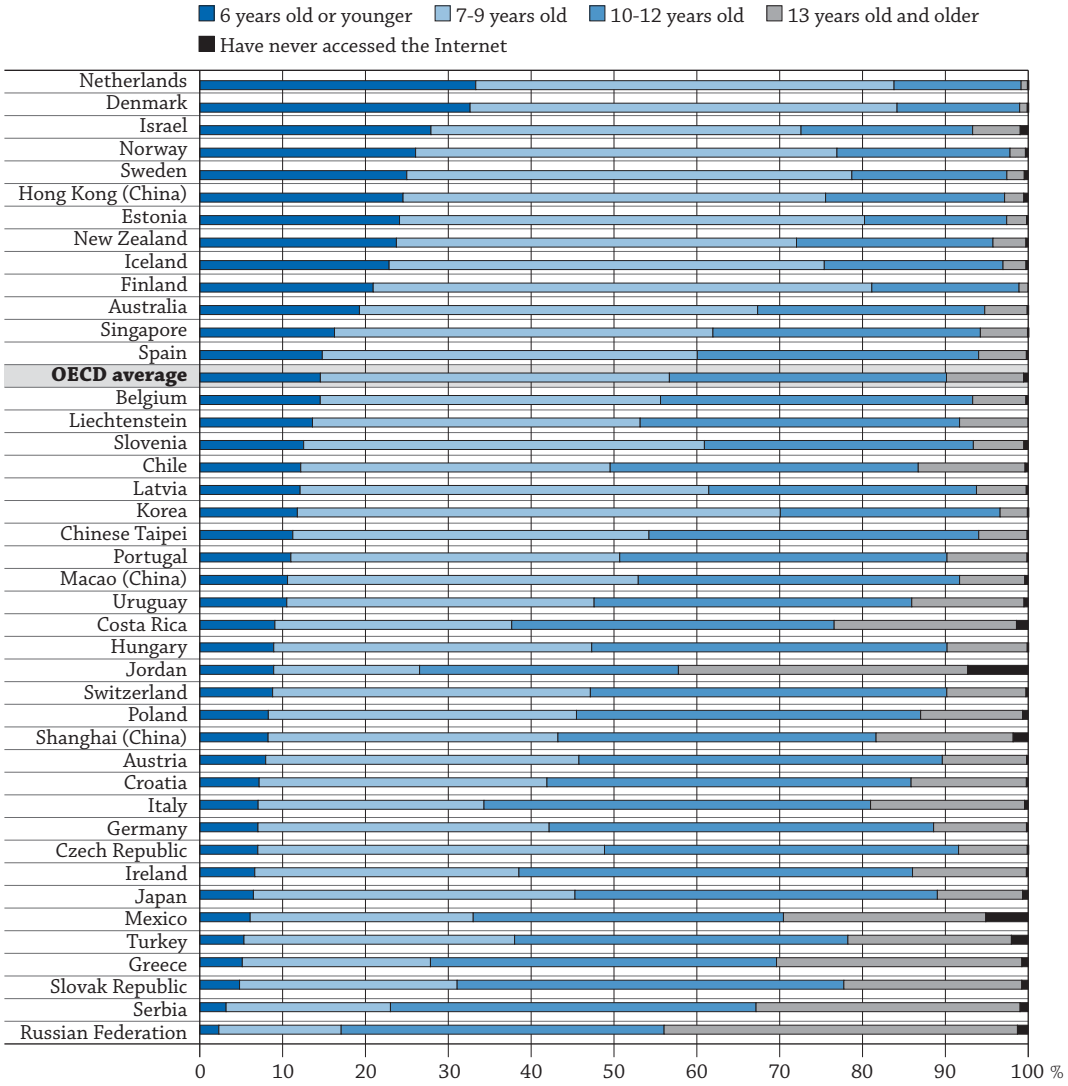
TO WHAT EXTENT IS INFORMATION AND COMMUNICATION TECHNOLOGY USED IN TEACHING AND LEARNING?

- Virtually all 15-year-old students in OECD countries are in schools that make at least one computer available to them; but there is considerable variation in the ratio of students to computers, from less than 1 student per computer in Australia to 45 students per computer in Turkey.
- On average across OECD countries, around 15% of students reported that they first accessed the Internet at age 6 or younger.
- Only 17% of students spend one hour or more at school using the Internet during a typical school day, on average across OECD countries, while more than 36% of them do not spend any time using the Internet at school.

Chart D8.1. How old were 15 year-old students when they first accessed the Internet? (PISA 2012)

Age distribution based on results from students' self-reports



Countries and economies are ranked in descending order of the percentage of students who reported that they had first accessed the Internet when they were 6 or younger.

Source: OECD. Table D8.1. See Annex 3 for notes (www.oecd.org/education/education-at-a-glance-19991487.htm).

StatLink http://dx.doi.org/10.1787/888933284683

Context

Information and communication technology (ICT) is a major component of economic growth in all OECD countries. Given that young people today need to be skilled in using these technologies as students, job-seekers or workers, consumers and responsible citizens, those who have no access to or experience in using ICT will find it increasingly difficult to participate fully in economic, social and civic life. However, basic ICT skills may not add value unless they are well paired with cognitive skills and other skills, such as creativity, communication skills, team work and perseverance.

Schools need sufficient ICT resources to help students both to learn how to use and benefit from these technologies and to acquire new knowledge and skills, in other subjects, through using them. ICT can also help teachers and school administrators to work more efficiently. The distribution of resources across and within education systems has long been an important issue for both equity and excellence in education. Given the rapid advances in technology, and the central role ICT now plays in all aspects of life, education policy makers need to consider how to ensure that ICT resources and students' access to those resources are provided equitably within education systems.

Other findings

- On average, 15-year-old boys score 4 points higher on the computer-based PISA reading test than on the paper-based reading test. By contrast, 15-year-old girls perform 8 points lower in digital reading than in paper-based reading test, on average.
- In all countries and economies that participated in the OECD Programme for International Student Assessment (PISA) in 2012, the gender gap in reading performance is narrower in digital reading than in print reading. Girls outperform boys in digital reading by an average of 26 score points, compared to an average of 38 score points – the equivalent of nearly one year of schooling – in print reading.
- Teachers who participated in the 2013 OECD Teaching and Learning International Survey (TALIS) (OECD, 2014a) reported that the areas in which they most need professional development are in teaching students with special needs and developing ICT skills for teaching.
- An average of only 40% of lower secondary teachers who participated in TALIS reported that students frequently use ICT for projects or class work. This suggests that, despite large investments in ICT across school systems, in many countries, teachers are still not systematically inclined and prepared to use these tools in their teaching.
- Given teachers' self-reported need for training in how to use ICT in their teaching, TALIS finds no correlation between the ICT-related professional development activities offered and teachers' participation rates in those programmes. That lack of coherence could be costly if the teachers who feel they need further training do not have access to it, or if the training is not well-targeted.

Trends

- Students in 2012 were less likely than their counterparts were in 2003 to attend schools whose principal reported that the school's capacity to provide instruction is hindered by a lack of computers and computer software.
- According to principals' reports, the number of 15-year-old students per school computer did not change significantly across OECD countries, on average. In 2012 as in 2009 there were between four and five students to every school computer, on average across OECD countries.

