Operation Public Education

Center for Greater Philadelphia
University of Pennsylvania
Operation Public Education

Assessment and Accountability Systems to Transform America’s Schools
“If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war.”

_Ushered in two decades of reform efforts_
The State of our Schools
How are we doing?
NAEP Proficiency
National Assessment of Education Progress
Math and Reading 2003; Writing 2002; Science 2000

Percent Proficient or Above

<table>
<thead>
<tr>
<th>Grade</th>
<th>Math</th>
<th>Science</th>
<th>Reading</th>
<th>Writing</th>
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</thead>
<tbody>
<tr>
<td>4th</td>
<td>32</td>
<td>29</td>
<td>32</td>
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<td>8th</td>
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</tr>
<tr>
<td>8th</td>
<td></td>
<td></td>
<td></td>
<td>31</td>
</tr>
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</table>

0 10 20 30 40 50 60 70 80 90 100
The NAEP and State Tests

Virginia - 8th grade math
- State: 71
- NAEP: 31

North Carolina - 4th grade math
- State: 90
- NAEP: 41

Percent Proficient or Above

State NAEP
The NAEP and the ISAT

8th grade math
- State: 53%
- NAEP: 28%

4th grade math
- State: 77%
- NAEP: 31%

Percent Proficient or Above

State NAEP
The Trends in International Mathematics and Science Study (TIMSS) was given in 1995 and 1999.

American students start out near the top in 4th grade, but by 12th grade are in the bottom 10 percent among developed nations.

Why? The study concludes that the math and science curriculum is “incoherent…a mile wide and an inch deep.”
Other Evidence

- *New Standards Reference Exams*: only one student in four can solve problems at the international standard

- *Quantitative Studies of Classroom Time*: 75% is devoted to lecture while Q&A focuses on “yes” or “no” search for the “right” answer
National Research Council
Report on Advanced Placement in Math and Science

- Recommended that high school students only receive college credit for a score of 5.

- Why? Too much memorization.
The Economic Argument
Test scores don’t matter.

Isn’t the American economy the envy of the world?

Our schools must be doing a heck of a lot of things right!
Growing Income Inequality

- Don’t confuse the performance of the economy as a whole with the experience all American families.
- Since 1975, nearly all of the nation’s income gains have gone to the top fifth.
- Why? According to economists, the reason is “new technologies that favor the better-educated.”
- The choice for the other 80 percent of the population is clear: high skill or low wage.
Changing Demand for Skills

- An American Management Association survey found an increase from 19% to 38% between 1996 and 1999 of entry-level job applicants who lacked the required basic skills.

- "The sharp increase in the deficiency rate... is not evident of a 'dumbing-down' of the incoming workforce. Instead, it testifies to the higher skill levels required in today’s workplace.... New technologies have raised the bar for job applicants in terms of literacy and math."
Our nation, which has prevailed in conflict after conflict over several centuries, now faces a stark and sudden choice: adapt or perish. I'm not referring to the war against terrorism but to a war of skills -- one that America is at a risk of losing to India, China, and other emerging economies. And we're not at risk of losing it on factory floors or lab benches. It's happening every day, all across the country, in our public schools. Unless we transform those schools and do it now . . . it will soon be too late.

-Louis V. Gerstner, former Chairman, IBM
“We are fooling ourselves if we believe that tweaking tax rates, training, or trade agreements will turn this tide. The global information economy here. It is brutal and unforgiving …. The only way to ensure we remain a world economic power is by elevating our public schools- particularly the teachers who lead them-to the top tier of American society.”

- Louis V. Gerstner, Chairman, The Teaching Commission
Our schools are not getting worse, but they are no longer good enough.

