

**In this country note:**

- Background on the 2014 OECD *Measuring Innovation in Education* report (p. 1)
- Key report findings on innovation in education (p. 1)
- Report approach to measuring educational system innovation (p. 2)
- Israel’s top five organisational education innovations, 2003-2011 (p. 3)
- Israel’s top five pedagogic education innovations, 2003-2011 (p. 4)

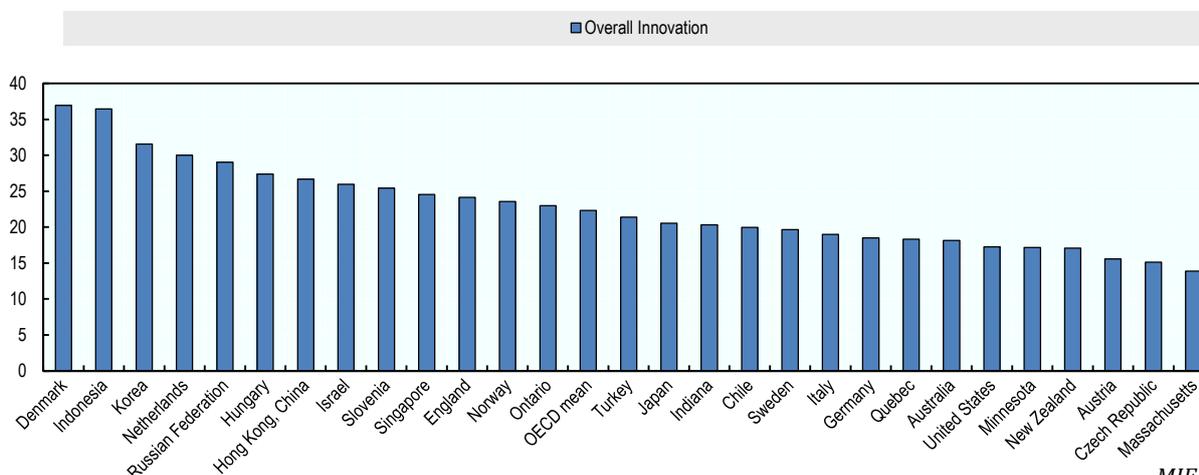
**The purpose of the *Measuring Innovation in Education* report**

The ability to measure innovation is essential to an improvement strategy in education. Knowing whether, and how much, practices are changing within classrooms and educational organisations, how teachers develop and use their pedagogical resources, and to what extent change can be linked to improvements would provide a substantial increase in the international education knowledge base.

The OECD *Measuring Innovation in Education* report offers new perspectives to address this need for measurement in educational innovation through a comparison of innovation in education to innovation in other sectors, identification of specific innovations across educational systems, and construction of metrics to examine the relationship between educational innovation and changes in educational outcomes. This country brief provides a short overview of the key findings of the report, as well as the top five Israeli pedagogic and organisational innovations identified by this report.

**Key findings on innovation in education – did you know?**

**Overall composite innovation index, 2000-2011**



MIE Figure 17.1

- In education, innovation can take place through either significant changes in the use of a particular educational practice or the emergence of new practices in an educational system.
- Contrary to common belief, there is a fair level of innovation in the education sector, both relative to other sectors and in absolute terms.
- Within education, innovation intensity is greatest in higher education, with secondary and primary education approximately equal.
- Compared to other sectors, knowledge and method innovation is above average in education, product and service innovation is below average, and technology innovation is at the average sectorial level.
- In Europe, higher education professionals report employment in highly innovative organisations and roles in highly innovative jobs; more generally, higher education stands out in terms of speed of

adopting innovation compared to the economy average as well as the rates in primary and secondary education.

- There have been large increases in innovative pedagogic practices across all countries studied for this report in areas such as relating lessons to real life, higher order skills, data and text interpretation and personalisation of teaching.
- In their pedagogic practice, educators have innovated in their use of assessments and in the accessibility and use of support resources for instruction.
- Educational organisations have innovated in the areas of special education, creation of professional learning communities for teachers, evaluation and analytics and relationship building with external stakeholders, such as parents.
- In general, countries with greater levels of innovation see increases in certain educational outcomes, including higher (and improving) 8<sup>th</sup> grade mathematics performance, more equitable learning outcomes across ability and more satisfied teachers.
- Innovative educational systems generally have higher expenditures than non-innovative systems; however, their students are no more satisfied than those in less innovative systems.

