

PRESS CONTACT:

**Lydia Pelliccia**

202.422.5205, lpelliccia@lipmanhearne.com

**Gladys Arrisueño**

202.797.6477, garrisueno@brookings.edu

**EMBARGOED FOR RELEASE AT 10:00 AM EST on  
Wednesday, February 25, 2009**

## **New Study Shows Selective Use of Data and Political Bias in International Test**

### **Report Also Finds Encouraging Progress in Big City Districts, Despite Continued Achievement Gaps**

**Washington, D.C., February 25, 2009** – A new report from the Brown Center on Education Policy at the Brookings Institution finds serious flaws in a prominent international test and concludes that the test should not be used as a benchmark for state assessments.

The report zeroes in on an international testing program known as PISA, short for the Programme for International Student Assessment, which is administered by the Organisation for Economic Co-operation and Development (OECD). Although the United States participates in PISA, Tom Loveless, senior fellow at the Brown Center on Education Policy and author of the new study, said it has generally “flown below the radar” in this country. That may soon change, however, as the National Governor’s Association, backed by other powerful groups in Washington, pushes for states to use PISA as an international benchmark of student performance. Loveless concludes that without major reform, serious deficiencies in PISA’s approach to student assessment make it “inappropriate for benchmarking against U.S. tests.”

The study closely examines the science portion of the test and argues that PISA’s architects make unwarranted leaps between student attitudes and academic performance. It contrasts PISA’s educational philosophy with that of another international test, the Trends in International Mathematics and Science Study (TIMSS). While TIMSS aims simply to assess how well students have learned mathematics and science taught in school, PISA defines knowledge more broadly and views social environment and attitude, not just instruction, as crucial to how much students learn. The study casts doubt on PISA’s claim that “building students’ confidence in their ability to tackle scientific problems is an important part of improving science performance.”

When the Brown Center recalculated the correlation between national indices of student attitudes and academic performance, using a methodology more conventional than the one employed in the latest PISA report, in almost every area it found a negative correlation between attitudes and substantive knowledge. This is consistent with a previous Brown Center report that found, for instance, that relatively low-scoring American eighth graders have much higher confidence in their math abilities than much higher-scoring Singaporean eighth graders. On the PISA science test, a similar pattern exists. High scoring nations in science do not necessarily have students with more positive attitudes toward the subject.

The report says, “Nations that launch bold new programs to increase student enjoyment of science may see no benefits from their efforts. Whether changing students’ attitudes, beliefs, and values will help or hinder science learning cannot be determined from PISA data.”

The Brown Center analysis also found ideological bias in PISA. The test asks students various “attitudinal” questions about environmental issues. These questions, the report contends, “elicit students’ beliefs about issues, not their knowledge of issues.” The items that measure “a sense of responsibility for sustainable development” are especially troubling. Students are presented with several environmental policies and asked if they agree or disagree with them. Students who agree or strongly agree with these policies possess “a sense of responsibility for sustainable development.” Students who disagree or strongly disagree with these policies are deemed deficient in such responsibility.

**Correlations of Attitudinal Variables and Student Performance on PISA 2006**  
(Rank-ordered by between-nation coefficient)

Table  
**1-2**

Variable	Between-Nation (Brown Center)	Pooled Nations (OECD)
Students’ awareness of environmental issues	0.66	0.43
Self-efficacy in science	0.23	0.33
Students’ responsibility for sustainable development	-0.24	0.18
Students’ level of concern for environmental issues	-0.48	0.01
General value of science	-0.49	0.22
Support for scientific enquiry	-0.52	0.25
Students’ optimism regarding environmental issues	-0.52	-0.17
Personal value of science	-0.72	0.12
Self-concept in science	-0.73	0.15
Enjoyment of science	-0.76	0.19
Instrumental motivation to learn science	-0.77	0.09
Students’ science-related activities	-0.79	0.04
Interest in scientific topics	-0.80	-0.06
General interest in science	-0.82	0.13
Future motivation to learn science	-0.83	0.08

positive values

Note: Between-nation correlations are Pearson-product moment correlations of 1) national means on science performance and 2) national means on attitudinal variables, computed by Brown Center. Correlations based on pooled OECD nations are reported by OECD, Table A10.3, page 373, Vol. 1, PISA 2006.