- Fundamental economic shifts require moving our schools to their next level of excellence.
- There is no need to blame anyone.
- It is time to get on with the process of change.
The Old System Served Its Purpose…

- Taught basic literacy
- Socialized Americans for the manufacturing workforce
- Sorted and identified the top fifth
From *Quantity* to *Quality*

- **Old System**
  - Focus on cohorts, volume and throughput
  - Hold constant the time and let the results vary

- **New System**
  - Focus on individual students
  - Hold constant the results and let the time and resources vary
A School System for the 21st Century

- We’ve asked our schools to do two unprecedented things:
  - Educate all of our children, not just the top fifth
  - Educate them to higher levels than ever before
- Flat student achievement for 25 years

We must build a new and different system focused on success in the 21st century.
<table>
<thead>
<tr>
<th>The Old</th>
<th>The New</th>
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</thead>
<tbody>
<tr>
<td>Ability</td>
<td>Effort</td>
</tr>
<tr>
<td>Bell-Shaped Curve</td>
<td>Standards</td>
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<tr>
<td>Memorization*</td>
<td>Problem Solving*</td>
</tr>
<tr>
<td>One-Size-Fits-All</td>
<td>Differentiated Instruction</td>
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<tr>
<td>Anecdotal</td>
<td>Data-Driven Decisions</td>
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<tr>
<td>Teacher-centered</td>
<td>Student-centered</td>
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</table>
No Child Left Behind

- All students must reach proficiency in reading and math within 12 years
- Adequate yearly progress (AYP) measured for
  - All students
  - All major racial/ethnic subgroups
  - Low-income students
  - Limited English proficiency students
  - Students with disabilities
No Child Left Behind

- a powerful catalyst for change
- admirable goal
- serious design flaws
- value-added assessment can improve AYP, strengthen instruction and increase student achievement
Value-Added Assessment

- First developed for Tennessee by William Sanders
- Since 1992, tracks each of the state’s 885,000 students
- 10 million records, grades 2-12 with test scores in every subject, every grade, every teacher
- Largest data base ever assembled
- Mandatory in Pennsylvania and Ohio as well as in over 300 districts and consortia across the U.S.
Philosophy Behind Value-Added Assessment

- Schools **can** and **should** add value for each student from September to June.
- This is true whether the student comes in above grade, at grade or below grade.
- Students are **entitled** to grow at least at a rate they have demonstrated in the past.
Value-Added: A New Lens
What is a good school?
Without much thought, we answer:

“Good schools are those with high test scores.”
Where do we find these schools?

In rich communities.
<table>
<thead>
<tr>
<th>Family Income and SAT Scores</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>Over $100,000</td>
<td>1129</td>
</tr>
<tr>
<td>$80,000 - $100,000</td>
<td>1085</td>
</tr>
<tr>
<td>$70,000 - $80,000</td>
<td>1064</td>
</tr>
<tr>
<td>$60,000 - $70,000</td>
<td>1049</td>
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<tr>
<td>$50,000 - $60,000</td>
<td>1034</td>
</tr>
<tr>
<td>$40,000 - $50,000</td>
<td>1016</td>
</tr>
<tr>
<td>$30,000 - $40,000</td>
<td>992</td>
</tr>
<tr>
<td>$20,000 - $30,000</td>
<td>964</td>
</tr>
<tr>
<td>$10,000 - $20,000</td>
<td>833</td>
</tr>
<tr>
<td>Under $10,000</td>
<td>873</td>
</tr>
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</table>
Most people would reject the definition of a successful school as one with wealthy students.

They are correct.
Do good schools make good students or do good students make good schools?
Field Experiment
What would happen over time if we took ... 

- Kids from the inner-city and educated them in affluent suburban schools
- Kids from the affluent suburbs and educated them in the inner-city schools

Since we can’t undertake this experiment we need a statistical method than can do it for us.
Value-added works because it separates student effects from school effects

- Student effect: e.g., ethnicity, family background, SES
- School effect: e.g., teachers, administrators and academic programs
Value-Added: The Basics

- Value-added is not a test.
- It is a way of looking at the results that come from tests.
- Value-added lets us determine whether the students in a class, school or district are making enough academic growth each year.
Don’t confuse value-added assessment with mere growth or gain

- Many people make this mistake.
- It sounds reasonable to think of the “growth” or “gain” a student makes from one year to the next as the “value” that’s been “added.”
- Value-added *assessment* is much more powerful than a simple growth or gain score.
Value-Added
Divides Annual Growth Into Two Parts

• That which is contributed by the student

• That which is contributed by the teacher
Value-Added is

- Statistically and computationally complex.
- But the idea behind it is straightforward…
Value-added calculates a projected test score for a student in a given grade and subject. The projected score is based entirely on the student’s prior academic achievement. It is then compared to the actual score at the end of the year.
What makes value-added fair?