D8

Analysis

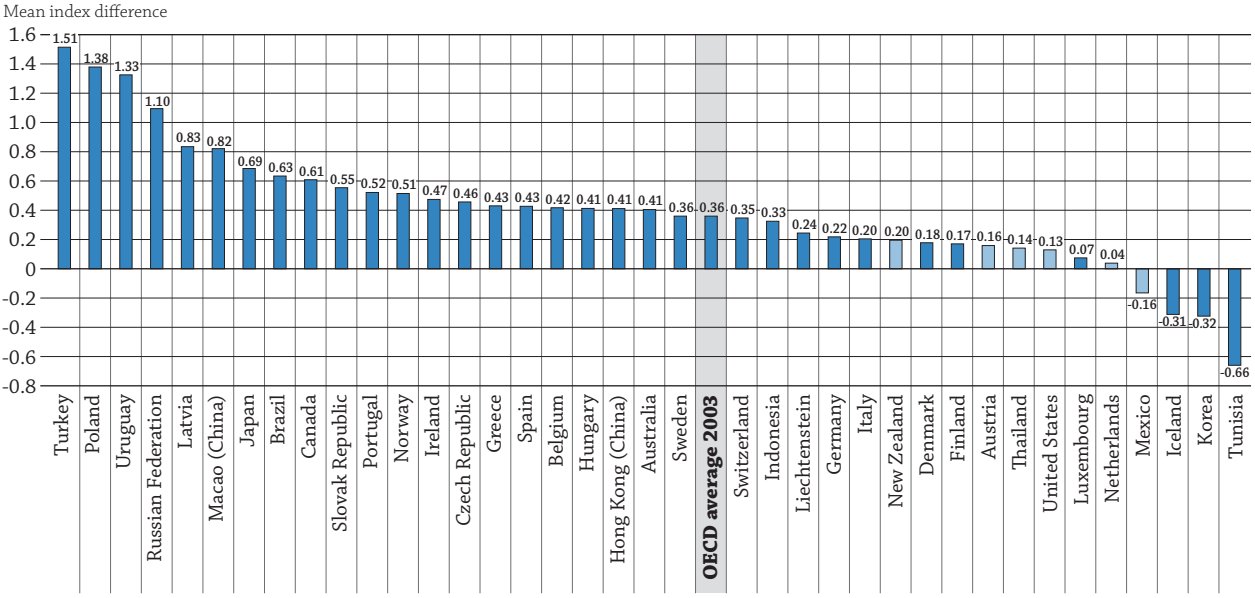
ICT resources in schools

Quality of schools' educational resources

In 2012, the OECD Programme for International Student Assessment (PISA) asked school principals to report whether their school's capacity to provide instruction was hindered by a shortage or inadequacy of: science laboratory equipment, instructional materials (e.g. textbooks), computers for instruction, computer software for instruction, and library materials. The responses were combined to create an *index of quality of schools' educational resources* that has a mean of zero and a standard deviation of 1 in OECD countries. Positive values reflect principals' perceptions that a shortage of educational resources hinders learning to a lesser extent than the OECD average, and negative values indicate that school principals believe the shortage hinders learning to a greater extent.

In 2012, an average of less than 10% of 15-year-old students across OECD countries attended schools whose principals reported that the school's capacity to provide instruction was hindered a lot by a shortage or inadequacy of educational resources (e.g. traditional textbooks, library materials, a science laboratory, computers and computer software). Thus, for example, only 9% of students were in schools whose principals reported that instruction was hindered a lot by a shortage of computers for instruction, and only 5% were in schools whose principals reported that instruction was hindered by a shortage of computer software. More globally, a shortage of computers for instruction hinders learning to a greater extent in Brazil, Greece, Iceland, Indonesia, Mexico, Sweden, Tunisia and Turkey: at least 15% of students attended schools whose principals reported that the school's capacity to provide instruction was hindered a lot by a shortage of computers. By contrast, principals are the most positive in Australia, the Czech Republic, France, Hong-Kong (China), Hungary, Italy, Korea, Macao (China) and the Slovak Republic and reported for more than 96% of them that instruction in their school is not hindered by a shortage of computers (Table D8.2).

Chart D8.2. Change between 2003 and 2012 in the index of quality of schools' educational resources (e.g. textbooks, computers for instruction, computer software)



Notes: The *index of quality of school educational resources* was derived from the items measuring school principals' perceptions of potential factors hindering instruction at their school (SC14, from the PISA 2012 school questionnaire). Higher values on this index indicate better quality of educational resources in 2012. Dark blue bars indicate differences that are statistically significant. For comparability over time, PISA 2003 values on the *index of schools' educational resources* have been rescaled to the PISA 2012 scale of the index.

Countries and economies are ranked in descending order of the change between 2003 and 2012 in the index of quality of schools' educational resources.

Source: OECD. Table D8.2. See Annex 3 for notes (www.oecd.org/education/education-at-a-glance-19991487.htm).

StatLink http://dx.doi.org/10.1787/888933284698

Moreover, the schools seem to be better equipped in new technologies in 2012 than in 2003. Thus, students in 2012 were less likely than their counterparts in 2003 to attend schools whose principal reported that the school's capacity to provide instruction is hindered by a lack of computers and computer software. Thus, for example, in 26 of the 38 countries and economies with comparable data, there were fewer school principals in 2012 than in 2003 who reported that their school's capacity to provide instruction was hindered by a shortage of computers.

The largest improvements between 2003 and 2012 were observed in Australia, Belgium, Brazil, Germany, Ireland, the Netherlands, the Russian Federation and Uruguay. By contrast, the shortage of computers for instruction was greater in 2012 than in 2003 – signalling a greater likelihood that students attend schools where a lack of computers hinders the school's capacity to provide instruction – in Iceland, Indonesia, Mexico and Tunisia (Table D8.2).

The overall trend among OECD countries shows that the shortage of educational resources (e.g. traditional textbooks, library materials, a science laboratory, computers and computer software) hindered the school's capacity to provide instruction to a lesser extent in 2012 than in 2003. This trend was observed across all school types, advantaged and disadvantaged schools, private and public schools, lower and upper secondary programmes, and urban and rural schools). (OECD [2013], Table IV.3.45).

Number of students per computer

Given that students' use of ICT for learning partly depends on the extent to which they can have access to a computer, a key indication of access to ICT resources is the number of students per school computer. Across OECD countries, virtually all students attend schools with at least one computer. The number of students per computer is based on principals' reports about the number of students in the national modal grade for 15-year-olds and on the number of computers available for these students. On average across OECD countries in 2012, there were five students for every school computer. Brazil, Costa Rica, Indonesia, Mexico and Turkey had the largest number (at least 15) of students per computer, while Australia, the Czech Republic, Macao (China), New Zealand, Norway, the Slovak Republic, the United Kingdom and the United States had the smallest number (fewer than two) of students per school computer (Table D8.1).

