CHAPTER 6

Innovation in instructional practices

Innovation in instructional practices could incorporate changes in the extent to which students apply their knowledge and skills to their real lives or to activities such as interpretation of data or reasoning. The aim of such innovation may be to encourage engagement and motivation by making lessons more salient or to encourage students' critical thinking skills. A reduction in these practices may occur if teachers explore innovative alternatives or seek to spend the time on different activities.

Relating lessons to real-life

General Findings

Innovation in the classroom encompasses an increase in the practice of asking students to relate what they learned to their daily lives. Across the OECD area the absolute change in 8th grade teachers asking students to relate what they learned in maths to real-life between 2003 and 2011 was 13% points; the equivalent change in secondary school science lessons was 15% points (Figure 6.1 and Figure 6.3). The average absolute change in students in OECD countries reporting that they related what they learned to their daily lives between 2003 and 2007 was 8% points for maths and 2% point for science (Figure 6.2 and Figure 6.4). In maths, teachers in Indonesia exhibited the largest increase (36% points), whilst increases in Italy (31% points) and the Russian Federation (28% points) were also marked. Indonesia (28% points) also stood out in 8th grade science, as did Ontario (27% points), Korea (25% points), Italy (22% points), Singapore (22% points) and Israel (20% points). These education system changes presented large to medium effect sizes. Based on teacher reports, the OECD average and average absolute change for 8th grade maths and science showed small effect sizes. Overall, and with at least small effect sizes, there was an increase in teachers asking students to relate maths lessons to daily life in 14 countries, and a decrease in one. Students own reporting in maths indicated an increase in five countries with small effect sizes. In 8th grade science, increases were observed in 20 education systems with at least small effect sizes.

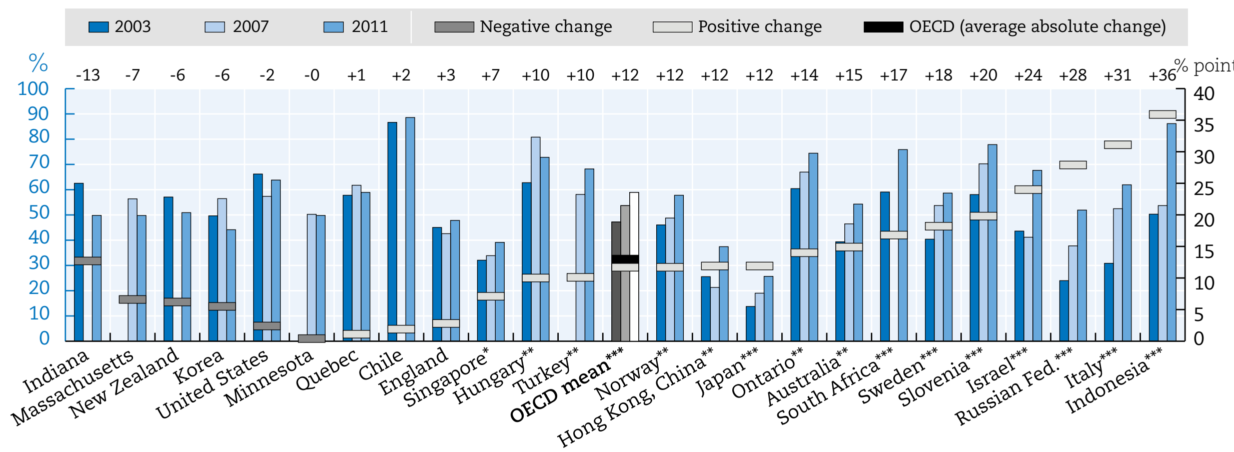
Fourth grade teachers innovated by increasing the extent to which they asked their students to relate their maths, science and reading lessons to their daily lives (Figure 6.5 to Figure 6.7). Between 2007 and 2011 the average absolute change across OECD countries in students being asked to relate what they learned in maths to real-life was 11% points, whilst in science the change between 2003 and 2011 amounted to 18% points. In reading, the average absolute change in students relating their reading to their own experiences between 2001 and 2011 in OECD countries amounted to 11% points. Norway (22% points) and Denmark (22% points) exhibited the largest increases in relating lessons to real-life maths, with small effect sizes. Italy (45% points), Belgium (Flemish; 36% points), Hong Kong (32% points) and Quebec (32% points) showed large increase in teachers asking students to relate science lessons to real-life between 2003 and 2011 with a large effect size. Norway (38% points), Indonesia (25% points), Netherlands (24% points), Hong Kong (24% points) and Ontario (18% points) were characterised by a large increase with regards to reading. OECD average and average absolute change effect sizes for 4th grade mathsmscience and reading were small. Overall, with small effect sizes, there was an increase in the extent to which 4th grade maths students related what they learned to daily life between 2007 and 2011 in 10 education systems; similarly, and with at least small effect sizes, an increase can be observed for 4th grade science students in 13 countries. Significant increases, with at least small effect sizes, occurred in the extent to which reading was related with real-life experiences for 4th grade students in 13 countries.

Country specificities

Indonesia and Italy stand out as countries where teachers' reports indicate that there has been widespread innovation across subjects and grades with regards to relating lessons to students' daily lives. In Italy, for example, a greater proportion of students were asked to relate their mathematics and science lessons to their real life experiences in 2007 than 2003 in 8th grade as well as in 4th grade science with at least medium effect sizes.

Figure 6.1 **Relating 8th grade maths learning to students' daily life, according to teachers**

Percentage of students whose teachers ask them to relate what they learn in class to their daily life in at least half their lessons and change over time



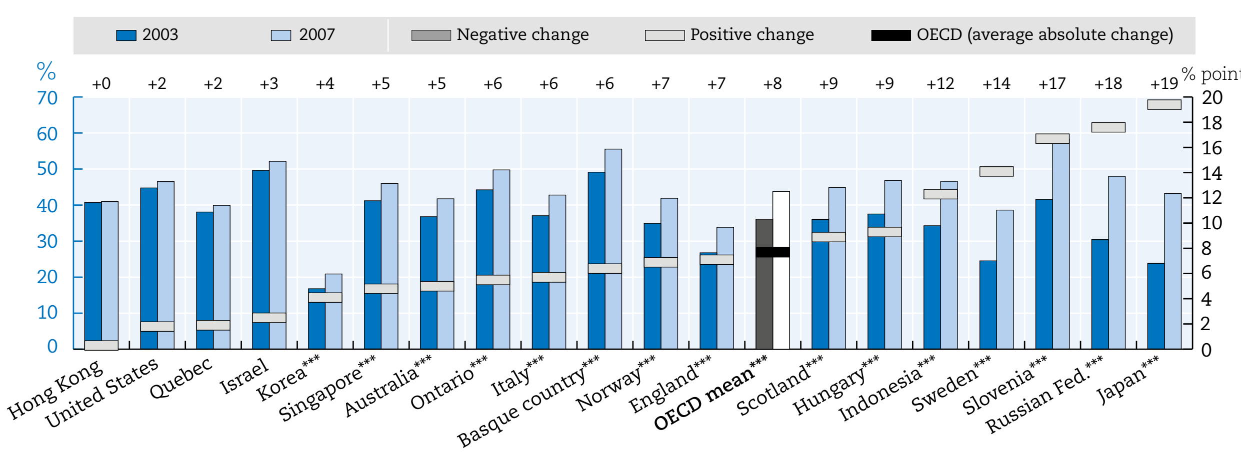
StatLink http://dx.doi.org/10.1787/888933083202

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level; Change between 2007 and 2011 instead of 2003 and 2011 for Turkey and United States (Massachusetts and Minnesota). OECD average includes all OECD education systems for which data is available for all years concerned.