- For children

  Value-added is fair to students because it bases their projected score only on their prior academic record. That ensures that all children are expected to make progress each year from wherever they start.
What makes value-added fair?

- For educators
  It is fair to administrators and teachers because prior academic achievement data already incorporate the student background characteristics that bias absolute test scores.
Each child serves as his own statistical control.

The Environmental Variables Remain the Same
- Family Income
- Ethnicity
- Gender
- Neighborhood
“Value-added” in projected range
“Value-added” above projection
“Value-added” below projection

These records are then averaged for all students in the teacher’s classroom over a 3-year period.
Example – Student A
Student A vs. District Average
What can we conclude?

Not much. The student appears to be consistently near average, if a little below.
But we see that in fourth grade, the student advanced at a rate far above the district average...
...and in fifth grade, the student advanced at a rate below the district average.
We can draw no conclusions about the quality of classroom activity from these facts alone...
Now, if we instead think of the line as representing:
- the average of all students in the teacher’s classroom, and
- the average of three years of the teacher’s classrooms,
then we can draw meaningful conclusions about what’s happening in that class.
Value-Added
Levels the Playing Field

Value-added measures the difference between actual and projected.
Value-Added Levels the Playing Field

Value-added measures the difference between actual and projected.
Defining a successful school

- Each year the performance of the students exceeds what is expected of them, given their academic background.
- Over time all students are able to achieve high standards (NCLB).
Value-Added in a Standards World

(Hypothetical Progression)

Student Achievement

Grade

The Standard

Closing the Gap

• Instructional leadership
• More time for struggling students
• Adequate resources

Not “losing ground”

Right Now
Value-Added Findings

Patterns from the Data
Value-Added for Tenn. Schools

There are some very good schools and some very poor schools, but it is **impossible** to determine where a school falls just by knowing its location or the make-up of its student body.

**Math: 1996-97**
Does the Percentage of Students Receiving Free and Reduced-Price Lunches Affect System Gains?

Cumulative Gain of a Large East Coast County’s School Systems Compared with the Percentage of Students Receiving Free and Reduced-Priced Lunches

Income has no effect on value-added
Minority status has no effect on value-added

Does the Percentage of Minority Students Affect School Gains?

Cumulative Gain of Tennessee Schools
Compared with the Percent of Minority Students in the School

Reading

Each dot represents 1 school
Horizontal line at 100% represents gain equal to national norm gain.

3 Year Average Gain
July 1997
Teacher Effectiveness

Teacher Experience

First 10-12 years

Second 10-12 years

Typical Salary Schedule

After 20-24 years
Value-Added
Findings From Tennessee

The Teacher Effect
The Importance of Teacher Sequence

Cumulative Effects of Teacher Sequence on Fifth Grade Math Scores for Two Metropolitan Systems

Teacher Sequence
System: A B

Refer to the corresponding research (CTB/McGraw-Hill 1999, pp. 104-115)
Probability that a bottom-quartile 4th grade student will pass the high-stakes graduation exam in 9th grade

Poor teacher sequence: <15%
Average teacher sequence: 38%
Good teacher sequence: 60%
# Cumulative Effects of Value-Added

<table>
<thead>
<tr>
<th>TVAAS Scores</th>
<th>75%</th>
<th>100%</th>
<th>140%</th>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>2.75</td>
<td>3</td>
<td>3.4</td>
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<td>4</td>
<td>3.5</td>
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<td>4.8</td>
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<td>4.25</td>
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<td>5</td>
<td>6</td>
<td>7.6</td>
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<td>7</td>
<td>5.75</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>6.5</td>
<td>8</td>
<td>10.4</td>
</tr>
<tr>
<td><strong>GRADE LEVEL IMPACT</strong></td>
<td><strong>-1.5</strong></td>
<td><strong>0</strong></td>
<td><strong>+2.4</strong></td>
</tr>
</tbody>
</table>

This means a difference of almost 4 grade levels by the end of middle school.
Tennessee research shows that teacher effectiveness is the single most powerful predictor of student progress — stronger than income, class size, race or family educational background.
Using Value-Added to Inform Instruction
Diagnostics 1

