

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.

United States Advanced Math Performance in World Perspective

Table 1
Percentage of all students at the advanced level per state and countries with similar and higher percentages of the advanced level in overall student population

State	Percent advanced	Significantly outperformed by*	Countries with similar percentages of advanced students**
1. Massachusetts	51%	14	Austria + Germany + Denmark + France + Iceland + Slovenia
2. Minnesota	49.9	15	Denmark + Estonia + France + Iceland + Slovenia + Sweden
3. Vermont	49.8	17	U.S. + Norway + Iceland + Luxembourg + Serbia + Poland + Canada
4. New Jersey	47	48	Malta + Korea + U.K. + Hungary + Israel + Ireland + Lithuania + Luxembourg + Norway + Finland + Slovakia + Sweden
5. Washington	47.1	20	U.S. + Hungary + Iceland + Lithuania + Luxembourg + Norway + Poland + Slovakia + Sweden
6. Virginia	46.8	21	U.S. + Hungary + Iceland + Lithuania + Luxembourg + Norway + Poland + Slovakia
7. Connecticut	46.8	23	Hungary + Iceland + Lithuania + Luxembourg + Norway + Poland + Slovakia
8. Oregon	47.2	23	Hungary + Iceland + Lithuania + Poland
9. South Carolina	47	23	Hungary + Iceland + Lithuania + Poland
10. Maryland	46.8	23	Lithuania + Norway
11. South Dakota	47	24	Lithuania + Norway
12. Wisconsin	47.1	24	Lithuania + Norway
13. Ohio	46.8	24	Lithuania + Norway
14. New Hampshire	47.3	24	Lithuania + Norway
15. South Dakota	47.3	24	Lithuania + Norway
16. Colorado	47.2	24	Spain + Lithuania + Norway
17. New York	47.1	24	Lithuania + Norway
18. Texas	47.2	24	Lithuania + Norway
19. Idaho	47.2	24	Norway
20. Nebraska	47.2	24	Spain + Lithuania + Norway
21. Alaska	47.2	24	Spain + Lithuania + Norway
22. Florida	47.2	24	Spain + Lithuania + Norway
23. Iowa	47.2	24	Spain + Lithuania + Norway
24. Mississippi	47.2	24	Spain + Lithuania + Norway
25. Utah	47.2	24	Spain + Lithuania + Norway
26. Montana	47.2	24	Spain + Lithuania + Norway
27. North Dakota	47.2	24	Spain + Lithuania + Norway
28. Wyoming	47.2	24	Spain + Lithuania + Norway
29. Arkansas	47.2	24	Spain + Lithuania + Norway
30. Louisiana	47.2	24	Spain + Lithuania + Norway
31. Missouri	47.2	24	Spain + Lithuania + Norway
32. Illinois	47.2	24	Spain + Lithuania + Norway
33. Kansas	47.2	24	Spain + Lithuania + Norway
34. Oklahoma	47.2	24	Spain + Lithuania + Norway
35. West Virginia	47.2	24	Spain + Lithuania + Norway
36. New Mexico	47.2	24	Spain + Lithuania + Norway
37. Delaware	47.2	24	Spain + Lithuania + Norway
38. Pennsylvania	47.2	24	Spain + Lithuania + Norway
39. New Jersey	47.2	24	Spain + Lithuania + Norway
40. New York	47.2	24	Spain + Lithuania + Norway
41. Connecticut	47.2	24	Spain + Lithuania + Norway
42. Massachusetts	47.2	24	Spain + Lithuania + Norway
43. Rhode Island	47.2	24	Spain + Lithuania + Norway
44. Vermont	47.2	24	Spain + Lithuania + Norway
45. New Hampshire	47.2	24	Spain + Lithuania + Norway
46. Maine	47.2	24	Spain + Lithuania + Norway
47. Alaska	47.2	24	Spain + Lithuania + Norway
48. Hawaii	47.2	24	Spain + Lithuania + Norway
49. Puerto Rico	47.2	24	Spain + Lithuania + Norway
50. District of Columbia	47.2	24	Spain + Lithuania + Norway

*Number of countries in same percent advanced level statistically significantly higher
**Countries where the percentage of students at the advanced level is statistically significantly higher than that of the state in table

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. [students](#) 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 [math](#), 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

Citation: U.S. students advancing in math trails most industrialized nations (2010, November 11)
retrieved 19 September 2024 from

<https://phys.org/news/2010-11-students-advancing-math-trails-industrialized.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.