Source: Authors' calculations based on TIMSS (2003, 2007 and 2011)

Figure 6.2 **Relating 8th grade maths learning to students' daily life, according to students**

Percentage of students whose teachers ask them to relate what they learn in class to their daily life in at least half their lessons and change over time



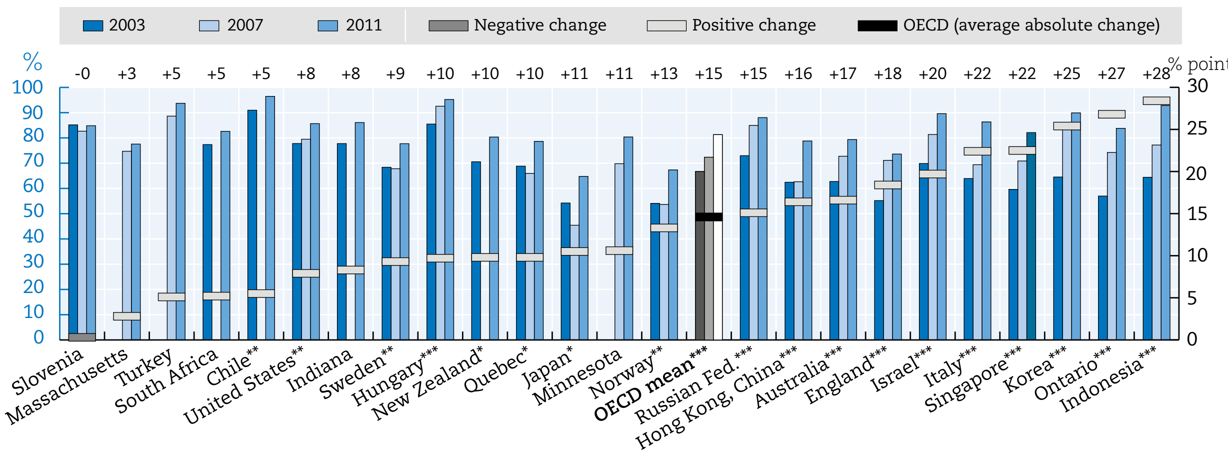
StatLink http://dx.doi.org/10.1787/888933083221

*** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level

Source: Authors' calculations based on TIMSS (2003 and 2007)

Figure 6.3 **Relating 8th grade science learning to students' daily life, according to teachers**

Percentage of students whose teachers ask them to relate what they learn in class to their daily life in at least half their lessons and change over time



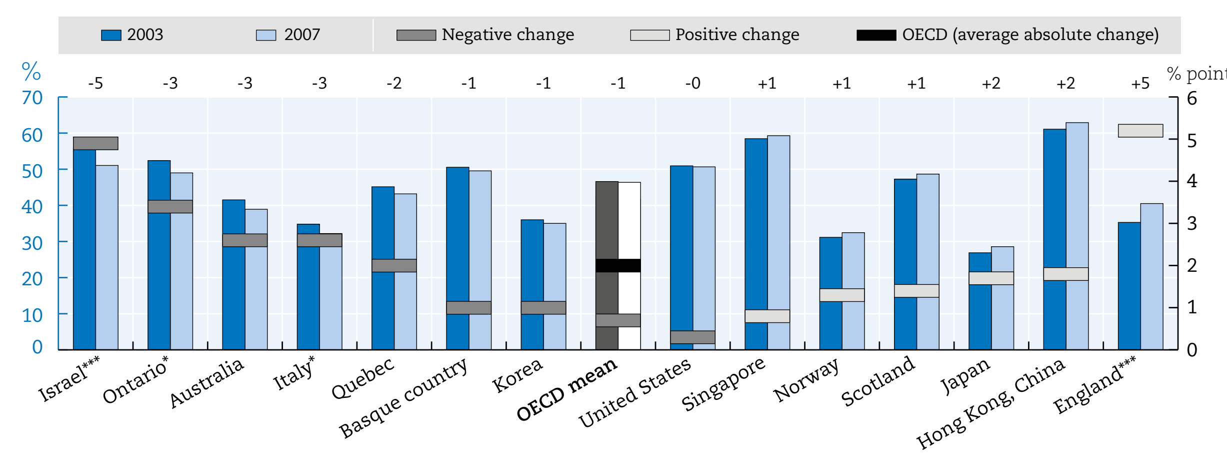
StatLink http://dx.doi.org/10.1787/888933083240

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level; Change between 2007 and 2011 instead of 2003 and 2011 for Turkey and United States (Massachusetts and Minnesota). OECD average includes all OECD education systems for which data is available for all years concerned.

Source: Authors' calculations based on TIMSS (2003, 2007 and 2011)

Figure 6.4 **Relating 8th grade science learning to students' daily life, according to students**

Percentage of students whose teachers ask them to relate what they learn in class to their daily life in at least half their lessons and change over time



StatLink http://dx.doi.org/10.1787/888933083259

*** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level

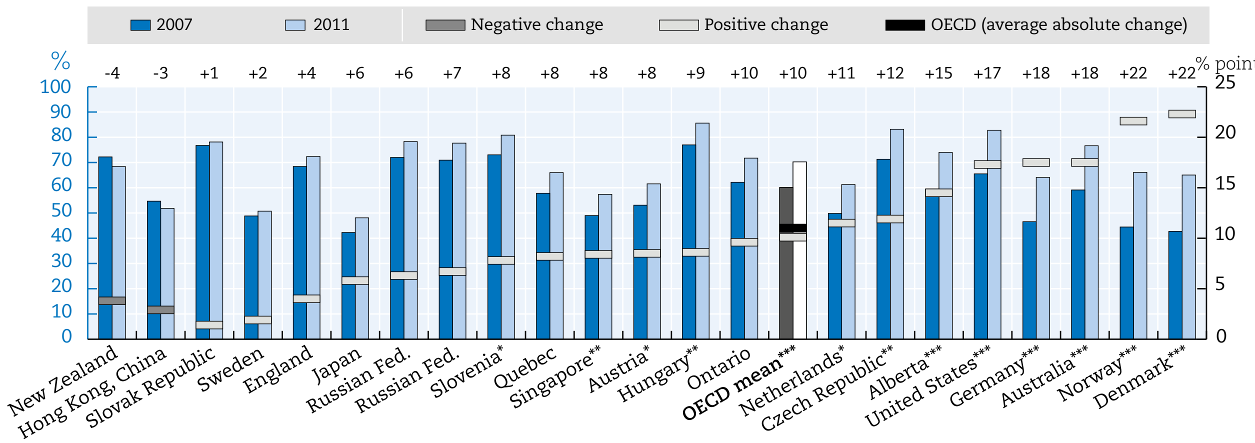
Source: Authors' calculations based on TIMSS (2003 and 2007)

Box 6.1 **Data source details for Figures 6.1 to 6.4**

TIMSS (2003, 2007 and 2011) surveys asked 8th grade teachers "In teaching mathematics/science to this class, how often do you usually ask students to do the following? [...] h/i) Relate what they are learning in mathematics/science to their daily lives"; with answer options "Every or almost every lesson; About half the lessons; Some lessons; Never". TIMSS (2003 and 2007) asked 8th grade students "How often do you do these things in your mathematics/science lessons? [...] h/j) We relate what we are learning in mathematics/science to our daily lives" with answer options "Every or almost every lesson; About half the lessons; Some lessons; Never". The same data restrictions as in International TIMSS and PIRLS Reports by the International Association for the Evaluation of Educational Achievement (IEA) apply to these data.