According to principals' reports, the number of 15-year-old students per school computer did not change significantly across OECD countries, on average. In 2012 as in 2009 there were between four and five students to every school computer, on average across OECD countries. Globally, the number of students per school computer decreased significantly in 12 of the 49 countries/economies with comparable data, and increased only in five – most notably in Turkey (from 12 to 45). The change in Turkey may have been partly the result of an increase in the student population during this period rather than a reduction in the number of computers available to them (Table D8.1).

First Internet access and intensity of Internet use at school

Number of students who have never used a computer

The most basic measure of students' access to and familiarity with ICT is whether or not they have used a computer. PISA 2012 found that virtually all 15-year-old boys and girls in all participating countries and economies had accessed the Internet by the time they took the PISA test. In 2012, on average across OECD countries, less than 1% of students reported that they had never used a computer or accessed the Internet. In Mexico, 5% of students so reported, and Jordan showed the highest levels of non-use, with 7% of students reporting that they had never accessed the Internet (OECD [2015a]).

On average across OECD countries, around 15% of students reported that they first accessed the Internet before they set foot in a classroom (i.e. at the age of 6 or earlier), and around 40% of students reported that they were between 7 and 9 years old when they first used the Internet. On average, boys were 4 percentage points more likely than girls to have used the Internet before the age of 6 (Table D8.1, Chart D8.1 and OECD [2015b]).

PISA 2012 asked students how much time they spend using the computer in classroom lessons during a typical school day. Interpretation of ICT use in classroom lessons, measured by minutes and hours, is one way researchers can determine the extent to which ICT is included in classroom activities. On average across OECD countries, only 17 % of students reported that they spend one hour or more using the Internet at school during a school day, while more than 36% reported that they do not spend any time at school using the Internet (Table D8.1).

According to their own reports, students in OECD countries spend an average of 25 minutes per day on line at school. In Australia, students spend an average of 58 minutes per day on line at school; in Denmark students spend an average of 46 minutes per day on line at school; in Greece they spend 42 minutes per day on line at school; and in Sweden students spend an average of 39 minutes per day on line at school. By contrast, in Germany, Italy, Japan, Jordan, Korea, Macao (China), Poland, Shanghai (China), Singapore, Turkey and Uruguay, at least 50% of students reported that they spend no time at school using the Internet (Table D8.1). However, the association between the intensity of Internet use at school and PISA performance in reading is not linear. Thus, while PISA results suggest that limited use of computers at school may be better than not using computers at all, using computers more intensively than the OECD average tends to be associated with significantly poorer student performance.

The use of ICT is linked to better student performance only in certain contexts, such as when computer software and Internet connections help to increase study time and practice (OECD [2015b]).

Although computers are becoming familiar pieces of hardware in many classrooms, most 15-year-olds who use computers regularly do so outside of school, on weekends, during their leisure time, and generally not for school work. On average across OECD countries, boys reported using the Internet for 144 minutes and girls for 130 minutes on typical weekdays. Perhaps surprisingly, boys also reported using the Internet at school more than girls: in 26 countries, boys spend more time using the Internet at school on a typical weekday than girls do (OECD [2015b]).

Gender differences in digital- and print-reading performance

But being familiar with smartphones and computers does not necessarily mean that a student can use those devices competently or know how to critically assess the information he or she collects through them. The learning outcomes that are associated with digital technologies depend, to a great extent, on how – and how frequently – students use them.

PISA 2012 evaluated not only how skilled 15-year-olds are in gathering and processing information that they acquire when reading printed texts, but also how proficient they are in reading digital material. PISA found that some countries have been far more successful than others in helping students to equip themselves to participate fully in the digital age. For example, 15-year-old boys and girls in Australia, Brazil, Korea, Singapore, Sweden and the United States perform better in digital reading than in print reading, while the opposite is observed in Germany, Hungary, Israel, Poland, Shanghai (China), Spain and the United Arab Emirates. Among those countries where students perform better in digital reading, Korea recently developed a "Smart Education" policy that includes building or improving school infrastructure so that it accommodates new technologies, and training teachers in the use of these technologies (Table D8.3 and Chart D8.3).

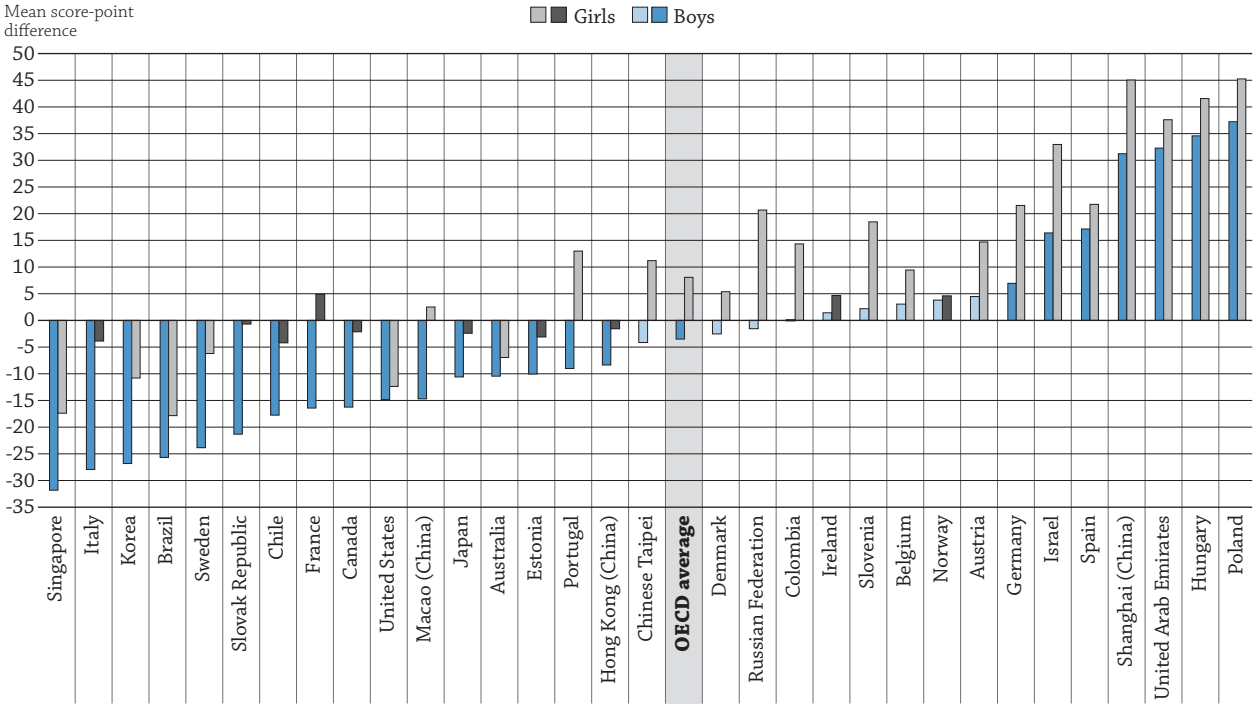
The assessment also revealed some interesting differences between girls and boys in their skills in the digital domain. On average, 15-year-old boys score 4 points higher on the computer-based PISA reading test than on the paper-based reading test. By contrast, 15-year-old girls perform 8 points lower in digital reading than in paper-based reading test, on average. As a result, while girls outperform boys in both print and digital reading, the gender gap tends to be narrower in digital reading. On average among the countries that took part in both assessments, girls outperformed boys by 38 points – the equivalent of one year of formal schooling – in print reading, but by only 26 points in digital reading. There is still a marked difference in performance in favour of girls in digital reading, but it is less extreme than the disparity between boys' and girls' performance in print reading. In all participating countries the gender gap in performance was wider in print than in digital reading, and the difference exceeds 15 score points in France, Israel, Italy, Korea, Macao (China), Portugal, the Russian Federation, the Slovak Republic, Slovenia, Sweden, and Chinese Taipei (Table D8.3 and Chart D8.3).

