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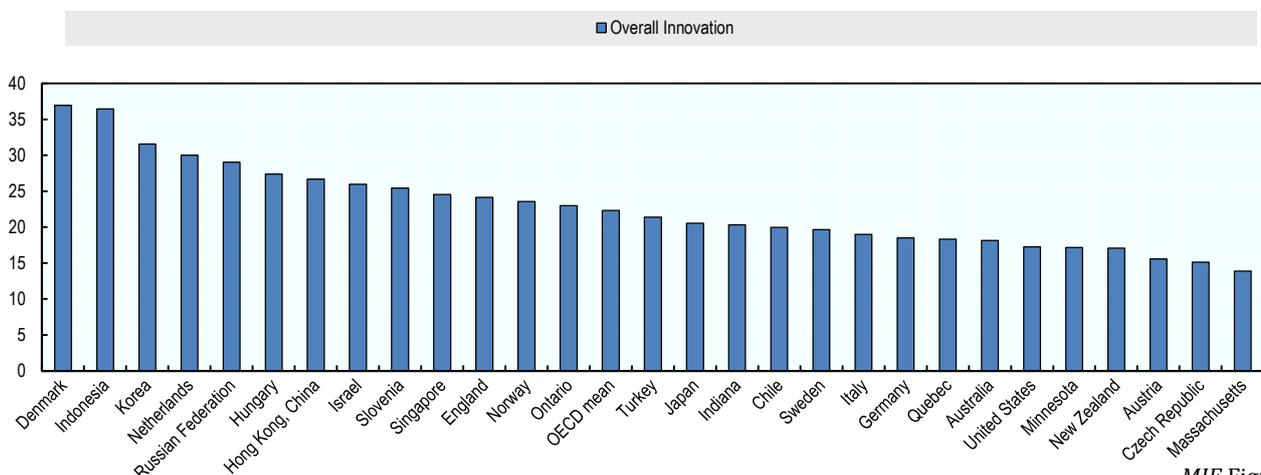
**The purpose of the *Measuring Innovation in Education* report**

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 brief provides a short overview of the key findings of the report, as well as the top pedagogic and organisational innovations in Hong Kong identified in 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 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 innovations in pedagogic and organisational practices in Hong Kong, China, between 2003 and 2011. To determine each educational system's top 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

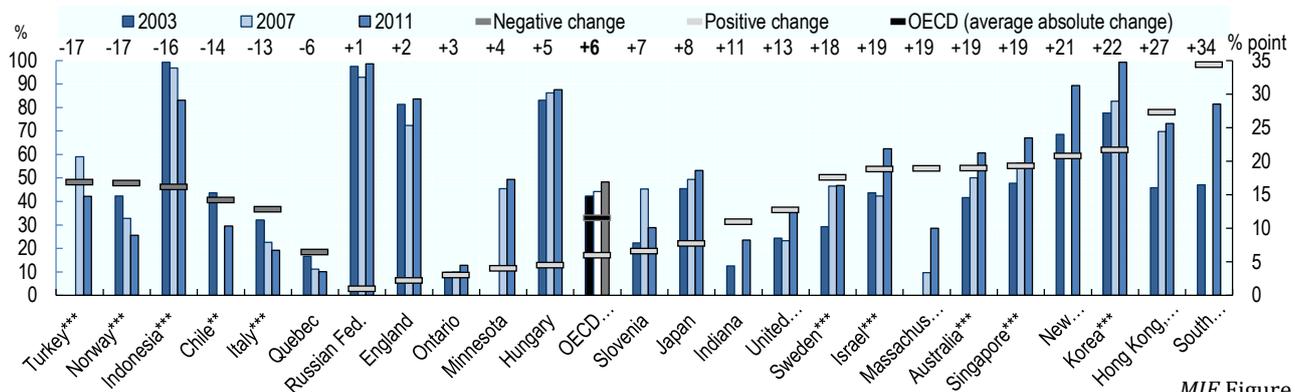
The statistical data for Israel are supplied by and are under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

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## Hong Kong, China's top innovations in organisational policy and practice:

### (1) More peer evaluation of teachers in primary and secondary education...

Percentage of 8<sup>th</sup> grade science students in schools in which peer review is used to evaluate teacher practice and change over time



MIE Figure 15.8

One of the top innovations in primary and secondary schools in Hong Kong, China, was the increased use of teacher peer review. The country saw significant changes in peer review evaluation of teacher practices for both 8<sup>th</sup> grade mathematics and science classrooms (increases by 26% points and 27% points, respectively, between 2003 and 2011). In addition, significant changes were observed in peer review evaluation of teachers' practices in 4<sup>th</sup> grade, with an observed difference of 20% points in the same period.

### (2) More external evaluation of primary and secondary school classrooms...

Teachers in Hong Kong, China, underwent frequent observations of their practices by inspectors or other persons external to the school. Between 2003 and 2011, Hong Kong, China, saw a 26% point increase in the percentage of 4<sup>th</sup> grade students in schools in which observations by external evaluators were used to evaluate the practices of their teachers, the second-largest change of any system analysed in this report. 8<sup>th</sup> grade science and mathematics students also saw respectively 21% point and 18% point increases in this metric.