The Focus of Instruction
This pattern – of high early achievement followed by extremely low value-added – is quite common, especially in urban districts.
In this pattern – frequently found in suburban districts – the teacher is teaching to the high achievers at the expense of other students.
In this pattern, the teacher is teaching right down the middle.
Sustained Growth

115-120%

Closing the gap

100%

Low

105%

Still making gains

Average

High

Previous Achievement
Diagnostics 2

The Impact of Instruction
Value-Added: Three Results

100% | No Detectable Difference (NDD) | 100%

Above

Below

(using 3-year running averages)

One year’s worth of growth (using 3-year running averages)
Diagnostics 3

Combining the Focus and Impact of Instruction
Example:
Four 5th Grade Classrooms

100%

No detectable difference

Reading  Language Arts  Math  Social Studies
Example: High School English Dept.

No detectable difference
Tepee Pattern
Using Previous Academic Achievement Levels
Example 1

No detectable difference
Tepee Pattern
Using Previous Academic Achievement Levels
Example 2

No detectable difference
Shed Pattern

Using Previous Academic Achievement Levels

Example

No detectable difference
Reverse Shed Pattern
Using Previous Academic Achievement Levels

Example

No detectable difference
Value-added is a powerful catalyst

- Promotes job-embedded professional dev.
- Ends the isolation of teaching
- Builds learning communities
- Facilitates data-driven decision-making
- Boosts morale among educators in high value-added schools that have traditionally been “low-performing”
The Importance of Classroom-Level Data

- Struggling students are not randomly distributed in classrooms
- They are found highly correlated with ineffective teaching
- Address causes – not only symptoms
- Instructional improvement requires classroom-level data
Value-added assessment is only a thermometer; if we don’t analyze the information and use it, nothing happens.
Value-Added and Accountability

Reflections on the Tennessee Experience

- Importance of statewide rollout
- Privacy laws
- Use in individual teacher evaluations
- NCLB context
- Will value-added be used effectively?
Comprehensive Reform
Guiding Principle

“Always do what’s best for children as long as it’s fair for educators”
Operation Public Education’s Comprehensive Reform

- Focused on improving student achievement
- Transformative rather than punitive
- Fair to educators and credible to the public
Units of Accountability

- *No Child Left Behind: A K-12 Watershed*
  - Holds schools accountable for student performance

- *Operation Public Education* complements NCLB by helping schools reach AYP
  - Holds students accountable
  - Holds individual teachers and administrators accountable
Assessment

- Value-added analysis
- Common metric
- Much improved end-of-the-year *summative* exam that measures higher-order thinking skills
- Integrated *formative* testing regime over school year that provides teachers at 4-6 week intervals with pedagogical interventions to increase student achievement
Evaluation & Compensation

Evaluation

• A system that for the first time considers student learning results – *outputs* – along with multiple *input* measures through an improved observation process
  
  – Value-added progress
  
  – Charlotte Danielson framework
Observation protocols in four domains:

- Planning and preparation
- Classroom environment
- Instruction
- Professional responsibilities
Peer Review

- All observations in these domains are conducted by expert peers
Value-Added:
Three Instructional Results

Highly effective: 
Above

Effective:
No Detectable Difference (NDD)

Ineffective:
Below

(Using a 3-year running average)

100%
Compensation

- Career ladders that allow educators to advance based on their knowledge and skills and on the learning gains of their students
  - Stages for apprentice, career, advanced and distinguished teachers
  - Not merit pay
# Teacher Career Ladder

Teachers start here.

<table>
<thead>
<tr>
<th>ASCD</th>
<th>Value-Added</th>
<th>Career Ladder Rung</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced &amp; NBPTS</td>
<td>Highly Effective</td>
<td>Distinguished</td>
</tr>
<tr>
<td>Advanced</td>
<td>Highly Effective</td>
<td>Advanced</td>
</tr>
<tr>
<td>Proficient</td>
<td>Effective</td>
<td>Career</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Apprentice</td>
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</table>
Additional Incentives

- Districts may differentiate compensation and/or offer bonuses for hard-to-staff positions such as math and science or for work in less desirable school environments.
- Bonus amounts are negotiated through collective bargaining.
Mandatory Remediation

- Mandatory remediation for struggling teachers
- PAR Panel (including teachers and administrators) reviews all requests for remediation and designs interventions
- Struggling teachers are guided by expert peers throughout the process
# Administrator Career Ladder

Administrators start here.