The Brown Center Report argues that the positions students take on environmental policies reflect political judgment, not scientific literacy, and that questions eliciting political beliefs are inappropriate on the PISA assessment. The report concludes that PISA needs nongovernmental participation built into its oversight structure and a thorough review for political bias.

“The OECD routinely scrubs PISA items for gender and cultural bias,” the study says. “It is imperative that PISA be scrubbed for ideological bias as well.” That doesn’t mean attempting political “balance” by including items reflecting different political views, it says. Instead, the Brown Center report concludes, “the solution is to avoid asking such questions altogether. This is a science test. Stick to the science.”

### **Student Achievement On The Rise in Many Big City Schools**

Another section of the new Brown Center report offers positive news about student achievement in many of the nation’s largest urban school districts. While a number of recent reports have given encouraging accounts of improvement in big-city classrooms, this new analysis goes further by comparing large urban schools to their rural and suburban counterparts in the same state.

“Our approach stems from a concern for equity,” says Loveless. While it is always encouraging to see urban schools improve on state tests and the National Assessment of Educational Progress (NAEP), Loveless said, “if more affluent schools are improving even faster, that would raise disquieting questions about whether urban children are receiving an inferior education just because of where they live.”

The study examined test scores for 37 urban districts, using a statistical measure known as a “z-score” to standardize scores between states using different tests. “City districts still lag behind,” Loveless said, “but we were glad to find that twenty-nine of the thirty-seven big city school districts closed the gap between their test scores and state averages.”

For eight districts, the gap did not close, and the report cautions that the positive news must be kept in perspective. “Most big city school districts still trail far behind their suburban and rural peers,” it says. In Milwaukee, Indianapolis, Detroit, Philadelphia, and Baltimore, for instance, test scores are two standard deviations below state averages.

The study is also cautious in attributing improvements in urban schools to a particular policy or practice. It acknowledges a range of possible explanations, including the rise of accountability systems that reward or sanction schools based on gains among low achievers, most notably No Child Left Behind; the spread among urban school reformers of strategies that include school choice, standards, and lower class size; and the growth of mayoral control over city schools.

“We know that urban schools are doing better, but we really don’t know why,” Loveless said. The report recommends collecting better data on what urban schools are doing. An annual national inventory of local policies and practices, it says, would allow the nation “to learn from recent successes and to sustain gains into the future.”

A third section of the report, which was released in September 2008, documents the trend of placing unprepared eighth-graders into algebra and other advanced math classes.

### **About the Brown Center on Education Policy and The Brookings Institution**

Established in 1992, the Brown Center on Education Policy conducts research and provides policy recommendations on topics in American education. The Brown Center is part of The Brookings Institution, a private nonprofit organization devoted to independent research and innovative policy solutions.

For a full copy of the report as well as information about other Brown Center events and publications, please visit the Brown Center's Web site at <http://www.brookings.edu/brown.aspx>, or call Gladys Arrisueño at 202.797.6477.