The variations in the size of the gender gap among countries do not seem to be associated with the absolute levels of performance. For example, among countries performing below the OECD average in digital and print reading, Austria has a substantially narrower gap between boys and girls in digital reading (27 points) than in print reading (37 points), while the gaps between Spanish boys and girls in digital (24 points) and print (29 points) reading are almost the same. Of the 32 countries that participated in the digital reading assessment in 2012, those with the widest gender gaps in digital reading, namely Estonia, Hungary, Norway, Poland, Slovenia, Sweden and the United Arab Emirates, tend to have a comparatively wide gender gap in print reading as well. In these countries, whatever factors might explain the performance differences between boys and girls in the digital medium seem to be the same, or at least have a similar effect, as those that account for performance differences in the print medium (Table D8.3 and Chart D8.3).

Results from the PISA report, *The ABC of Gender Equality in Education: Aptitude, Behaviour, Confidence* (OECD, 2015b), suggest that boys tend to do better in reading when they take a computer-based test largely because of their greater familiarity computers, which, in turn, is linked to the greater amount of time they spend playing video games. The more frequently students play one-player video games and collaborative online games, which boys tend to play more than girls, the worse their relative performance on paper-based tests. Frequent video gaming appears to "crowd out" other activities, such as doing homework regularly, that help students to acquire reading and mathematics skills. In computer-based tests, the negative effects of video gaming may be counterbalanced by its positive effects on students' ability to navigate through digital texts. And students who frequently play video games will, necessarily, be more at ease – and may even prefer – taking a test using a computer.

Chart D8.3. Mean score-point difference between paper-and-pencil and computer-delivered reading test[1] (PISA 2012)

15-year-old students, by gender



Note: Differences that are statistically significant are marked in grey and dark blue.

1. Negative figures mean that 15-year-old students have obtained better performances on computer-delivered reading test.

Countries and economies are ranked in ascending order of the mean score-point difference between paper-and-pencil and computer-delivered reading test of boys.

Source: OECD. Table D8.3. See Annex 3 for notes (www.oecd.org/education/education-at-a-glance-19991487.htm).

StatLink http://dx.doi.org/10.1787/888933284709

Teachers and ICT

Teaching practices deployed by teachers can play a significant role in the degree to which students learn. The OECD Teaching and Learning International Survey (TALIS) conducted in 2013 asked lower secondary school teachers to choose a particular class from their teaching schedule and then respond to a series of questions about the frequency with which they used a number of teaching practices in this class. Of the eight practices examined, the two that teachers reported using most frequently, on average across countries, are presenting a summary of recently learned content and checking students' exercise books or homework (around 80% of teachers, on average, reported using these practices). (See Table 6.1 in the TALIS survey [OECD, 2014a]).

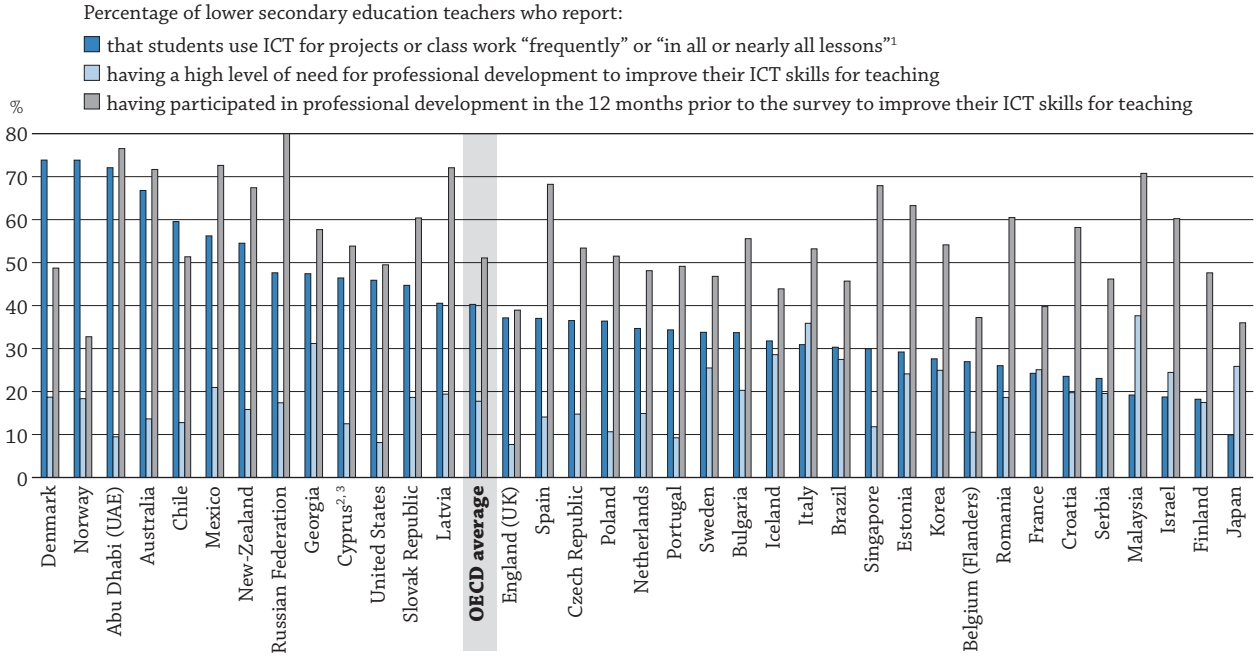
In contrast, 40% of lower secondary teachers reported that students use ICT for projects or class work "frequently" or "in all or nearly all lessons". However, this average masks large disparities among countries. For example, in Australia, Chile, Denmark, Mexico, New Zealand, Norway and Abu Dhabi (the United Arab Emirates), more than one in two teachers reported that students use ICT "frequently" or "in all or nearly all lessons", while fewer than one in four teachers in Croatia, Finland, France, Israel, Japan, Malaysia, Serbia and Shanghai (China) reported so (Table D8.4 and Chart D8.4).

Despite an increasing number of new initiatives to develop ICT skills for teaching and greater investments in new technologies (OECD [2015c]), these figures show that teachers are still not systematically using these tools in their teaching. This may be because, among other things, teachers feel they are not sufficiently skilled in using ICT themselves. The PISA study showed that, among all teachers, those who are more inclined and better prepared for student-oriented teaching practices, such as group work, individualised learning and project work, are more likely to use digital resources, according to students' reports (OECD [2015b]). In addition, when asked to rank their professional development needs, teachers across all countries and economies that participated in TALIS in 2013 cited teaching students with special needs first, followed by teaching with ICT (18% of teachers, on average) and using new technologies in the workplace (16% of teachers, on average). Even larger proportions

of teachers cited the need for professional development in teaching with ICT and using new technologies in the workplace in Brazil (27% and 37%, respectively), Georgia (31% and 39%, respectively), Italy (36% and 32%, respectively) and Malaysia (38% and 31%, respectively) (Table D8.4).

