Workshop 1: What's This All About?

PRINCIPLE: Principal as Articulator of Core Values

FOCUS QUESTION: What is the national picture and what happens if it doesn't connect with the our personal visions?

The national picture for science and math education reform provides a backdrop for principals whose responsibility is forming and articulating a collective vision. In this workshop, principals examine the implications of TIMSS, state testing, and standards, and look at authentic student work in classrooms. The workshop profiles two ways of implementing standards in a lesson—implicitly and explicitly—and features a high school that has raised standards across the board, resulting in increased transfers of students who can't complete the requirements for graduation.

Preparatory Readings

We suggest that you read the following articles, included in the Appendix at the back of this Guide, prior to viewing Workshop 1:

"Tinkering with TIMSS" (Bracey)
"Facing the Consequences" (Schmidt)

Workshop 1

Video Clips

Massachusetts Govenor's Press Conference

"We have set high standards . . ."

In a scene echoed across the country in the 46 states that currently require high stakes testing, Massachusetts Acting Governor Paul Cellucci presents his reaction to the results of the statewide testing program in a State House press conference. The politicians' views contrast with those expressed by educators opposed to the testing program.

Gerald Bracey

"Limitations of TIMSS"

Gerald Bracey (author of "The Bracey Report" and other books and publications refuting the commonly held view that public education is in crisis) discusses the disconnect between the political implications and the scientific implications of TIMSS and other standardized tests.

Donna Vigneau-Carlson—Coventry Middle School

"Build standards into every lesson"

Coventry Middle School, in the suburban district of Coventry, RI, has 950 7th and 8th graders. The principal, Donna Vigneau-Carlson, presents her school's approach to implementing standards: build them into every lesson in a conscious way that lets the students know what they are expected to learn. Deborah Jervis, an 8th grade math teacher, provides an example from a unit on probability.

Larry Myatt—Fenway High School

"Open-ended investigation"

At Fenway High School in Boston, MA—a pilot public school of 250 students grades 9 through 12—first-year teacher Eileen Chen and principal Larry Myatt illustrate a different approach to standards. In a biology unit of an integrated sciences curriculum, Eileen asks her students to make predictions and pursue an open-ended investigation in work with fruit flies.

Sam Butscher—Thurgood Marshall High School

"High standards"

Thurgood Marshall High School in San Francisco, CA—an inner city school of approximately 900 students—is raising achievement to the same level as the district's selective admissions high school by developing their own set of rigorous standards, and raising expectations. By requiring 280 credits for graduation instead of 220, and by providing individualized support for students that need it, Principal Sam Butscher has achieved a college acceptance rate of over 95%—at the cost of a large attrition rate of students who drop back to their former high schools when they fail to meet the graduation requirements. Conceptual Chemistry teachers Laurel Reitman and Nicole Nunes provide a look at how this plays out in the classroom.

Research Data

Council of Chief State School Officers

Annual Survey of State Student Assessment Programs as of 1997

Subjects assessed	# of states
Science	34
Math	46

Council of Chief State School Officers

Science and Math Assessed with Nontraditional Items Used as of 1997

Subjects assessed	# of states
Science	15
Math	30

Council of Chief State School Officers

Math and Science Nontraditional Items Used as of 1997

Nontraditional items used	# of states Science	# of states Math
Portfolios	0	2
Hands-on performance	5	4
Extended response	11	22
Short Answer	7	17
Multiple choice or student explanation	0	4
Multiple choice or multiple correct	3	4

Council of Chief State School Officers

Development of Nontraditional Items Used Math and Science as of 1997

Development of nontraditional items used	# of states Science	# of states Math
Piloting ready for use or in use	15	24
Development stages	9	10
Pre-development stages	4	5

Council of Chief State School Officers

States with Testing in Math and Science as of 1997

State	Math	Science	State	Math	Science
AK	A	A	MT	A	A
AL	A	A	NC	A	A
AR	A	A	ND	A	A
AZ	A	A	NE	-	--
CA	A	A	NH	A	A
CO	--	--	NJ	A	A
CT	A	A	NM	A	A
DE	--	--	NV	A	--
FL	A	--	NY	A	A
GA	A	A	OH	A	--
HI	A	A	OK	A	A
IA	0	0	OR	A	A
ID	A	A	PA	A	--
IL	A	A	RI	A	--
IN	A	--	SC	A	A
KS	A	A	SD	A	A
KY	A	A	TN	A	A
LA	A	A	TX	A	A
MA	A	A	UT	A	A
MD	A	A	VA	A	--
ME	A	A	VT	V	--
MI	A	A	WA	A	A
MN	V	V	WI	A	A
MO	A	A	WV	A	A
MS	A	A	WY	S	S