Figure 6.5 **Relating 4th grade maths learning to students' daily life, according to teachers**

Percentage of students whose teachers ask them to relate what they learn in class to their daily life in at least half their lessons and change over time



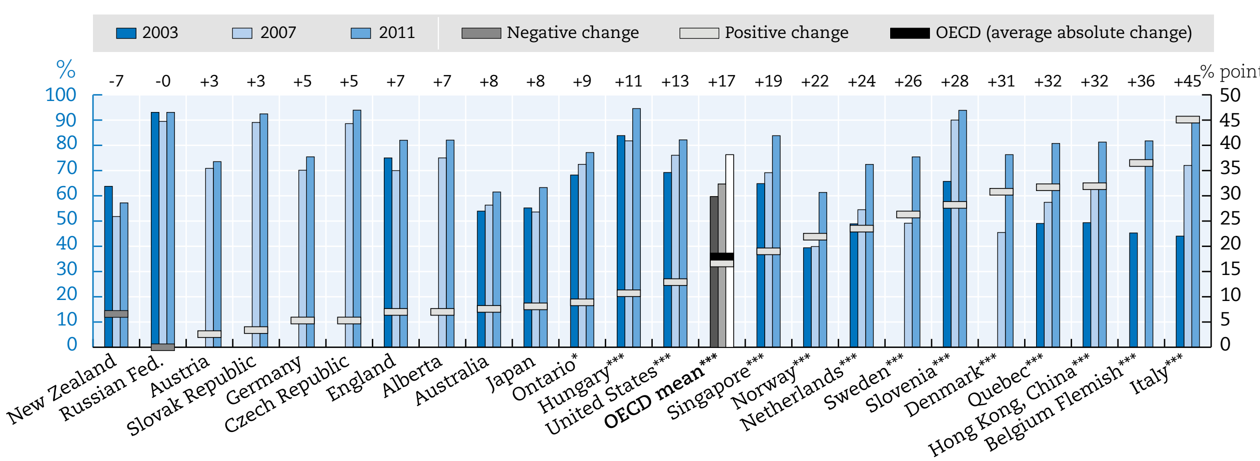
StatLink http://dx.doi.org/10.1787/888933083278

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level

Source: Authors' calculations based on TIMSS (2007 and 2011)

Figure 6.6 **Relating 4th grade science learning to students' daily life, according to students**

Percentage of students whose teachers ask them to relate what they learn in class to their daily life in at least half their lessons and change over time



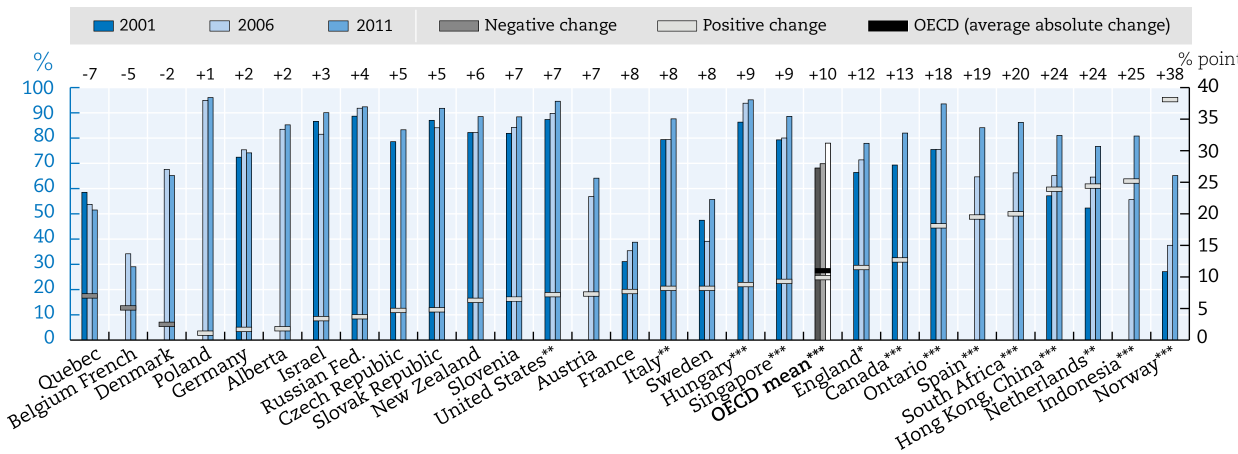
StatLink http://dx.doi.org/10.1787/888933083297

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level; Change between 2007 and 2011 instead of 2003 and 2011 for Austria, Canada (Alberta), Czech Republic, Denmark, Germany, Slovak Republic and Sweden. OECD average includes all OECD education systems for which data is available for all years concerned.

Source: Authors' calculations based on TIMSS (2003, 2007 and 2011)

Figure 6.7 **Relating 4th grade reading to students' own experience, according to teachers**

Percentage of students whose teachers ask them to relate what they read with their own experience
in at least half their lessons and change over time



StatLink http://dx.doi.org/10.1787/888933083316

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level; Change between 2007 and 2011 instead of 2003 and 2011 for Austria, Belgium French, Canada (Alberta), Denmark, Indonesia, Poland, South Africa and Spain. OECD average includes all OECD education systems for which data is available for all years concerned.

Source: Authors' calculations based on PIRLS (2001, 2006 and 2011)

Box 6.2 **Data source details for Figures 6.5 to 6.7**

TIMSS (2003, 2007 and 2011) surveys asked 4th grade teachers "In teaching mathematics/science to this class, how often do you usually ask students to do the following? [...] g/h) Relate what they are learning in mathematics/science to their daily lives" with answer options "Every or almost every lesson; About half the lessons; Some lessons; Never". PIRLS (2001, 2006 and 2011) asked 4th grade teachers: "How often do you ask the students to do the following things to help develop reading comprehension skills or strategies? [...] d) Compare what they have read with experiences they have had" with answer options "Every day or almost every day; Once or twice a week; Once or twice a month; Never or almost never". The same data restrictions as in International TIMSS and PIRLS Reports by the International Association for the Evaluation of Educational Achievement (IEA) apply to these data.

Data and text interpretation

General Findings

Innovation in classroom practice has included both increases and decreases in the extent to which students interpret data and text.

Across the OECD area the average absolute change in 8th grade students reporting that they had interpreted data in maths between 2003 and 2007 was 7% points (Figure 6.8). A larger proportion of students in Japan (18% points), Hong Kong, (14% points), Korea (14% points) and the Russian Federation (10% points) interpreted data in 2007 than 2003. In contrast, students in Hungary (21% points) indicated a large reduction in data interpretation over this time period. These education system changes presented small effect sizes.