Providing further support, either through professional development or initial teacher training, to encourage teachers to use ICT tools in their teaching should be a priority. In addition, teachers should be encouraged and given the time to collaborate with their colleagues. TALIS finds that teachers who reported that they participate in professional development activities involving collaborative research, observation visits to other schools, or a network of teachers are more likely to have reported that they use teaching practices that involve small groups of students and ICT.

Chart D8.4. Information and communications technology: Teaching practices, teachers' needs for professional development and participation in professional development activities (TALIS 2013)



1. These data are reported by teachers and refer to a randomly chosen class they currently teach from their weekly timetable.

2. Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

3. Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Countries and economies are ranked in descending order, based on the overall percentage of teachers who report that students use ICT for projects or class work "frequently" or "in all or nearly all lessons".

Source: OECD. Table D8.4. See Annex 3 for notes (www.oecd.org/education/education-at-a-glance-19991487.htm).

StatLink http://dx.doi.org/10.1787/888933284717

Professional development

No matter how good initial teacher education is, it cannot be expected to prepare teachers for all the challenges they will face during their first job as a teacher. Therefore, professional development, at all points in a teacher's career, is necessary to keep up with changing research, tools, practices and students' needs.

One in two teachers reported that they had participated in at least one professional development activity to improve their ICT skills for teaching during the 12 months prior to the TALIS survey. Although the reported participation rates in professional development activities related to ICT vary widely across countries (from 33% in Norway to 81% in the Russian Federation), teachers generally indicated that their professional development activities have a moderate or large positive impact on their teaching. Thus, between 64% of teachers in England and more than 90% of teachers in Portugal, Romania and the Slovak Republic, on average, reported that professional development activities to improve their ICT skills for teaching had a positive impact (Table D8.4).

Given what teachers reported about their professional development needs, one would expect to see strong correlations between the reported need and participation rates in relevant professional development activities. But the data reported in Table D8.4 show otherwise. In many countries, the supply of professional development activities does not match the demand. That lack of coherence could be costly if the teachers who feel they need further training do not have access to it, or if the training is not well-targeted.

For example, in Italy, 36 % of lower secondary school teachers indicated that they have a high need for professional development to improve their ICT skills for teaching (the second highest percentage of teachers among all participating countries/economies), but an average of 53% of lower secondary teachers reported that they had participated in professional development activities in this area in the 12 months prior to the survey. Similarly, only 12% of lower secondary teachers indicated that they have a high need for professional development in ICT in Singapore while 68% of them participated in professional development activities in this area in the 12 months prior to the survey (Table D8.4 and Chart D8.4).

Methodology

All the data published in this Indicator came from the TALIS and PISA surveys.

The number of students per school computer was derived from dividing the number of students in the modal grade for 15-year-olds by the number of computers for educational purposes available to students in the modal grade for 15-year-olds.

The *index of quality of school educational resources* was derived from six items measuring school principals' perceptions of potential factors hindering instruction at their school (SC14, from the PISA 2012 school questionnaire). These factors are: shortage or inadequacy of science laboratory equipment; shortage or inadequacy of instructional materials; shortage or inadequacy of computers for instruction; lack or inadequacy of Internet connectivity; shortage or inadequacy of computer software for instruction; and shortage or inadequacy of library materials. As all items were inverted for scaling, higher values on this index indicate better quality of educational resources. For trends analyses, the PISA 2003 values of the *index of quality of educational resources* were rescaled to be comparable to those in PISA 2012. As a result, values for the *index of quality educational resources* for PISA 2003 reported in this Indicator may differ from those reported in *Learning for Tomorrow's World: First Results from PISA 2003*. One of the questions included to compute the *index of quality of educational resources* in PISA 2012 ("lack or inadequacy of Internet connection") was not included in the PISA 2003 questionnaire. Estimation of the PISA 2003 index treats this question as missing and, under the assumption that the relationship between the items remains unchanged with the inclusion of the new questions, the PISA 2003 and PISA 2012 values on the *index of quality of educational resources* are comparable after the rescaling. For more information regarding the indices, please refer to the *PISA 2012 Technical Report* (OECD [2014b]).

Thirty-two countries participated in the digital reading assessment in PISA 2012. When a country participated in the digital reading assessment option, it was expected that student sampling of the digital reading assessment would occur in every school that participated in the paper-based PISA survey. The overall sample size requirement for the digital reading assessment was 1 200 assessed students within each country. The recommended Target Cluster Size (TCS) for the digital reading assessment was 14 students per sampled school. While 14 students for each of 150 schools (the typical number of PISA schools) would potentially yield 2 100 students, the large TCS was chosen to account for the fact that some schools would not have adequate computer resources. The TCS of 14 also accounted for the loss in the digital reading assessment sample that would accrue from prior losses in the paper-based PISA sample. It was a requirement that all students who participated in the digital reading assessment also took part in the paper-based PISA assessment. The student sample for the digital reading assessment was selected at the same time that the paper-based PISA student sample was selected in each school by a student-sampling software. Therefore, any student sampled for both assessments who did not provide responses to the paper-based PISA assessment was an automatic loss to the digital reading assessment.

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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Indicator D8 Tables

StatLink http://dx.doi.org/10.1787/888933286444

Table D8.1	Computer availability, first access to Internet and intensity of Internet use at school (PISA 2012)
Table D8.2	Change between 2003 and 2012 in the quality of schools' educational resources
Table D8.3	PISA score in reading for 15-year-olds and mean score-point difference between paper-and-pencil and computer-delivered reading test, by gender (PISA 2012)
Table D8.4	Teachers and information and communication technology

Table D8.1. [1/2] Computer availability, first access to Internet and intensity of Internet use at school (PISA 2012)