A=All students V=Voluntary S=Sample

Nations With Scores Significantly Higher Than the US

Grade 8/Mathematics

Nations	Average
Singapore	643
Korea	607
Japan	605
Hong Kong	588
Belgium-Flemish	585
Czech Republic	584
Slovak Republic	547
Switzerland	545
(Netherlands)	541
(Slovenia)	541
(Bulgaria)	540
(Austria)	539
France	538
Hungary	537
Russian Federation	535
(Australia)	530
Ireland	527
Canada	527
(Belgium-French)	526
Sweden	519

Nations in parentheses did not satisfy one or more of the TIMMS' guidelines.

Nations With Scores Significantly Higher Than the US

Grade 8/Science

Nations	Average
Singapore	607
Czech Republic	574
Japan	571
Korea	565
(Bulgaria)	565
(Netherlands)	560
(Slovenia)	560
(Austria)	558
Hungary	554
U.S.	534
National Average	516

Nations With Scores Significantly Higher Than the US

Grade 12/Science

Nations	Average
(Netherlands)	560
Sweden	552
(Denmark)	547
Switzerland	540
(Iceland)	534
(Norway)	528
(France)	523
(Australia)	522
New Zealand	522
Canada	519
(Austria)	518
(Slovenia)	512
(Germany)	495
Hungary	483
(Italy)	476
(Russian Federation)	471
(Luthuania)	469
Czech Republic	466
U.S.	461
National Average	500

Nations in parentheses did not satisfy one or more of the TIMMS' guidelines.

States Using Standards as of 1998

Math Standards	
High School	39
Middle School	41
Elementary School	41

Science Standards	
High School	36
Middle School	39
Elementary School	35

Workshop 1

Discussion Questions

(remember to choose a Structure from those listed on pages 12 to 14)

- What is the relationship between testing and standards?
- What message are we sending to parents and teachers about what is important?
- How is it possible to truly have rigor without losing students in the process?
- How can I be true to my own values, especially if they are sometimes different from what is being asked of me?
- How different are the visions, standards, and expectations in the three classrooms featured in this workshop video? What core values are evident in each?
- How should a teacher actually use the standards in the classroom? Is it valuable to articulate them?
- How does the principal reckon with all of the conflicting points of view?
- How do you establish a balance between a policy directive and good learning?

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Kendall, John S., and Robert Marzano. *Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education.* Aurora, CO: Mid-continent Regional Edu. Lab., 1996.

Newmann, F. M., M. B. King and M. Rigdon. "Accountability and School Performance: Implications from Restructuring Schools." *Harvard Educational Review* 67.1 (1997): 41–74.

Newmann, F. M., W.G. Secada, and G. C. Wehlage. *A Guide to Authentic Instruction and Assessment: Vision, Standards and Scoring.* Madison, WI: Wisconsin Center for Education Research, U of Wisconsin, 1995.

Schmidt, W. H. "Facing the Consequences Using TIMSS for a Closer Look at United States Mathematics and Science Education." Press Statement by Mr. William H. Schmidt, U.S. TIMSS National Research Coordinator, Michigan State University.

Workshop 1

Web sites

Aubrecht, G.J. "What Lessons to Learn?" 1999. Internet Address: http://www.physics.ohio-state.edu/'aubrecht/TIMMS.html

Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education. Internet Address: http://www.mcrel.org/

Educational Standards and Curriculum Frameworks for Math. Internet Address: http://putwest.boces.org/StSu/Math.html

Educational Standards and Curriculum Frameworks for Science. Internet Address: http://putwest.boces.org/StSu/Science.html

Math Association of America. Internet Address: http://www.maa.org/

National Education Goals: By the Year 2000. Internet Address: http://www.ed.gov/pubs/AchGoal4/neg.html

"Poor Performance in Math and Science Testing Confirms Need for Concerted Effort In School Reform" 24 February 1998. Internet Address: http://www.eurekalert.org/releases/aaas-sciedscores.html

Smart School. Internet Address: http://www.projectzero.harvard.edu/HPZpages/SmartSchl.html

State Testing and Standards. Internet Address: http://www.ccsso.org/

Studies of Education Reform (1991-1995) 3 vol. and "Fitting the Pieces". Internet Address: http//www.edgov/pubs/SER

More information on TIMSS and the Resource Kit Attaining Excellence: A TIMMS Resource Kit. Internet Address: http://timss.enc.org/TIMMS/timss/index.html and timss@ed.gov