

1. WHAT STUDENTS KNOW AND CAN DO – TRENDS

Performance in science since 2006

- Between PISA 2006 and PISA 2009, performance in science improved in 11 countries, declined in 5, and was unchanged in 40.
- Nine of the 11 countries that showed improvements in science performance over the period scored below the OECD average in science in both PISA 2006 and PISA 2009.
- Four of the five countries that showed declines in science performance over the period had scored above the average in 2006.

What it means

An understanding of science and technology is central to students' preparedness for life in modern society. It enables them to participate fully in a society in which science and technology play a significant role. PISA results tracked over a period of years show whether school systems are becoming more successful in helping students attain that understanding.

Findings

Mean science performance remained unchanged, on average, across the 33 OECD countries and in 6 of the 23 partner countries and economies with comparable results in the PISA 2006 and PISA 2009 assessments. However, 11 countries saw significant improvements in average science performance, and 5 saw significant declines.

By far the greatest changes were in Turkey and the partner country Qatar. In both these countries, average science scores rose by 30 score points or nearly half a proficiency level – a remarkable improvement in just three years. In both of these countries, the proportion of students who did not attain proficiency Level 2 in science fell sharply, even though these proportions remain high by international standards. In Qatar, the proportion shrank from 79% to 65%, and in Turkey from 47% to 30%.

Of the 11 countries that saw improvements in performance, 9 had performed below the OECD average in 2006, one was close to the average, and the remaining country was above it. However, compared to performance in reading and mathematics, the countries that saw improvements in science scores were spread more widely across the performance range in 2006:

- Korea had performed well above the OECD average in 2006 and, with its improvement, became one of the top performers in science in 2009.

- Poland improved its science performance from around the OECD average to above average.
- Norway and the United States performed below the OECD average in science in 2006, but reached the average in 2009.
- Italy and Portugal improved their mean science scores to just below the OECD average.
- The remaining five countries, Turkey and the partner countries Brazil, Colombia, Qatar and Tunisia, had performed well below the OECD average in 2006.

In the five countries that showed declines in science performance, the drop in score points was relatively small: between 7 and 12 points. Despite a slight decline in performance, Finland was the highest-scoring OECD country in science in 2009. Slovenia and the partner economy Chinese Taipei also showed declines, but remained above the OECD average. In the Czech Republic, science scores dropped from above the OECD average in 2006 to around the average three years later.

Definitions

Trends in science performance are derived by comparing results from PISA 2009 with those from the PISA 2006 assessment. Since the trends in science start from 2006, as opposed to the trends in reading, which start from 2000, performance changes in science since 2006 are expected to be smaller than performance changes in reading since 2000, and smaller than performance changes in mathematics since 2003. Changes in mean PISA science scores are reported here only where they are statistically significant. Not all countries participating in PISA 2009 had comparable results in the PISA 2006 survey too; this section only reports on the 56 countries that did.

Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.