		Ratio of 15-year-old students to computers available to them[1] (results based on principals' reports)				How old were 15-year-old students when they first accessed the Internet? (results based on students' self-reports)									
		2009		2012		6 years old or younger		7-9 years old		10-12 years old		13 years old or older		Never accessed the Internet	
		Mean	S.E.	Mean	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Australia	2.4	(1.1)	0.9	(0.0)	19.3	(0.4)	48.1	(0.4)	27.4	(0.4)	5.1	(0.2)	0.1	(0.0)
OECD	Austria	2.4	(0.4)	2.9	(0.5)	8.0	(0.4)	37.8	(0.7)	43.9	(0.7)	10.2	(0.6)	0.2	(0.1)
OECD	Belgium	3.0	(0.2)	2.8	(0.3)	14.5	(0.5)	41.1	(0.6)	37.7	(0.7)	6.4	(0.3)	0.3	(0.1)
OECD	Canada	2.0	(0.1)	2.8	(1.0)	m	m	m	m	m	m	m	m	m	m
OECD	Chile	6.2	(0.5)	4.7	(0.9)	12.2	(0.4)	37.4	(0.8)	37.2	(0.9)	12.9	(0.6)	0.4	(0.1)
OECD	Czech Republic	2.2	(0.1)	1.6	(0.1)	7.0	(0.4)	41.9	(0.9)	42.7	(1.0)	8.3	(0.5)	0.1	(0.1)
OECD	Denmark	1.8	(0.1)	2.4	(0.3)	32.6	(0.8)	51.5	(0.7)	14.8	(0.6)	0.9	(0.1)	0.1	(0.0)
OECD	Estonia	2.5	(0.1)	2.1	(0.1)	24.1	(0.8)	56.1	(0.9)	17.2	(0.7)	2.4	(0.3)	0.2	(0.1)
OECD	Finland	3.0	(0.1)	3.1	(0.1)	20.9	(0.6)	60.2	(0.6)	17.8	(0.5)	1.1	(0.2)	0.0	c
OECD	France	m	m	2.9	(0.2)	m	m	m	m	m	m	m	m	m	m
OECD	Germany	3.0	(0.2)	4.2	(1.3)	7.0	(0.4)	35.2	(0.8)	46.4	(0.7)	11.2	(0.5)	0.2	(0.1)
OECD	Greece	7.8	(1.2)	8.2	(1.1)	5.1	(0.3)	22.7	(0.6)	41.8	(0.7)	29.6	(0.7)	0.8	(0.1)
OECD	Hungary	2.4	(0.1)	2.2	(0.1)	8.9	(0.5)	38.4	(1.0)	42.9	(0.9)	9.7	(0.6)	0.1	(0.1)
OECD	Iceland	2.2	(0.0)	4.1	(0.0)	22.9	(0.7)	52.5	(0.8)	21.6	(0.7)	2.8	(0.3)	0.3	(0.1)
OECD	Ireland	3.6	(1.2)	2.6	(0.2)	6.6	(0.4)	31.9	(0.8)	47.5	(0.8)	13.7	(0.5)	0.2	(0.1)
OECD	Israel	5.2	(0.6)	4.7	(0.6)	27.9	(0.8)	44.7	(0.8)	20.7	(0.7)	5.7	(0.5)	0.9	(0.2)
OECD	Italy	3.7	(0.1)	4.1	(0.5)	7.0	(0.2)	27.3	(0.4)	46.7	(0.5)	18.6	(0.4)	0.4	(0.1)
OECD	Japan	3.7	(0.1)	3.6	(0.1)	6.5	(0.4)	38.8	(0.6)	43.8	(0.7)	10.3	(0.5)	0.7	(0.1)
OECD	Korea	4.6	(0.2)	5.3	(0.2)	11.8	(0.5)	58.3	(0.7)	26.5	(0.8)	3.3	(0.3)	0.1	(0.0)
OECD	Luxembourg	12.1	(0.0)	2.2	(0.0)	m	m	m	m	m	m	m	m	m	m
OECD	Mexico	20.8	(7.6)	15.5	(2.0)	6.1	(0.3)	26.9	(0.5)	37.5	(0.4)	24.4	(0.5)	5.1	(0.4)
OECD	Netherlands	2.6	(0.2)	2.6	(0.2)	33.3	(0.9)	50.5	(0.9)	15.3	(0.6)	0.8	(0.1)	0.1	(0.0)
OECD	New Zealand	1.4	(0.0)	1.2	(0.1)	23.7	(0.8)	48.3	(0.9)	23.7	(0.7)	4.0	(0.3)	0.3	(0.1)
OECD	Norway	1.8	(0.1)	1.7	(0.1)	26.1	(0.7)	50.9	(0.9)	20.9	(0.6)	1.9	(0.2)	0.3	(0.1)
OECD	Poland	4.9	(0.2)	4.0	(0.1)	8.3	(0.5)	37.2	(0.8)	41.6	(0.9)	12.3	(0.6)	0.7	(0.1)
OECD	Portugal	2.2	(0.1)	3.7	(0.3)	11.0	(0.6)	39.7	(0.7)	39.5	(0.8)	9.7	(0.5)	0.1	(0.0)
OECD	Slovak Republic	3.1	(0.3)	2.0	(0.2)	4.8	(0.4)	26.3	(0.8)	46.7	(0.9)	21.5	(0.8)	0.8	(0.2)
OECD	Slovenia	4.8	(0.0)	3.3	(0.0)	12.5	(0.5)	48.4	(0.8)	32.5	(0.7)	6.1	(0.4)	0.5	(0.1)
OECD	Spain	2.2	(0.1)	2.2	(0.1)	14.8	(0.4)	45.3	(0.6)	34.0	(0.5)	5.8	(0.3)	0.2	(0.1)
OECD	Sweden	3.6	(0.2)	3.7	(0.8)	25.0	(0.7)	53.7	(0.8)	18.7	(0.6)	2.1	(0.2)	0.5	(0.1)
OECD	Switzerland	2.7	(0.1)	2.7	(0.2)	8.8	(0.4)	38.4	(0.7)	43.0	(0.7)	9.6	(0.4)	0.3	(0.1)
OECD	Turkey	12.1	(2.0)	44.9	(9.7)	5.3	(0.4)	32.7	(0.8)	40.2	(0.8)	19.7	(0.7)	2.0	(0.3)
OECD	United Kingdom	1.4	(0.1)	1.4	(0.1)	m	m	m	m	m	m	m	m	m	m
OECD	United States	2.5	(0.4)	1.8	(0.2)	m	m	m	m	m	m	m	m	m	m
	OECD average	4.2	(0.2)	4.7	(0.3)	14.6	(0.1)	42.1	(0.1)	33.5	(0.1)	9.3	(0.1)	0.5	(0.0)
Partners	Brazil	34.0	(4.6)	22.1	(2.7)	m	m	m	m	m	m	m	m	m	m
Partners	Colombia	6.1	(0.9)	3.7	(0.2)	m	m	m	m	m	m	m	m	m	m
Partners	Costa Rica	19.5	(3.3)	17.7	(3.1)	9.1	(0.5)	28.6	(0.9)	38.9	(0.8)	22.0	(1.1)	1.4	(0.3)
Partners	Croatia	4.2	(0.2)	5.0	(0.2)	7.2	(0.4)	34.7	(0.8)	44.0	(0.8)	13.9	(0.6)	0.2	(0.1)
Partners	Hong Kong (China)	1.9	(0.1)	2.2	(0.3)	24.5	(1.0)	51.0	(1.0)	21.6	(0.7)	2.3	(0.3)	0.5	(0.1)
Partners	Indonesia	22.8	(2.8)	16.4	(2.2)	m	m	m	m	m	m	m	m	m	m
Partners	Jordan	4.3	(0.3)	5.0	(0.5)	8.9	(0.5)	17.6	(0.6)	31.2	(0.7)	34.9	(0.7)	7.3	(0.5)
Partners	Latvia	2.1	(0.1)	2.2	(0.6)	12.1	(0.7)	49.3	(1.0)	32.3	(1.0)	6.0	(0.4)	0.2	(0.1)
Partners	Liechtenstein	2.4	(0.0)	2.1	(0.0)	13.6	(2.1)	39.6	(3.0)	38.6	(2.9)	8.3	(1.5)	0.0	c
Partners	Macao (China)	2.5	(0.0)	1.3	(0.0)	10.6	(0.4)	42.3	(0.7)	38.8	(0.7)	7.9	(0.3)	0.4	(0.1)
Partners	Russian Federation	4.0	(0.6)	3.0	(0.1)	2.3	(0.2)	14.8	(0.6)	39.0	(0.9)	42.7	(1.2)	1.3	(0.2)
Partners	Serbia	7.1	(0.9)	8.8	(2.4)	3.2	(0.3)	19.8	(0.7)	44.1	(0.8)	31.9	(0.8)	1.0	(0.1)
Partners	Shanghai (China)	4.8	(2.2)	2.9	(0.2)	8.3	(0.5)	35.0	(0.9)	38.4	(0.6)	16.5	(0.8)	1.8	(0.3)
Partners	Singapore	2.0	(0.0)	2.0	(0.0)	16.3	(0.5)	45.7	(0.6)	32.3	(0.7)	5.7	(0.3)	0.1	(0.0)
Partners	Chinese Taipei	5.0	(0.3)	5.8	(1.1)	11.2	(0.5)	43.0	(0.8)	39.8	(0.7)	5.8	(0.4)	0.1	(0.0)
Partners	Uruguay	13.1	(1.8)	8.7	(0.6)	10.5	(0.5)	37.1	(0.8)	38.4	(0.7)	13.5	(0.6)	0.5	(0.1)
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