### Approach to measuring system innovations

While *Measuring Innovation in Education* identifies and analyses hundreds of innovations at the classroom and organisational levels, this brief identifies the top five Israeli innovations in pedagogic and organisational practices between 2003 and 2011. To determine each educational system's top five innovations in pedagogic and organisational practices, data from three international education datasets – Trends in International Mathematics and Science Study (TIMSS), Progress in International Reading Literacy Study (PIRLS), and the Programme on International Student Assessment (PISA) – were analysed to identify the areas in which each education system has demonstrated emerging or changing organisational and pedagogic practices over a specific period. For a full description of the data and methods used for analysis in this report, see report Annex A: Data Sources and Methods.

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#### Note regarding data from Israel

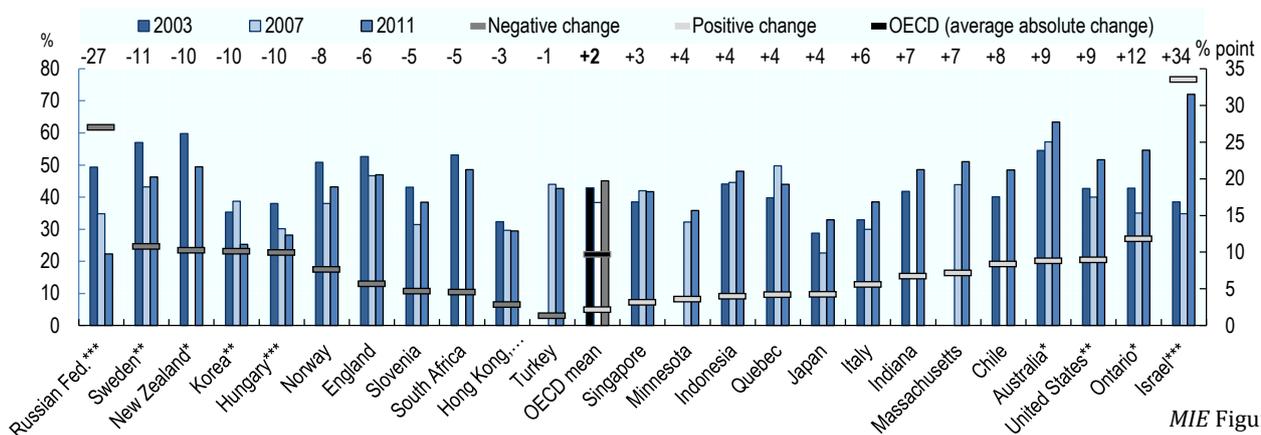
The statistical data for Israel are supplied by and are under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

<b>Country Note Authors:</b> Dara Fisher <a href="mailto:Dara.Fisher@oecd.org">Dara.Fisher@oecd.org</a> Stéphan Vincent-Lancrin <a href="mailto:Stephan.Vincent-Lancrin@oecd.org">Stephan.Vincent-Lancrin@oecd.org</a>	<b>Questions can be directed to:</b> Stéphan Vincent-Lancrin <a href="mailto:Stephan.Vincent-Lancrin@oecd.org">Stephan.Vincent-Lancrin@oecd.org</a>
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## Israel's top five innovations in organisational policy and practice:

### (1) More peer discussions amongst secondary teachers...

Percentage of 8<sup>th</sup> grade science students who have a teacher who discusses with other teachers how to teach a particular topic once a week or more and change over time



MIE Figure 13.2

Israel's top organisational innovation is the practice of peer discussions amongst 8<sup>th</sup> grade teachers, an indicator of instructional collaboration. Between 2003 and 2011, the percentage of 8<sup>th</sup> grade mathematics students with a teacher who discusses how to teach particular topics with other teachers rose by 24% points, while the same metric for 8<sup>th</sup> grade science teachers increased by 34% points. In each of these categories, Israel saw the largest change of all educational systems studied in this report.

### (2) More teacher collaboration in developing secondary instructional materials...

Change in collaboration in planning and preparation of instructional materials is another indicator of innovation in instructional collaboration. Between 2003 and 2011, the percentage of 8<sup>th</sup> grade mathematics students in Israel who have a teacher who collaborates with other teachers in planning and preparing instructional materials increased from 43.2% to 73.9%, while the percentage of 8<sup>th</sup> grade science students with collaborative teachers increased from 38.4% to 62.1%.

### (3) More external evaluation of secondary school classrooms...

Israeli secondary schools underwent frequent observations of teachers' practices by inspectors or other persons external to the school. Between 2003 and 2011, Israel saw a 33% point difference in the percentage of 8<sup>th</sup> grade mathematics students in schools in which observations by external evaluators were used to evaluate the practices of their teachers and a 26% point difference in 8<sup>th</sup> grade science students experiencing the same phenomenon.

