

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	33.9%	34	Austria + Germany + Denmark + France + Iceland + Slovenia
2. Minnesota	32.9	35	Denmark + Estonia + France + Iceland + Slovenia + Sweden
3. Vermont	32.8	33	U.S. + Norway + Iceland + Luxembourg + Serbia + Poland + Canada
4. New Jersey	32.7	48	Malta + Korea + U.K. + Hungary + Israel + Ireland + Lithuania + Luxembourg + Norway + Finland + Slovakia + Sweden
5. Washington	32.1	28	U.S. + Hungary + Iceland + Lithuania + Luxembourg + Norway + Poland + Slovakia + Sweden
6. Virginia	31.8	31	U.S. + Hungary + Iceland + Lithuania + Luxembourg + Norway + Iceland + Slovakia
7. Connecticut	31.8	33	Hungary + Iceland + Lithuania + Luxembourg + Norway + Ireland + Slovakia
8. Oregon	31.2	23	Hungary + Iceland + Lithuania + Poland
9. South Carolina	31.1	31	Hungary + Iceland + Lithuania + Poland
10. Maryland	30.9	39	Lithuania + Serbia
11. South Dakota	30.7	39	Lithuania + Serbia
12. Wisconsin	30.7	39	Lithuania + Serbia
13. Ohio	30.6	39	Lithuania + Serbia
14. New Hampshire	30.5	39	Lithuania + Serbia
15. South Dakota	30.5	39	Lithuania + Serbia
16. Colorado	30.2	39	Spain + Lithuania + Serbia
17. New York	30.1	39	Lithuania + Serbia
18. Texas	30.1	39	Lithuania + Serbia
19. Idaho	30.0	36	Serbia
20. Nebraska	29.9	36	Spain + Lithuania + Serbia
21. Alaska	29.8	36	Spain + Lithuania + Serbia
22. Iowa	29.7	36	Spain + Lithuania + Serbia
23. Mississippi	29.7	36	Spain + Israel + Italy + Lithuania + Latvia + Serbia
24. Montana	29.6	36	Spain + Lithuania + Serbia
25. Michigan	29.5	36	Spain + Israel + Italy + Lithuania + Serbia
26. Illinois	29.4	36	Spain + Israel + Italy + Lithuania + Serbia
27. Kansas	29.3	36	Spain + Israel + Italy + Lithuania + Serbia
28. Oklahoma	29.0	37	Israel + Italy + Latvia
29. Alaska	28.9	37	Israel + Italy + Latvia
30. North Dakota	28.8	37	Israel + Italy + Latvia + Portugal + Turkey
31. Utah	28.7	37	Israel + Italy + Latvia + Portugal + Turkey
32. Arizona	28.6	37	Israel + Italy + Portugal + Turkey
33. Florida	28.5	37	Israel + Italy + Latvia + Portugal + Turkey
34. California	28.3	37	Israel + Italy + Portugal + Turkey
35. Utah	28.2	37	Israel + Italy + Portugal + Turkey
36. Vermont	28.2	38	Spain + Israel + Portugal + Turkey
37. Missouri	28.0	38	Spain + Portugal + Turkey
38. Wyoming	27.9	37	Italy + Turkey
39. Kentucky	27.8	37	Greece + Turkey
40. New Mexico	27.7	37	Greece + Turkey
41. Nevada	27.6	38	Turkey
42. Arkansas	27.6	38	Bulgaria + Turkey
43. Tennessee	27.6	38	Bulgaria + Turkey
44. Hawaii	27.5	38	Bulgaria + Turkey + Portugal
45. Oklahoma	27.4	38	Bulgaria + Turkey + Portugal + Greece
46. Indiana	27.3	38	Bulgaria + Turkey + Portugal + Greece
47. Louisiana	27.2	42	Bulgaria
48. West Virginia	27.1	42	Bulgaria
49. New Mexico	27.0	42	Bulgaria
50. Mississippi	26.9	42	Turkey

*Number of countries in same percent advanced and statistically significantly higher
 **Countries where the percentage of students at the advanced level is statistically significantly lower than the U.S. (the number in bold indicates countries that qualify with the percentage of higher than that of the state in bold)

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 23 June 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.