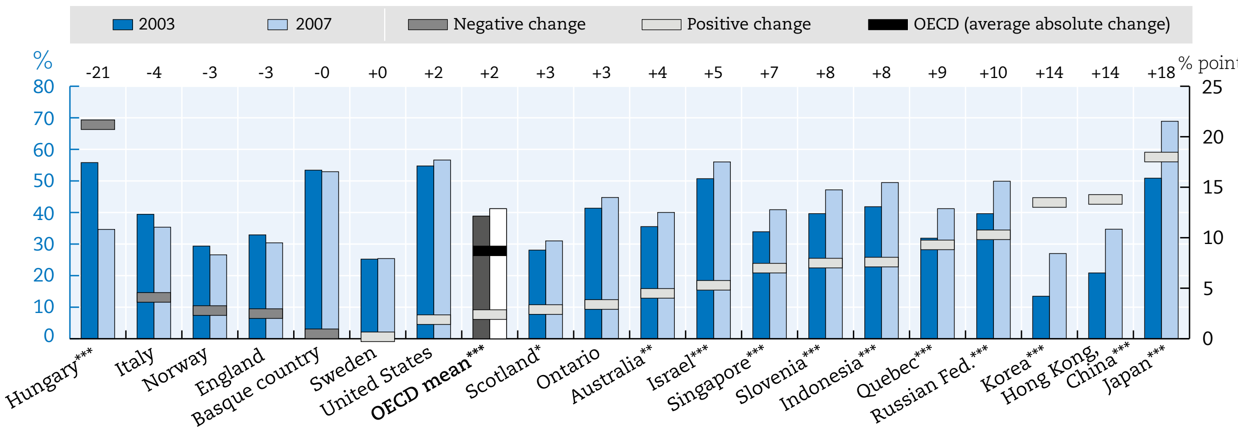
The average absolute change between 2001 and 2011 for teachers reporting that 4th grade students made generalisations and drew inferences when reading came to 16% points (Figure 6.9). Such text interpretation increased notably in Hong Kong (38% points), the Slovak Republic (37% points) and France (32% points). These education system level increases showed medium to large effect sizes whilst the OECD average and average absolute change for 4th grade reading showed small effect sizes. Overall, and with at least medium effect sizes, there was an increase in the extent to which students were asked to make generalisations and draw inferences in five countries.

Country specificities

Hong Kong stands out as an education system where students were asked to interpret data and text more across disciplines and levels. In Hong Kong a larger proportion of students were asked to interpret data in 2007 than 2003 in 8th grade mathematics and to draw inferences from text in 2011 than 2001 in 4th grade reading, with at least small effect sizes.

Figure 6.8 **Interpreting data in tables, figures or graphs in 8th grade maths, according to students**

Percentage of students reporting that they interpret data in tables, figures or graphs in half of the classes or more and change over time



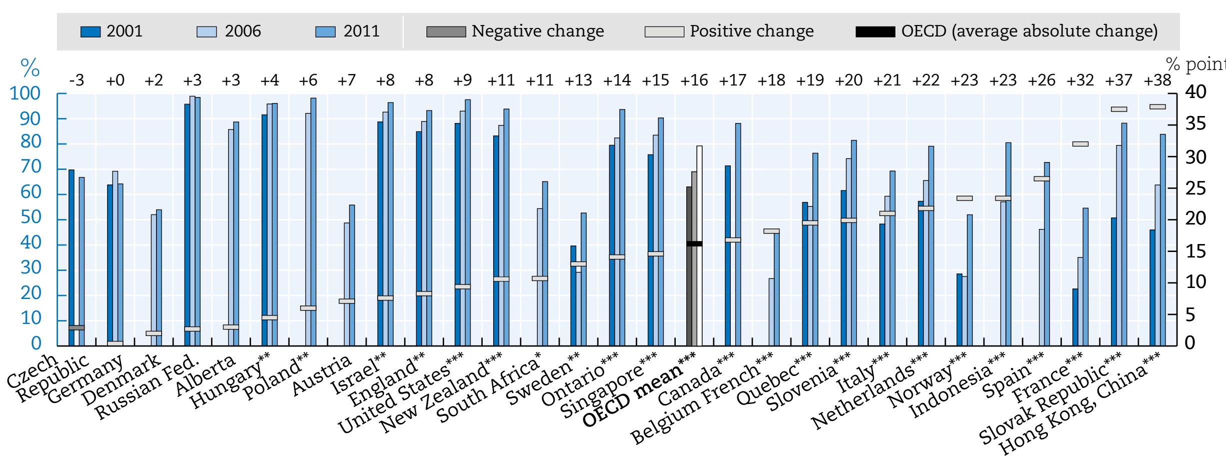
StatLink http://dx.doi.org/10.1787/888933083335

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level

Source: Authors' calculations based on TIMSS (2003 and 2007)

Figure 6.9 **Students making generalisations and drawing inferences from a text in 4th grade reading, according to teachers**

Percentage of students whose teachers ask them to make generalisations and draw inferences from a text once a week or more and change over time



StatLink http://dx.doi.org/10.1787/888933083354

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level; Change between 2006 and 2011 instead of 2001 and 2011 for Austria, Belgium French, Canada (Alberta), Denmark, Indonesia, Poland, South Africa and Spain. OECD average includes all OECD education systems for which data is available for all years concerned.

Source: Authors' calculations based on PIRLS (2001, 2006 and 2011)

Box 6.3 **Data source details for Figures 6.8 to 6.9**

TIMSS (2003 and 2007) asked 8th grade students "How often do you do these things in your mathematics lessons? […] d) We interpret data in tables, Figures, or graphs" "Every or almost every lesson; About half the lessons; Some lessons; Never". PIRLS (2001, 2006, and 2011) asks 4th grade teachers "How often do you ask the students to do the following things to help develop reading comprehension skills or strategies? […] g) Make generalizations and draw inferences based on what they have read" with answer options "Every day or almost every day; Once or twice a week; Once or twice a month; Never or almost never". The same data restrictions as in International TIMSS and PIRLS Reports by the International Association for the Evaluation of Educational Achievement (IEA) apply to these data.

Reasoning

General findings

Innovation in instructional practices can also be indicated through students explaining and elaborating their answers more widely during mathematics and science lessons in secondary education (Figure 6.10 to Figure 6.13). Between 2007 and 2011 OECD average absolute change for students being asked to observe and describe natural phenomena was 20% points, while it amounted to 12% points for students being asked to explain what they are studying during science classes. As for mathematics classes, the average absolute change within the OECD area between 2003 and 2011 was 10% points for students being asked to explain their answers, similar to the one reported by students (6% points) between 2003 and 2007. During science classes, a larger proportion of students in England (34% points), Australia (32% points) and the United States (31% points) in particular have been asked to describe natural phenomena, whereas in Quebec (31% points) and Hong Kong (24% points) a larger proportion of students was asked to explain what they were studying. Significantly more teachers in Indonesia (30% points), Singapore (22% points), Australia (21% points) and Japan (20% points) asked their students to explain their answer during mathematics lessons, while more students reported having to explain their answer in Japan (44% points). These changes were characterised by large and medium effect sizes, while the OECD average and average absolute changes showed small effect sizes. Overall, with at least small effect size, the extent to which students described natural phenomena increased in 20 education systems and the extent to which they explained what they were studying during their science lessons increased in 16. There was an increase in teachers asking students to explain their answers during mathematics classes in 13 countries and a decrease in one, whereas students reported having explained their answers more in two countries and less in one, although within a shorter time period.

