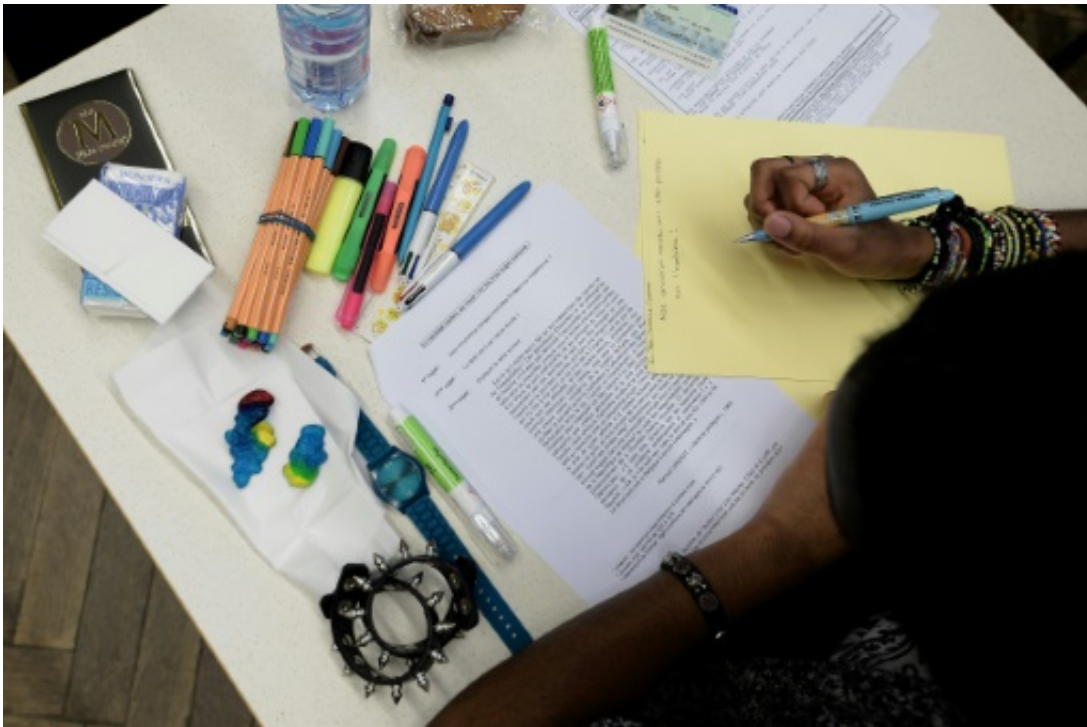


Asian countries dominate, science teaching criticised in survey

December 6 2016, by Andrea Graells Tempel , Jonathan Jacobsen



Singapore came on top in the latest PISA survey that measures skills among high school students, for its teaching of science, reading and mathematics

Asian countries dominated the top places in a key survey released Tuesday of high-school skills, but the report criticised science teaching in many countries.

The PISA survey of 15-year-olds in 72 countries and economies found

that the quality of science lessons was more important than equipment or even staffing levels.

And it confirmed earlier findings that loading students down with homework or extra tuition was rarely the key to success in science.

Singapore came top of the table for its teaching of science, reading and mathematics.

Its students scored an average of 556 points, compared with the average among Organisation for Economic Co-operation and Development (OECD) countries of 493.

Where once Finland led the way in educational excellence, Singapore is now the example to other countries, the report said.

"Singapore is a standout performer," said OECD Secretary-General Angel Gurría at the global launch of the report in London.

"In Singapore, one in five students master the most advanced scientific problems and demonstrate that they think like scientists."

Nearly a quarter of all students in Singapore (24 percent) scored in the top two categories in science tests, compared with just eight percent across the OECD countries.

The five top-performing countries in the PISA tests, which were carried out in 2015, were Singapore, Japan, Estonia, Taiwan and Finland.

Teaching 'not keeping up'

However the report found that only 12 countries assessed had improved their performance in science since 2006, despite an increase in spending

per primary and secondary student of 20 percent over the same period.

"A decade of scientific breakthroughs has failed to translate into breakthroughs in science performance in schools," said Gurria, adding that science education "isn't keeping up" with the "lightning speed" of scientific progress.

Around six percent of students in OECD countries, many of them in Europe, reported they did not get regular science lessons. These students scored significantly lower in the tests.

Schools that did not offer dedicated science lessons tend to be in poorer areas of countries, the report noted. The problem was particularly bad in Austria, Belgium, Croatia, France, Germany, Slovakia and Taiwan.

Homework not the answer

The results also suggested that the key to success in science teaching, even more than well-equipped and well-staffed departments, was how much time was spent teaching the subject.

Those teachers who actually demonstrated scientific ideas and who adapted their teaching to meet students' needs produced better results, the report said.

That tended to happen in smaller classes, and students who received this kind of teaching were more likely to go on to a science-related career, it added.

"It's not about science tests, it's about engaging students and making science learning relevant... that's what translates to better outcomes and better careers," said Andreas Schleicher, the OECD's director for education and skills, at the London launch.

The report also suggested that the study of science needed to be done in school, not at home.

"School systems where students spend more time learning after school, by doing homework, receiving additional instruction or in private study, tend to perform less well in science," the report said.

Last month, parents in Spain staged a strike to protest the amount of homework schools were handing out. Spain scored 493 points in the latest PISA tests—corresponding exactly to the OECD average.

Asian countries dominate

Asian countries dominated the top 10 of the PISA table, with Japan recording the second-highest average score behind Singapore.

Macao, Hong Kong and the mainland Chinese territories that were tested also featured in the top 10, as did Taiwan and Vietnam.

But the top-ranked European country, Estonia, took third place. The only other European country in the top 10 was Finland, in fifth.

Canada was seventh on the list, well ahead of the United States, which ranked 25th among OECD countries.

PISA, the Programme for International Student Assessment, was devised by the OECD to measure countries' performance in teaching 15-year-olds the core subjects.

PISA tests are carried out every three years and in 2015 they covered all 35 OECD countries and 37 partner countries and economies.

U.S. SCORES AND RANKINGS

Not so encouraging.

The test is based on a 1,000-point scale. Among the findings:

-In math, the U.S. average score was 470, below the international average of 490. Average scores ranged from 564 in Singapore to 328 in the Dominican Republic.

-In science, the U.S. average score was 496, about the same as the international average of 493. Average scores ranged from 556 in Singapore to 332 in the Dominican Republic.

-In reading, the U.S. average score was 497, around the same as the international average of 493. Average scores ranged from 535 in Singapore to 347 in Lebanon.

Across the globe, American students were outperformed by their counterparts in 36 countries in math; 18 countries in science and 14 countries in reading.

© 2016 AFP

Citation: Asian countries dominate, science teaching criticised in survey (2016, December 6) retrieved 24 April 2024 from <https://phys.org/news/2016-12-math-teens-science-flat.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.