1. The number of students per computer is based on principals' reports about the number of students in the national modal grade for 15-year-olds and on the number of computers available for these students. In schools where no computer is available, the number of students per computer is set equal to 1 + the number of students reported by the principal.

Source: OECD. PISA 2012 Database.

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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D8

Table D8.1. [2/2] Computer availability, first access to Internet and intensity of Internet use at school (PISA 2012)

		During a typical weekday, for how long do 15-year-old students use the Internet at school? (results based on students' self-reports)													
		No time		1-60 minutes		Between 1 and 2 hours		Between 2 and 4 hours		Between 4 and 6 hours		More than 6 hours		Average daily time spent using the Internet at school (lower bound)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	Minutes	S.E.
		(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
OECD	Australia	6.7	(0.3)	48.6	(0.7)	23.4	(0.6)	14.7	(0.5)	4.9	(0.3)	1.7	(0.1)	58	(1.1)
OECD	Austria	25.3	(1.0)	53.0	(1.0)	13.3	(0.6)	5.0	(0.4)	2.0	(0.3)	1.3	(0.2)	29	(1.3)
OECD	Belgium	47.8	(0.9)	36.8	(0.7)	8.6	(0.3)	4.4	(0.3)	1.3	(0.1)	1.1	(0.1)	22	(0.8)
OECD	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Chile	40.1	(1.4)	38.6	(1.1)	12.6	(0.8)	4.8	(0.3)	1.8	(0.2)	2.1	(0.2)	30	(1.1)
OECD	Czech Republic	36.3	(1.3)	51.6	(1.2)	7.4	(0.6)	2.5	(0.3)	1.2	(0.2)	1.0	(0.2)	18	(1.0)
OECD	Denmark	6.7	(0.4)	61.4	(1.2)	16.2	(0.6)	9.7	(0.8)	4.3	(0.4)	1.7	(0.3)	46	(2.1)
OECD	Estonia	34.0	(1.0)	52.2	(1.0)	6.3	(0.4)	4.3	(0.3)	1.8	(0.2)	1.4	(0.2)	23	(1.0)
OECD	Finland	32.8	(0.9)	55.7	(0.9)	6.9	(0.4)	2.8	(0.3)	1.0	(0.2)	0.7	(0.1)	18	(0.8)
OECD	France	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Germany	51.4	(1.1)	40.2	(1.1)	4.5	(0.4)	2.2	(0.2)	0.8	(0.2)	0.9	(0.2)	14	(0.9)
OECD	Greece	36.5	(1.3)	35.4	(1.1)	13.2	(0.6)	8.2	(0.7)	3.4	(0.3)	3.2	(0.3)	42	(1.6)
OECD	Hungary	34.5	(1.2)	47.1	(1.2)	9.3	(0.5)	4.7	(0.4)	2.2	(0.2)	2.2	(0.2)	30	(1.3)
OECD	Iceland	35.7	(0.8)	52.7	(0.8)	4.7	(0.4)	3.7	(0.4)	1.8	(0.2)	1.4	(0.2)	20	(1.0)
OECD	Ireland	45.5	(1.3)	44.4	(1.2)	6.1	(0.4)	2.6	(0.3)	0.7	(0.1)	0.7	(0.1)	16	(0.7)
OECD	Israel	45.6	(1.2)	39.2	(1.2)	7.2	(0.4)	3.6	(0.3)	1.8	(0.2)	2.5	(0.3)	25	(1.5)
OECD	Italy	56.9	(0.7)	29.0	(0.6)	9.2	(0.3)	2.8	(0.1)	1.0	(0.1)	1.1	(0.1)	19	(0.5)
OECD	Japan	62.0	(1.2)	30.5	(1.2)	5.7	(0.5)	1.3	(0.2)	0.3	(0.1)	0.3	(0.1)	13	(0.5)
OECD	Korea	68.3	(1.6)	24.7	(1.5)	4.4	(0.4)	2.3	(0.3)	0.2	(0.1)	0.1	(0.0)	9	(0.6)
OECD	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Mexico	42.6	(0.8)	38.5	(0.6)	12.1	(0.5)	4.0	(0.2)	1.4	(0.1)	1.5	(0.1)	26	(0.6)
OECD	Netherlands	17.8	(1.1)	67.3	(1.1)	8.2	(0.5)	3.5	(0.3)	1.3	(0.2)	1.9	(0.3)	26	(1.3)
OECD	New Zealand	21.8	(1.0)	62.6	(1.0)	9.1	(0.6)	4.1	(0.4)	1.3	(0.2)	1.1	(0.2)	25	(1.1)
OECD	Norway	14.8	(1.1)	70.1	(1.1)	9.7	(0.7)	3.3	(0.4)	1.4	(0.2)	0.7	(0.1)	24	(1.4)
OECD	Poland	50.2	(1.5)	42.8	(1.4)	3.7	(0.3)	1.7	(0.2)	0.7	(0.1)	0.9	(0.2)	13	(0.9)
OECD	Portugal	40.9	(1.3)	43.0	(1.2)	8.3	(0.5)	3.9	(0.4)	2.2	(0.3)	1.5	(0.3)	24	(2.0)
OECD	Slovak Republic	25.0	(1.2)	56.0	(1.2)	9.9	(0.6)	4.7	(0.3)	1.9	(0.2)	2.5	(0.2)	32	(1.3)
OECD	Slovenia	26.7	(0.8)	53.3	(0.7)	12.2	(0.5)	4.5	(0.2)	1.7	(0.2)	1.7	(0.2)	28	(0.9)
OECD	Spain	32.7	(1.0)	45.1	(0.8)	12.0	(0.3)	5.7	(0.3)	2.3	(0.3)	2.1	(0.3)	34	(1.4)
OECD	Sweden	16.3	(1.0)	60.1	(1.6)	11.2	(0.8)	6.4	(0.9)	3.5	(0.5)	2.5	(0.4)	39	(2.9)
OECD	Switzerland	32.3	(1.0)	56.9	(1.0)	6.9	(0.4)	2.6	(0.3)	0.7	(0.2)	0.6	(0.1)	16	(0.9)
OECD	Turkey	63.4	(1.4)	25.7	(1.1)	6.3	(0.4)	2.5	(0.3)	1.1	(0.2)	1.1	(0.2)	15	(0.9)
OECD	United Kingdom	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD	United States	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	36.2	(0.2)	47.0	(0.2)	9.3	(0.1)	4.4	(0.1)	1.7	(0.0)	1.4	(0.0)	25	(0.2)
Partners	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Colombia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Costa Rica	45.5	(1.3)	35.3	(1.1)	10.3	(0.5)	4.5	(0.4)	2.2	(0.2)	2.2	(0.3)	29	(1.3)
Partners	Croatia	39.3	(1.0)	45.4	(1.1)	8.2	(0.5)	3.6	(0.3)	1.5	(0.2)	1.9	(0.2)	23	(1.1)
Partners	Hong Kong (China)	49.6	(1.2)	43.3	(1.2)	4.0	(0.3)	1.7	(0.2)	1.0	(0.2)	0.4	(0.1)	11	(0.9)
Partners	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Jordan	50.1	(1.5)	35.5	(1.3)	8.2	(0.5)	2.8	(0.2)	1.2	(0.2)	2.2	(0.2)	23	(0.9)
Partners	Latvia	47.6	(1.1)	41.5	(0.9)	5.3	(0.5)	3.2	(0.3)	1.5	(0.2)	0.8	(0.2)	17	(1.0)
Partners	Liechtenstein	22.1	(2.6)	66.8	(3.1)	6.4	(1.4)	3.2	(1.1)	1.1	(0.6)	0.3	(0.3)	18	(2.3)
Partners	Macao (China)	56.3	(0.6)	34.4	(0.7)	5.3	(0.3)	2.6	(0.2)	0.7	(0.1)	0.7	(0.1)	14	(0.5)
Partners	Russian Federation	38.5	(0.9)	41.2	(1.0)	8.6	(0.4)	6.0	(0.3)	2.4	(0.2)	3.3	(0.3)	34	(1.2)
Partners	Serbia	46.4	(1.7)	40.8	(1.5)	7.6	(0.5)	2.6	(0.3)	1.0	(0.2)	1.6	(0.2)	20	(1.1)
Partners	Shanghai (China)	75.0	(1.2)	18.0	(1.0)	4.0	(0.3)	1.7	(0.2)	0.6	(0.1)	0.7	(0.1)	10	(0.8)
Partners	Singapore	52.0	(0.7)	33.4	(0.6)	9.2	(0.4)	3.5	(0.4)	1.0	(0.1)	1.0	(0.2)	20	(1.0)
Partners	Chinese Taipei	49.0	(1.6)	34.2	(1.5)	10.8	(0.7)	3.5	(0.3)	1.4	(0.2)	1.1	(0.1)	23	(1.0)
Partners	Uruguay	50.6	(1.3)	30.1	(1.1)	9.3	(0.5)	5.1	(0.4)	2.4	(0.2)	2.5	(0.2)	30	(1.2)
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