###

**Achievement in big city school districts**  
(2000-2007)

Table  
**3-1**

City	State	School District	2007				2000		
			Change in Z Score	Average Z Score	% Free Lunch	% Black + Hispanic	Average Z Score	% Free Lunch	% Black + Hispanic
New Orleans	LA	New Orleans Public Schools	3.03	1.05	0.29	0.93	-1.98	0.70	0.92
Dallas	TX	Dallas Independent School District	1.89	-1.29	0.83	0.93	-3.18	0.65	0.86
Minneapolis	MN	Minneapolis Public Schools	1.59	-1.81	0.67	0.57	-3.40	0.54	0.45
Austin	TX	Austin Independent School District	1.42	-0.10	0.46	0.69	-1.52	0.42	0.59
Long Beach	CA	Long Beach Unified Public School District	1.42	0.54	0.69	0.68	-0.88	0.64	0.58
Miami	FL	Miami-Dade County Public Schools	1.40	-0.37	0.61	0.89	-1.77	0.53	0.84
San Antonio	TX	San Antonio Independent School District	1.27	-0.96	0.19	0.97	-2.23	0.80	0.94
New York City	NY	New York City Public Schools	1.09	-1.31	0.78	0.76	-2.40	0.58	0.74
Philadelphia	PA	School District of Philadelphia	1.06	-2.32	0.71	0.81	-3.38	0.42	0.75
Chicago	IL	Chicago Public Schools	0.98	-1.31	0.74	0.86	-2.29	0.56	0.86
Charlotte	NC	Charlotte-Mecklenburg Schools	0.96	0.27	0.46	0.58	-0.69	0.29	0.43
Milwaukee	WI	Milwaukee Public Schools	0.83	-3.57	0.72	0.78	-4.40	0.66	0.72
Virginia Beach	VA	Virginia Beach City Public Schools	0.65	0.91	0.26	0.33	0.26	0.17	0.26
Fresno	CA	Fresno Unified School District	0.62	-0.54	0.82	0.68	-1.16	0.62	0.53
El Paso	TX	El Paso Independent School District	0.49	-0.54	0.70	0.86	-1.03	0.59	0.80
Jacksonville	FL	Duval County Public Schools	0.41	0.00	0.42	0.51	-0.41	0.38	0.42
Houston	TX	Houston Independent School District	0.38	-0.64	0.80	0.88	-1.02	0.60	0.86
Colorado Springs	CO	Colorado Springs Public Schools	0.34	0.46	0.40	0.31	0.12	0.23	0.23
Fort Worth	TX	Fort Worth Independent Schools	0.34	-1.19	0.70	0.82	-1.53	0.53	0.70
Atlanta	GA	Atlanta Public Schools	0.29	-0.58	0.75	0.90	-0.87	0.74	0.92
Oakland	CA	Oakland Unified School District	0.28	-1.03	0.65	0.75	-1.31	0.60	0.73
Los Angeles	CA	Los Angeles Unified School District	0.27	-1.04	0.80	0.88	-1.31	0.73	0.82
San Francisco	CA	San Francisco Unified School District	0.25	0.50	0.01	0.35	0.25	0.65	0.38
Seattle	WA	Seattle Public Schools	0.15	0.39	0.39	0.34	0.24	0.19	0.31
Boston	MA	Boston Public Schools	0.15	-1.80	0.73	0.76	-1.95	0.46	0.73
Pittsburgh	PA	Pittsburgh Public Schools	0.12	-1.68	0.60	0.61	-1.80	0.42	0.56
Sacramento	CA	Sacramento Unified School District	0.10	-0.37	0.64	0.52	-0.47	0.59	0.43
Indianapolis	IN	Indianapolis Public Schools	0.08	-2.56	0.81	0.71	-2.64	0.64	0.59
Baltimore	MD	Baltimore City Public School System	0.04	-2.69	0.71	0.91	-2.73	0.65	0.85
Mesa	AZ	Mesa Unified School District	-0.08	0.92	0.53	0.38	1.00	0.19	0.19
Denver	CO	Denver Public Schools	-0.11	-1.81	0.65	0.76	-1.70	0.51	0.68
Phoenix	AZ	Paradise Valley Unified School District	-0.22	1.22	0.24	0.23	1.44	0.16	0.10
Tucson	AZ	Tucson Unified School District	-0.22	-0.14	0.56	0.60	0.08	0.34	0.47
San Diego	CA	San Diego Unified School District	-0.28	-0.53	0.60	0.58	-0.25	0.64	0.50
San Jose	CA	San Jose Unified School District	-0.48	-0.48	0.41	0.54	0.00	0.43	0.51
Las Vegas	NV	Clark County School District	-0.67	-1.06	0.46	0.51	-0.39	0.27	0.33
Detroit	MI	Detroit Public Schools	-1.12	-2.54	0.75	0.98	-1.42	0.64	0.93
Mean			0.49	-0.77	0.57	0.68	-1.26	0.51	0.61

Source: Author's calculations from state achievement files and the U.S. Common Core of Data.

Note: Only cities with full panels of data included