<table>
<thead>
<tr>
<th>SLLC*</th>
<th>Value-Added</th>
<th>AYPs</th>
<th>Career Ladder Rung</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced</td>
<td>Advanced</td>
<td>Exceeding AYP</td>
<td>Distinguished</td>
</tr>
<tr>
<td>Proficient</td>
<td>Proficient</td>
<td>Meeting AYPs</td>
<td>Career</td>
</tr>
<tr>
<td>50%</td>
<td>25%</td>
<td>25%</td>
<td></td>
</tr>
</tbody>
</table>

*School Leaders Licensure Consortium*
Professional Development

- Mentoring for new teachers
- Teacher coaches
- Significant increase in number of professional development days to help all teachers and administrators master new skills
Capacity-Building

- Provide technical assistance teams for schools and school districts that are not succeeding
- Address the problem of “perverse incentives”
- Strengthen regionally available assistance (e.g., BOCES in NY and IUs in PA) to provide professional development
Establish Academic Achievement and Accountability Commission

- Independent
- Empirical evaluation of all components
- Monitor progress
- Recommend changes
From Industrial to Professional Unionism
Teaching Career Issues

- 33% of teachers drop out in first three years
- 46% of teachers drop out in first five years
- 50% higher drop out rate in urban districts
- “Leavers” have a stronger profile than “stayers”
- Burnout often characterizes last third of career
- 2 million of the 3.4 million teachers will need to be replaced over the next decade – three times as through attrition as retirement
Recruiting new teachers for the existing system

- Quality likely to diminish without changing the nature of the teaching profession
- Career options for women and men: 1975 and 2005
The OPE system transforms the teaching profession

- New compensation system and career ladder will attract more of the “best and brightest”
- New forms of professional development end the isolation of teachers and teaching
- Schools become “learning communities” -- exciting places in which to work
- Teaching becomes more intellectually stimulating through focus on effective classroom instruction
The Current System Divides Educators

- Teachers are treated as “labor” and given a say in “bread and butter” issues
- Administrators and school boards are seen as “management” and given complete over education policy
- Success for students requires all educators working together
Union Concerns I
Challenge to current local leadership

- New expertise valued: curricula, pedagogy, professional development
- But “bread and butter” issues will remain very important
- Collective bargaining sets salary at entry-level and at each rung of the career ladder. OPE sets minimum, not maximum increases
Union Concerns II
Fear of evaluations

- *Insecure teachers*: OPE system is balanced (inputs and outputs), includes peer review, and gives teachers pivotal role in remediation.

- *Struggling and “burned out” teachers*: will get help to improve their craft through significant expansion of professional development.

- *Truly ineffective teachers*: a genuine chance to improve, but a fair way to remove those who are harming children.
Union Concerns III
Reduced role for national & state unions

- Expertise for collective bargaining remains important
- New opportunities for educating new teachers (Boston and Columbus)
- Enormous potential to play dominant role in providing professional development
Union Concerns IV
Fear of change and of the unknown

- Change is unavoidable
- Standards and accountability are not “fads,” they cannot be “waited out,” and they won’t go away
- They are driven by real-world economic change --not by educators with a better idea re teaching
- OPE system is far, far more than “pay-for performance”
- Think clearly about the new role it gives teachers and unions
Greatly Expanded Role for Teachers
in return for individual-level accountability

- Peer review in evaluations
- Four votes on the seven-member remediation panel
- Equal share of decision-making authority on all issues that affect classrooms
21st Century is the Knowledge Century

- Teachers are the knowledge workers
- Eradicate from our culture: “those who can, do, and those who can’t, teach”
- Transform the profession and become “United Mind Workers”
- Now is the time for union leaders to lead – to move to the vanguard of change
- Shape the future rather than be shaped by it
“History will not excuse the inadequacy of response because of the enormity of the challenge.”

George Kennan
For additional information on our package of reforms, please contact:

cgpinfo@pobox.upenn.edu

or (215) 746-6478

Or see our website at http://operationpubliced.org