### (4) More use of incentives for recruitment and retention of secondary teachers...

Between 2003 and 2011, percentage of 8<sup>th</sup> grade students in schools in Israel using any incentives to recruit or retain teachers increased by 18% points and 16% points, respectively, for mathematics and science students.

### (5) More peer evaluation of teachers in secondary education...

Another top organisational innovation in primary schools in Israel is the increased use of teacher peer review. Israel saw significant changes in peer review evaluation of teacher practices in 8<sup>th</sup> grade classrooms, with an increase of 22% points between 2003 and 2011 in the proportion of mathematics students in schools with peer review evaluations as well as an increase of 19% points in the proportion of 8<sup>th</sup> grade science students experiencing this phenomenon.

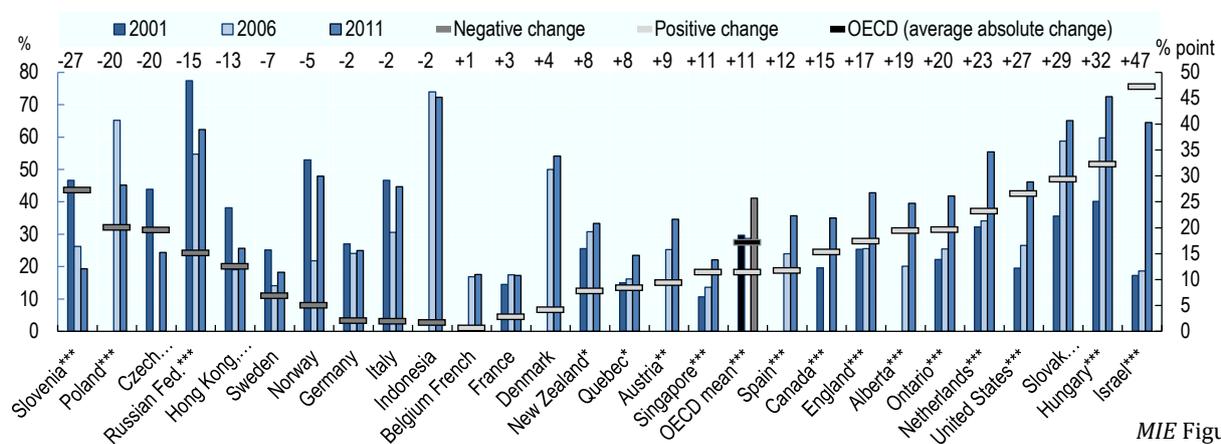
## Israel's top five innovations in pedagogic practice:

### (1) More use of textbooks as primary resources in secondary classrooms...

Israel's top pedagogic innovation is the practice of using textbooks as primary resources in 8<sup>th</sup> grade mathematics and science instruction. Between 2003 and 2011, the percentage of Israeli 8<sup>th</sup> grade students whose teachers use textbooks as a basis for mathematics instruction increased by 40% points, while the use of textbooks as primary resources in 8<sup>th</sup> grade science instruction increased by 29% points. These changes are far larger than the mean differences for OECD countries over the same period, which were 9% points and 13% points for mathematics and science, respectively.

### (2) More individualised reading instruction in primary school classrooms...

Percentage of 4<sup>th</sup> grade students whose teachers always or almost always use individualised instruction for reading and change over time



MIE Figure 7.18

Change in the use of individualised instruction is one indicator of educational innovation at the primary school level. Between 2001 and 2011, Israel saw a 47% point increase in the proportion of 4<sup>th</sup> grade students whose teachers always or almost always use individualised instruction for reading, the largest change of any educational system examined in this report.

### (3) More relating of secondary school lessons to everyday life...

Between 2003 and 2011, teachers in Israel reported 24% point and 20% point increases in the percentage of 8<sup>th</sup> grade mathematics and science students, respectively, who are asked to relate what they learn in class to their daily life in at least half of their lessons. Students, on the other hand, reported only a 3% point increase in this metric for science and a 5% point decrease for mathematics (between 2003 and 2007).

### (4) More observation and description in secondary science lessons...

Between 2007 and 2011, teachers in Israel reported a 19% point increase in the percentage of students whose teachers ask them to observe and describe natural phenomena in at least half their lessons. This difference was slightly smaller than the OECD mean change over the same period, which was 20% points.

### (5) More text interpretation in primary lessons...

Finally, teachers in Israel reported significant increases in the extent to which students interpret text in 4<sup>th</sup> grade reading lessons. Between 2001 and 2011, the percentage of students whose teachers ask them to make generalisations and draw inferences from texts increased from 88.8% to 96.4%, a 7.6% point gain. While this increase is significant, it is below the mean difference in this metric for OECD countries, which was 16% points over the same period.