policymakers and educators should ask two questions:
  – How will this impact advanced students?
  – How will this help more students perform at advanced levels?
5. Change accountability systems

- What ends up in the systems ends up being the focus of education.
Recommendations #5, #6, and #7

• Use things that we know work well
  – Grouping, acceleration, identification PD

• Address the “Low-Hanging Policy Fruit” Immediately
  – Early graduation and financial aid

• Common standards and assessments across states
% Advanced Math Grade 4
State vs. NAEP

[Bar chart showing comparison between state and NAEP scores for different racial groups and states.]
Closing Thoughts
“Take a big swing at it.”
The U.S. has created a great context in which to be talented, but it is very bad at developing talent.
Excessively Provocative
Closing Thought #2

There is no natural advocacy group for advanced students.
ceep.indiana.edu/mindthegap
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