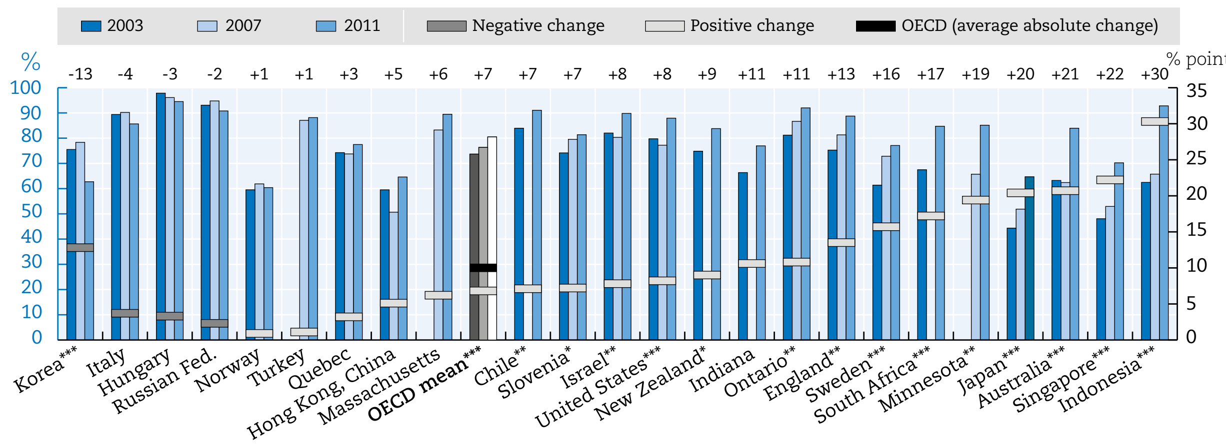
As to primary education, classroom innovation was also illustrated through an increase in students being asked to explain their answers and what they were studying (Figure 6.14 and Figure 6.15). OECD average absolute change regarding students being asked to explain what they were studying in science lessons was 13% points between 2007 and 2011, whilst it amounted to 12% points for students being asked to explain their answers in mathematics between 2003 and 2011. The Netherlands (37% points), Sweden (30% points) and the Slovak Republic (21% points) are countries where there was an increase in students being asked to explain what they were studying in their science classes. For mathematics, the education systems showcasing the largest increases in students explaining their answers were Norway (40% points), Hong Kong (28% points), Alberta (23% points), Australia (23% points) and the United States (17% points) These system level changes exhibited from medium to large effect size, while the OECD average and average absolute change effect sizes were small for both mathematics and science. Altogether, with at least small effect sizes, primary school students were asked more for explanations in 17 education systems during both mathematics and science classes.

Country specificities

Innovation in the form of an increase in the practice of asking students to elaborate on their answers and the topics they studied occurred across disciplines and levels in Australia. With at least small effect sizes, there was an increase in Australian students being asked to explain their answers and the topics of their studies both in 8^{th} and 4^{th} grade and to describe observed natural phenomena in 8^{th} grade.

Figure 6.10 **Students explaining answers during 8th grade maths lessons, according to teachers**

Percentage of students whose teachers ask them to explain their answers in at least half their lessons and change over time



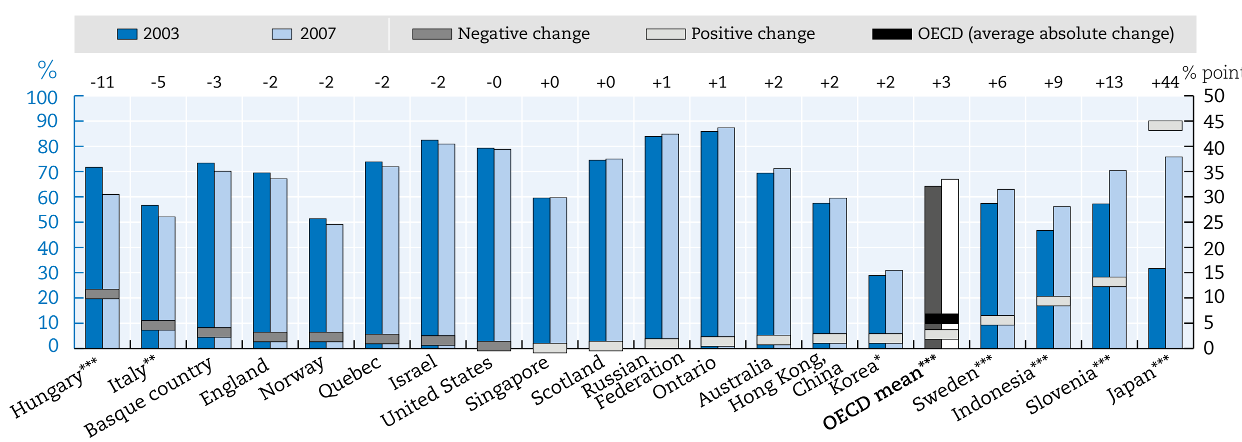
StatLink http://dx.doi.org/10.1787/888933083373

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level; Change between 2007 and 2011 instead of 2003 and 2011 for Turkey and United States (Massachusetts and Minnesota). OECD average includes all OECD education systems for which data is available for all years concerned.

Source: Authors' calculations based on TIMSS (2003, 2007 and 2011)

Figure 6.11 **Students explaining answers during 8th grade maths lessons, according to students**

Percentage of students whose teachers ask them to explain their answers in at least half their lessons and change over time



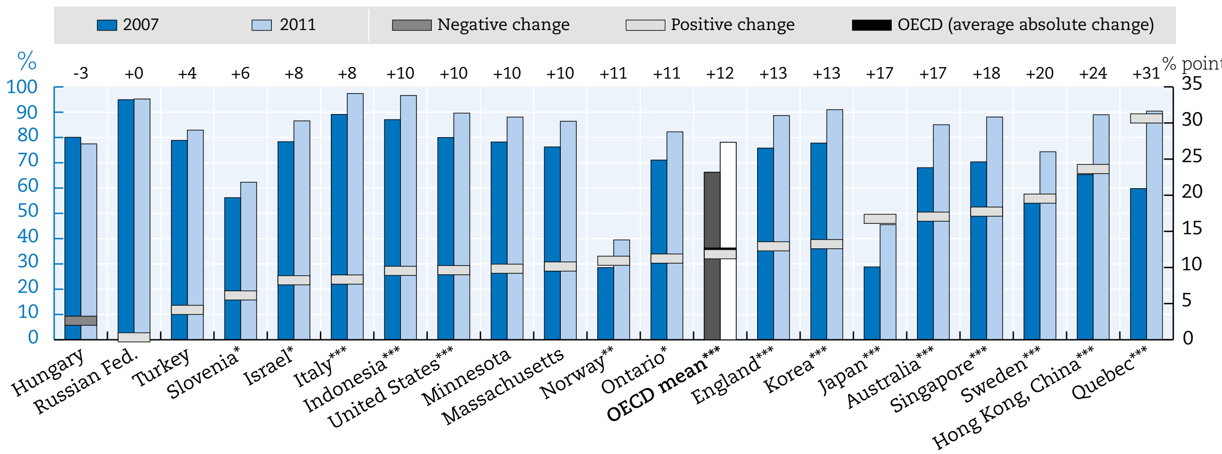
StatLink http://dx.doi.org/10.1787/888933083392

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level

Source: Authors' calculations based on TIMSS (2003 and 2007)

Figure 6.12 **Students explaining what they are studying during 8th grade science lessons, according to teachers**

Percentage of students whose teachers ask them to explain what they are studying in at least half their lessons and change over time