### (3) More remedial mathematics education in secondary schools...

Educational innovation has also resulted in changes in the availability of remedial education in mathematics at the secondary school level. Between 1999 and 2007, the proportion of 8<sup>th</sup> grade students in Hong Kong, China, in schools that offer remedial mathematics education rose by 20% points. This difference is slightly higher than the OECD average change over the same period, which was 14% points.

### (4) More teacher observations of secondary school science classrooms...

Secondary school teachers in Hong Kong, China, also frequently observed each other's' classrooms to learn about other instructors' teaching practices. Between 2003 and 2011, the percentage of 8<sup>th</sup> grade science students in Hong Kong, China, who had a teacher that observed other classrooms one or more times per week increased by 8% points, slightly above the OECD average difference over this period of 2% points.

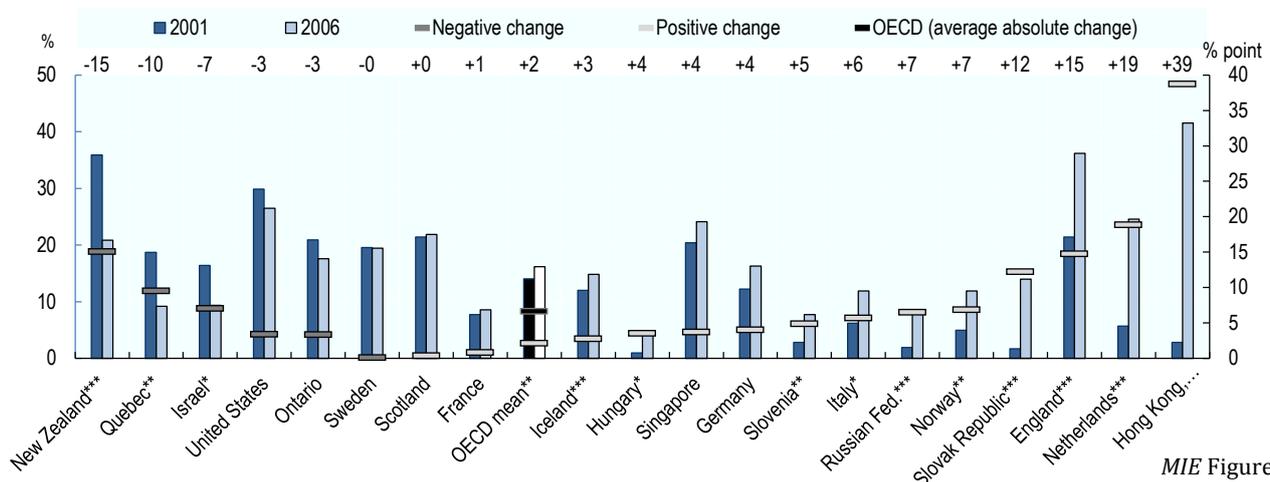
### (5) More use of incentives for recruitment and retention of secondary teachers...

Another top innovation in primary schools in Hong Kong, China, is the changing use of incentive structures to recruit and retain quality teachers. The percentage of 8<sup>th</sup> grade students in schools using incentives to recruit or retain mathematics teachers rose from 1.0% to 6.7% between 2003 and 2011; similarly, the proportion of 8<sup>th</sup> grade students in schools using incentives to recruit or retain science teachers rose from 1% to 4.9% over the same period.

## Hong Kong, China's top innovations in pedagogic practice

### (1) More computer use in primary school reading lessons...

Percentage of 4<sup>th</sup> grade students using computers to read stories or other texts at least once or twice a week and change over time



MIE Figure 11.13

Teachers in Hong Kong, China, reported significant increases in the extent to which primary school students use computers as reading resources. Between 2001 and 2006, the percentage of 4<sup>th</sup> grade students who use computers to read stories or other texts one or more times per week rose from 2.8% to 41.6%, the largest gain in this metric of any educational system included in this report.

### (2) More text interpretation in primary reading lessons...

Teachers in Hong Kong, China, 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 a text one or more times per week increased from 46% to 84%, a 38% point gain. This increase represents the largest gain in this metric of any educational system included in this report.

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

Between 2003 and 2011, teachers in Hong Kong, China, reported a 32% point increase in the percentage of 4<sup>th</sup> grade science students whose teachers ask them to relate what they learn in class to their daily life in at least half of their lessons.

### (4) More active learning in secondary science lessons...

Between 2007 and 2011, Hong Kong, China, saw a 24% point difference in teacher reports of the percentage of 8<sup>th</sup> grade students who were asked to explain what they are studying in their science lessons, a practice that encourages critical thinking and scientific communication. This change was the second-largest of any educational system included in this report, following Québec's increase of 31% points in this metric.

### (5) More use of answer explanation in primary mathematics...

Innovation in the form of an increase in the practice of asking students to elaborate on their answers occurred in primary mathematics classes in Hong Kong, China. Between 2003 and 2011, teachers in Hong Kong, China, reported a 28% point increase in the proportion of students explaining answers during 4<sup>th</sup> grade math lessons, the second-largest gain in this metric of any system included in this report. It is worthwhile to note, however, that the Hong Kong, China, value for this metric in 2011 (70.2%) was lower than the OECD average (88.8%).