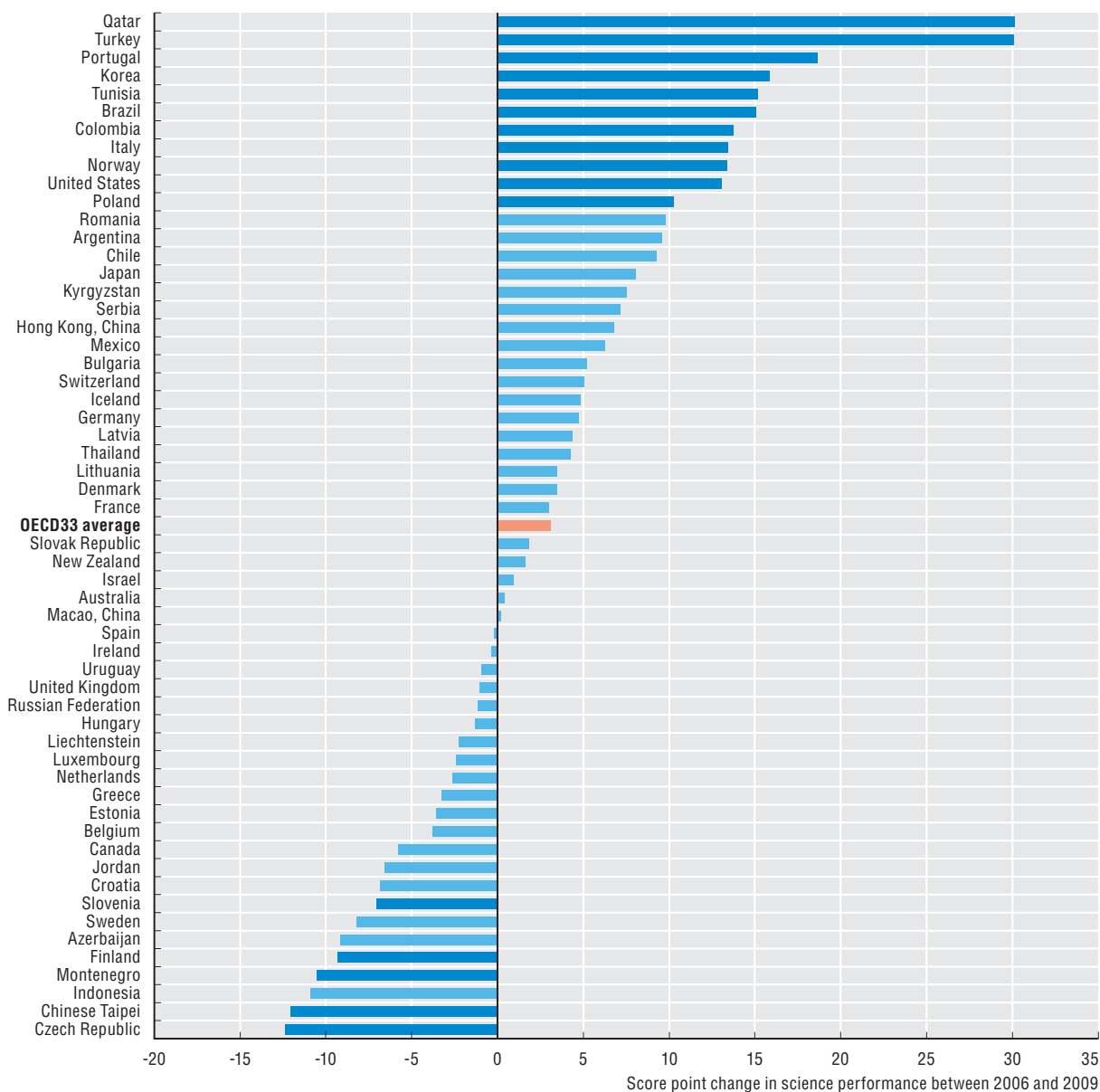
Going further

Further analysis of changes in science performance between 2000 and 2009 is presented in *PISA 2009 Results Volume V, Learning Trends: Changes in Student Performance Since 2000*. Full data are shown in Tables V.3.4 and V.3.5 at the back of that volume.

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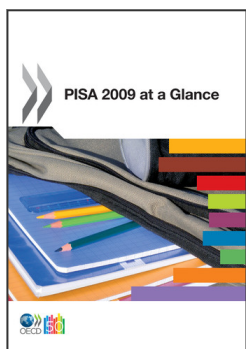
Performance in science since 2006

Figure 1.17. Change in science performance between 2006 and 2009



Note: Statistically significant score-point changes are marked in a darker tone. Countries are ranked in descending order of the score point change in science performance between 2006 and 2009.

Source: OECD (2010), PISA 2009 Results, Volume V, Learning Trends: Changes in Student Performance Since 2000, Figure V.3.5, available at <http://dx.doi.org/10.1787/888932359986>.



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