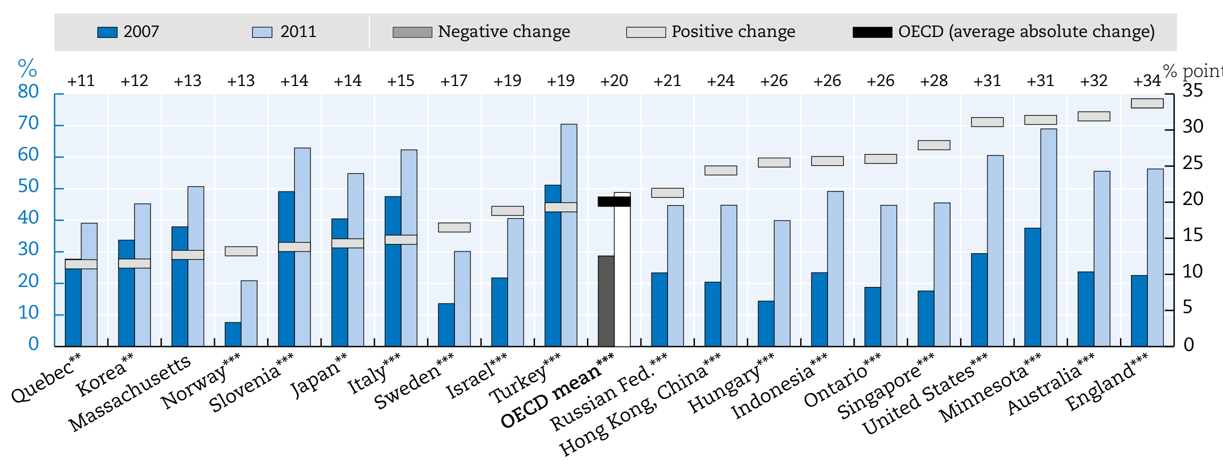
StatLink http://dx.doi.org/10.1787/888933083411

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level

Source: Authors' calculations based on TIMSS (2007 and 2011)

Figure 6.13 **Students observing and describing natural phenomena during 8th grade science lessons, according to teachers**

Percentage of students whose teachers ask them to observe and describe natural phenomena in at least half their lessons and change over time



StatLink http://dx.doi.org/10.1787/888933083430

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level

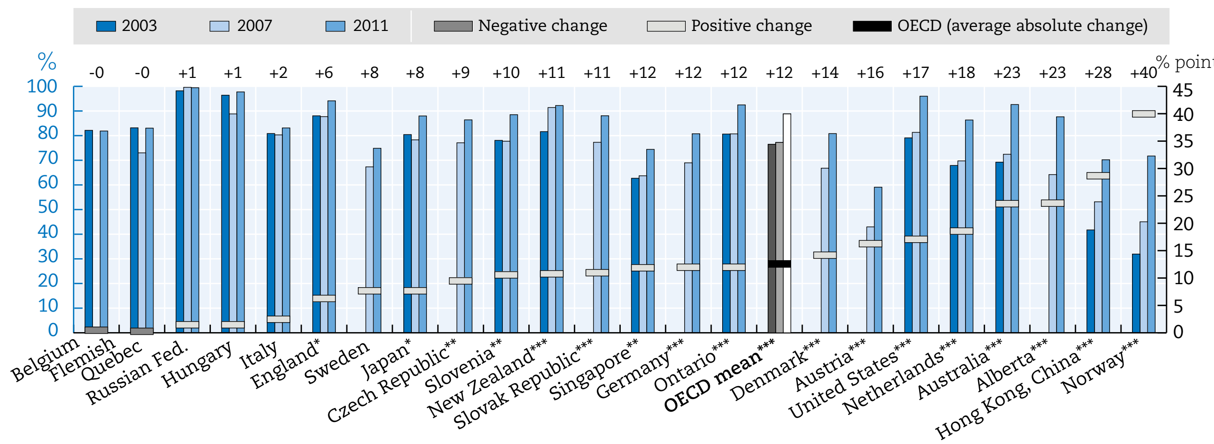
Source: Authors' calculations based on TIMSS (2007 and 2011)

Box 6.4 **Data source details for Figures 6.10 to 6.13**

TIMSS and PIRLS (2003, 2007 and 2011) survey asked teachers "In teaching mathematics/science to this class, how often do you usually ask students to do the following? g) Explain their answers a) Observe natural phenomena and describe what they see h) Give explanations about something they are studying", with answer options "Every or almost every lesson; About half the lessons; Some lessons; Never". TIMSS (2003 and 2007) survey asked students "How often do you do these things in your mathematics lessons? […] g) We explain our answers with answer options", with answer options "Every or almost every lesson; About half the lessons; Some lessons; Never". The same data restrictions as in International TIMSS and PIRLS Reports by the International Association for the Evaluation of Educational Achievement (IEA) apply to these data.

Figure 6.14 **Students explaining answers during 4th grade maths lessons, according to teachers**

Percentage of students whose teachers ask them to explain answers in at least half their lessons and change over time



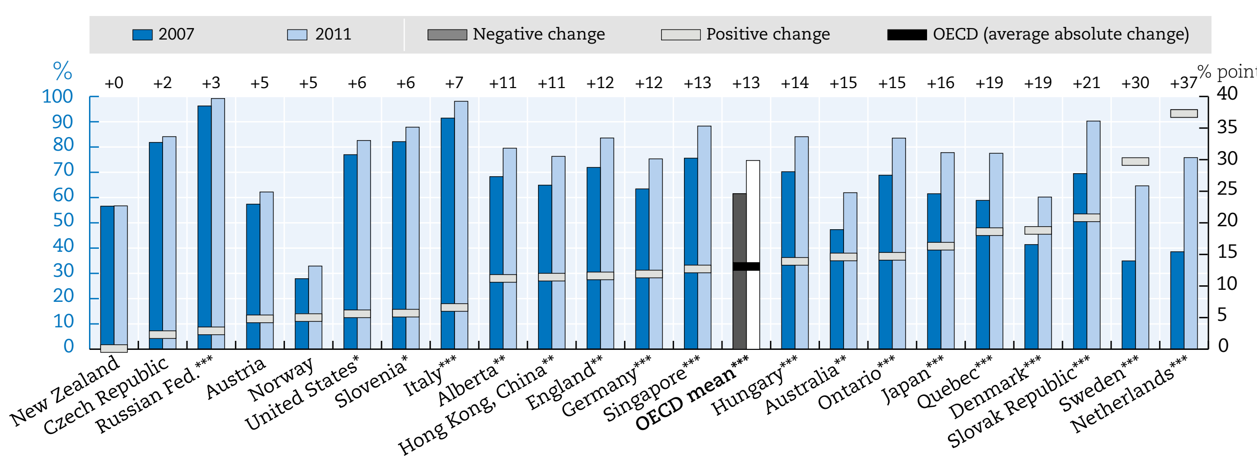
StatLink http://dx.doi.org/10.1787/888933083449

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level; Change between 2007 and 2011 instead of 2003 and 2011 for Austria, Canada (Alberta), Czech Republic, Denmark, Germany, Slovak Republic and Sweden. OECD average includes all OECD education systems for which data is available for all years concerned.

