

U.S. students advancing in math trails most industrialized nations

November 11 2010, By Paul E. Peterson



According to the first-ever comprehensive study comparing the percentage of U.S. students in the graduating class of 2009 who have advanced skills in math with the percentages of similar high achievers in 56 other countries, only six percent of U.S. students perform at the advanced level in math, as compared to 28 percent of Taiwanese students and more than 20 percent of students in Finland and Korea. Overall, the United States ranks 31st out of 56 countries, falling behind most industrialized nations. The report is available on the web at



www.educationnext.org.

The study, sponsored by the journal *Education Next* and Harvard's Program on Education Policy and Governance, was co-authored by Eric A. Hanushek of Stanford University, Paul E. Peterson of Harvard University and Ludger Woessmann of the University of Munich. The authors analyzed state-by-state the percentage of students performing at advanced levels. Most states in the U.S. rank closer to developing countries than to developed countries. Thirteen developed countries have more than twice the percentage of advanced students as does the U.S., including Germany, Canada, the Czech Republic, Japan, Finland and Austria.

The lagging U.S. performance is not just explained by its heterogeneous population. The report also compared to other countries U.S. white students and children of parents with college degrees—two groups against which the case of discrimination cannot be made easily. The analysis found that only 8 percent of white students and 10 percent of students from all races with at least one college-educated parent performed at the advanced level. By comparison, 18 countries saw 10 percent of all their students performing at the advanced level. The percentage of high-performing students in each state, as well as the ranking of each state in comparison to other countries, is provided in the accompanying table and figure.



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Other findings from the study include:

• Just 4.5 percent of the students in California are performing at the highly accomplished level, a percentage that trails 32 countries and is comparable to the performance of students in Portugal, Italy, Israel, and Turkey.

• The lowest-ranking states—West Virginia, New Mexico and Mississippi—fall behind Serbia and Uruguay.

• The only OECD countries—out of 30—producing a smaller percentage of advanced math students than the U.S. were Spain, Italy, Israel, Portugal, Greece, Turkey, Chile and Mexico.

"Public discourse has tended to focus on the need to address low achievement, particularly among disadvantaged students, and bring



everyone up to a minimum level of proficiency," said Peterson. "As great as this need may be, there is no less need to lift more students, no matter their socio-economic background, to high levels of educational accomplishment."

Some attribute the comparatively small percentages of students performing at the advanced level to the focus of the 2002 law, No Child Left Behind (NCLB), on the needs of very low-performing students. However, in mathematics, the percentage performing at an advanced level rose after the passage of the law, although not to internationally competitive levels.

"The incapacity of American schools to bring students up to the highest level of accomplishment in math is much more deep-seated than anything induced by recent federal legislation," Hanushek pointed out.

The analysis uses the National Assessment of Educational Progress (NAEP) 2005 advanced standard to compare U.S. state performances with performance in other countries. Since U.S. <u>students</u> took both the NAEP 2005 and the Program for International Student Assessment (PISA) 2006, it was possible to find the score on the PISA that is tantamount to scoring at the advanced level on the NAEP. The PISA is an internationally standardized assessment of student performance in <u>math</u>, science and reading, established by the Organization for Economic Co-operation and Development (OECD).

"Maintaining national productivity depends importantly on developing a highly qualified cadre of scientists, engineers, entrepreneurs and other professionals," Woessmann observed.

More information: "U.S. Math Performance in Global Perspective: How well does each state do at producing high-achieving students?" is available at educationnext.org and hks.harvard.edu/pepg/



Provided by Harvard Kennedy School

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