Source: Authors' calculations based on TIMSS (2003, 2007 and 2011)

Figure 6.15 **Students explaining what they are studying during 4th grade science lessons, according to teachers**

Percentage of students whose teachers ask them to explain what they are studying in at least half their lessons and change over time



StatLink http://dx.doi.org/10.1787/888933083468

Notes: *** = change significant at the 0.01 level; ** = change significant at the 0.05 level; * = change significant at 0.1 level

Source: Authors' calculations based on TIMSS (2007 and 2011)

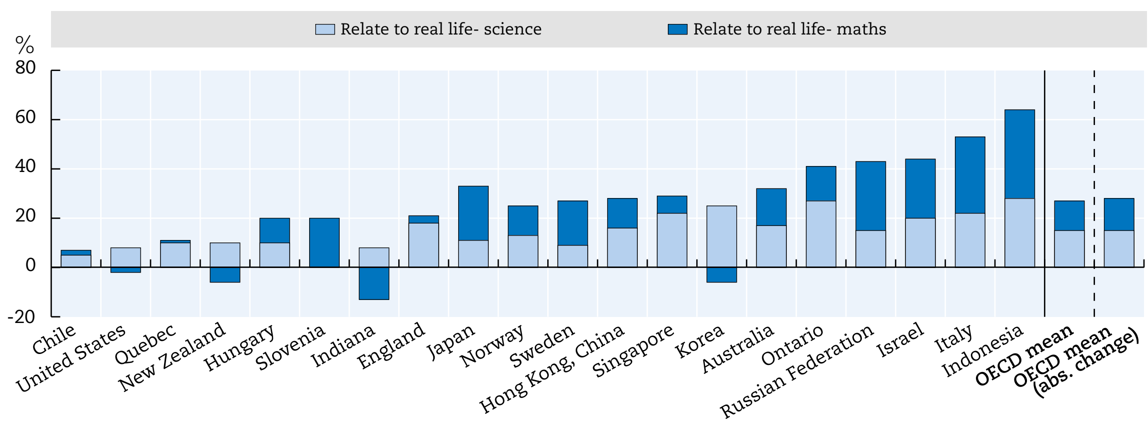
Box 6.5 **Data source details for Figures 6.14 to 6.15**

TIMSS (2003, 2007 and 2011) surveys asked 4th grade teachers: "In teaching mathematics/science to this class, how often do you usually ask students to do the following? […] g) Explain their answers-[…] g) Give explanations about something they are studying" with answer options "Every or almost every lesson; About half the lessons; Some lessons; Never". The same data restrictions as in International TIMSS and PIRLS Reports by the International Association for the Evaluation of Educational Achievement (IEA) apply to these data.

Summary

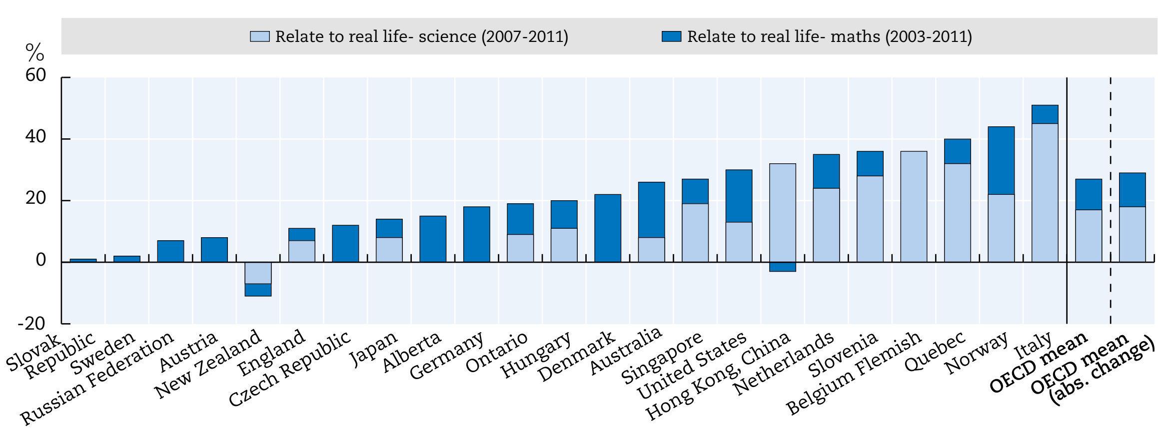
Innovation in the extent to which students have been asked to relate what they are learning to their daily lives has almost always manifested as an increase, and the practice has typically increased more in maths than science at both 8th grade and 4th grade. Innovation or significant change is also illustrated through an increase in the extent of student reasoning and self-directed work across disciplines and educational levels between the time frames analysed.

Figure 6.16 **Change in students relating what they learn to their daily lives in 8th grade**



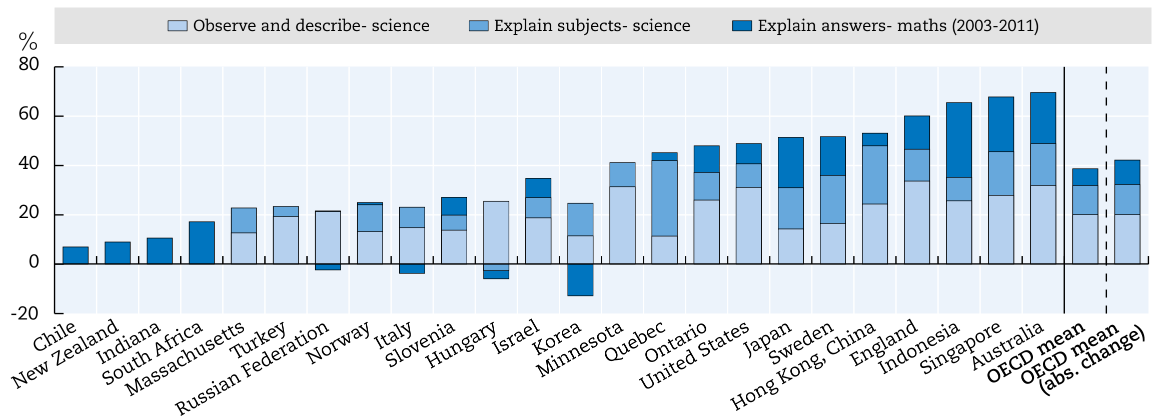
StatLink http://dx.doi.org/10.1787/888933083487

Figure 6.17 **Change in students relating what they learn to their daily lives in 4th grade**



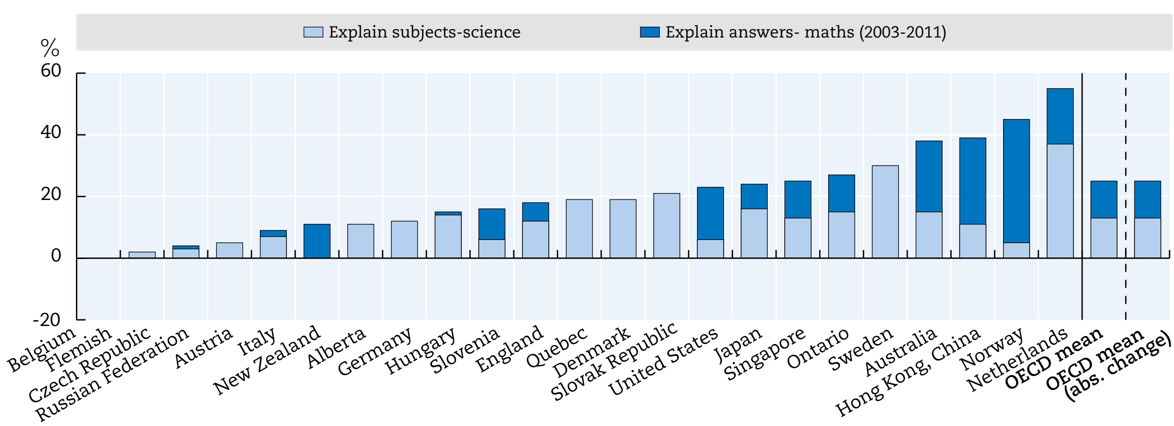
StatLink http://dx.doi.org/10.1787/888933083506

Figure 6.18 **Change in students' reasoning in 8th grade**



StatLink http://dx.doi.org/10.1787/888933083525

Figure 6.19 **Change in students' reasoning in 4th grade**



StatLink http://dx.doi.org/10.1787/888933083544

Notes: For details please see Figures 6.1, 6.3, 6.5, 6.6, 6.10, 6.12, 6.14 and 6.15.

Note on Israel

The statistical data for Israel are supplied by and 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.

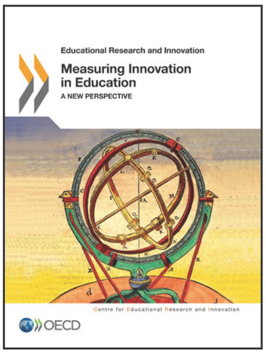
Table 6.1 Effect sizes for changes in relating lessons to real life, interpreting data and text, and reasoning

	Change in student relating to real life							Data and text interpretation		Change in students' reasoning					
	8th grade				4th grade			8th grade	4th grade	8th grade				4th grade	
	Mathematics	Mathematics (student resp.)	Science	Science (student resp.)	Mathematics	Science	Reading	Mathematics (student resp.)	Reading	Explain answers in maths	Explain answers in maths (student resp.)	Explain subjects in science	Observe and describe in science	Explain answers in maths	Explain subjects in science
	03-11	03-07	03-11	03-07	07-11	03-07	01-11	03-07	01-11	03-11	03-07	07-11	07-11	03-11	03-11
Australia	0.30	0.10	0.37	-0.05	0.38	0.15	m	0.09	m	0.48	0.04	0.41	0.67	0.63	0.29
Austria	m	m	m	m	0.17	m	m	m	m	m	m	m	m	m	0.10
Belgium Flemish	m	m	m	m	m	0.78	m	m	m	m	m	m	m	-0.01	m
Canada	m	m	m	m	m	m	0.30	m	0.43	m	m	m	m	m	m
Alberta	m	m	m	m	0.31	m	m	m	m	m	m	m	m	m	0.26
Ontario	0.30	0.11	0.60	-0.07	0.20	0.20	0.52	0.07	0.43	0.32	0.04	0.27	0.57	0.36	0.35
Quebec	0.02	0.04	0.22	-0.04	0.17	0.68	-0.14	0.19	0.42	0.08	-0.04	0.74	0.24	0.00	0.40
Chile	0.06	m	0.23	m	m	m	m	m	m	0.22	m	m	m	m	m
Czech Republic	m	m	m	m	0.29	m	0.12	m	-0.06	m	m	m	m	m	0.06
Denmark	m	m	m	m	0.45	m	m	m	m	m	m	m	m	m	0.38
France	m	m	m	m	m	m	0.16	m	0.67	m	m	m	m	m	m
Germany	m	m	m	m	0.35	m	0.04	m	0.01	m	m	m	m	m	0.26
Hungary	0.22	0.19	0.34	m	0.22	0.36	0.31	-0.43	0.19	-0.18	-0.23	-0.06	0.59	0.08	0.33
Israel	0.49	0.05	0.51	-0.10	m	m	0.11	0.11	0.30	0.23	-0.04	0.22	0.41	m	m
Italy	0.63	0.12	0.53	-0.05	0.15	1.02	0.22	-0.08	0.43	-0.11	-0.09	0.35	0.30	0.06	0.32
Japan	0.30	0.41	0.21	0.04	0.12	0.16	m	0.37	m	0.41	0.92	0.35	0.29	0.21	0.36
Korea	-0.11	0.11	0.63	-0.02	m	m	m	0.34	m	-0.28	0.04	0.37	0.24	m	m
Netherlands	m	m	m	m	0.23	0.49	0.52	m	0.47	m	m	m	m	0.45	0.77
New Zealand	-0.12	m	0.23	m	-0.08	-0.13	0.18	m	0.34	0.22	m	m	m	0.32	0.00
Norway	0.24	0.14	0.27	0.03	0.44	0.44	0.78	-0.06	0.48	0.02	-0.05	0.23	0.39	0.82	0.11
Slovak Republic	m	m	m	m	0.03	m	0.16	m	0.86	m	m	m	m	m	0.54
Slovenia	0.43	0.34	-0.01	m	0.19	0.75	0.18	0.15	0.45	0.17	0.28	0.12	0.28	0.28	0.16
Basque country	m	0.13	m	-0.02	m	m	m	-0.01	m	m	-0.07	m	m	m	m
Sweden	0.37	0.30	0.21	m	0.04	m	0.16	0.00	0.26	0.34	0.12	0.41	0.41	m	0.60
Turkey	m	m	m	m	m	m	m	m	m	m	m	0.10	0.40	m	m
England	0.06	0.15	0.39	0.11	0.09	0.17	0.26	-0.05	0.27	0.36	-0.05	0.34	0.71	0.22	0.28
Scotland	m	0.18	m	0.03	m	m	m	0.06	m	m	0.01	m	m	m	m
United States	-0.05	0.04	0.20	-0.01	0.40	0.30	0.26	0.04	0.39	0.22	-0.01	0.27	0.64	0.55	0.14
Indiana	-0.26	m	0.22	m	m	m	m	m	m	0.24	m	m	m	m	m
Massachusetts	m	m	m	m	m	m	m	m	m	m	m	0.26	0.26	m	m
Minnesota	m	m	m	m	m	m	m	m	m	m	m	0.27	0.64	m	m
OECD (average)	0.25	0.16	0.35	-0.01	0.22	0.38	0.25	0.05	0.40	0.16	0.06	0.29	0.44	0.33	0.30
OECD (average absolute)	0.27	0.16	0.35	0.05	0.23	0.41	0.27	0.14	0.40	0.25	0.14	0.30	0.44	0.33	0.30
Hong Kong, China	0.26	0.01	0.36	0.04	-0.06	0.69	0.53	0.31	0.82	0.10	0.04	0.58	0.53	0.58	0.25
Indonesia	0.80	0.25	0.74	m	m	m	m	0.15	m	0.78	0.19	0.37	0.54	m	m
Russian Federation	0.59	0.36	0.39	m	0.15	0.00	0.13	0.21	0.16	-0.08	0.03	0.01	0.46	0.12	0.21
Singapore	0.15	0.10	0.50	0.02	0.17	0.44	0.26	0.14	0.40	0.46	0.00	0.45	0.61	0.25	0.33
South Africa	0.36	m	0.13	m	m	m	m	m	m	0.41	m	m	m	m	m

StatLink http://dx.doi.org/10.1787/888933083563

Notes: OECD average includes all OECD education systems for which data is available for all years concerned
= Effect size (from -0.2 to -0.5 or 0.2 to 0.5)
= Effect size (from -0.5 to -0.8 or 0.5 to 0.8)
= Effect size (equal or above -0.8 or equal or below 0.8)

Source: Authors' calculations based on TIMSS (2003, 2007 and 20011) and PIRLS (2001, 2006 and 2011)



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OECD