1. The number of students per computer is based on principals' reports about the number of students in the national modal grade for 15-year-olds and on the number of computers available for these students. In schools where no computer is available, the number of students per computer is set equal to 1 + the number of students reported by the principal.

Source: OECD. PISA 2012 Database.

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D8.2. [1/2] Change between 2003 and 2012 in the quality of schools' educational resources

Results based on PISA school principals' reports

		PISA 2003											
		Index of quality of schools' educational resources[1]		Percentage of students in schools whose principal reported that the school's capacity to provide instruction is hindered a lot by a shortage or inadequacy of the following:									
				Science laboratory equipment		Instructional materials (e.g. textbooks)		Computers for instruction		Computer software for instruction		Library materials	
		Mean index	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Australia	0.27	(0.07)	9.5	(1.7)	2.2	(0.9)	13.1	(1.8)	0.7	(0.5)	3.1	(0.9)
OECD	Austria	0.06	(0.08)	1.4	(0.9)	0.9	(0.7)	11.6	(2.7)	2.9	(1.4)	6.5	(2.1)
OECD	Belgium	-0.12	(0.06)	8.2	(1.9)	11.2	(2.2)	25.0	(3.0)	4.0	(1.3)	10.5	(2.1)
OECD	Canada	-0.34	(0.05)	8.0	(1.1)	2.5	(0.8)	14.6	(1.5)	4.5	(1.1)	10.8	(1.3)
OECD	Czech Republic	-0.41	(0.06)	19.8	(2.0)	0.6	(0.6)	5.0	(1.4)	3.8	(1.2)	22.9	(3.0)
OECD	Denmark	-0.32	(0.07)	0.9	(0.7)	1.4	(1.0)	5.0	(1.7)	2.7	(1.2)	4.0	(1.6)
OECD	Finland	-0.37	(0.06)	0.7	(0.7)	0.0	(0.0)	7.9	(2.0)	0.8	(0.7)	4.6	(1.7)
OECD	France	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Germany	-0.13	(0.08)	10.6	(2.4)	4.6	(1.4)	44.1	(3.9)	6.5	(1.6)	8.3	(1.9)
OECD	Greece	-0.78	(0.13)	11.0	(3.2)	21.5	(5.0)	10.7	(3.9)	23.3	(4.5)	21.2	(4.2)
OECD	Hungary	-0.24	(0.08)	1.0	(0.6)	0.0	c	9.4	(2.4)	1.5	(1.1)	28.5	(3.6)
OECD	Iceland	-0.03	(0.00)	2.2	(0.1)	0.6	(0.1)	7.5	(0.1)	3.4	(0.0)	1.9	(0.0)
OECD	Ireland	-0.36	(0.08)	1.3	(0.9)	2.6	(0.9)	50.5	(4.6)	0.8	(0.8)	21.7	(3.7)
OECD	Italy	-0.16	(0.07)	4.1	(1.5)	4.5	(1.3)	10.3	(2.2)	6.5	(1.9)	6.8	(2.1)
OECD	Japan	-0.25	(0.10)	8.2	(2.3)	5.5	(1.9)	0.0	c	8.9	(2.4)	9.6	(2.5)
OECD	Korea	0.38	(0.06)	3.8	(1.6)	2.0	(1.2)	2.4	(1.2)	0.6	(0.7)	0.6	(0.7)
OECD	Luxembourg	-0.04	(0.00)	13.1	(0.0)	10.9	(0.0)	15.3	(0.0)	0.0	c	4.3	(0.0)
OECD	Mexico	-0.69	(0.09)	8.6	(1.9)	9.3	(2.2)	20.8	(2.8)	11.3	(2.1)	15.4	(2.4)
OECD	Netherlands	0.15	(0.06)	5.6	(2.1)	8.0	(2.5)	27.1	(3.7)	1.0	(0.7)	2.8	(1.9)
OECD	New Zealand	0.00	(0.06)	6.2	(1.4)	7.8	(1.5)	8.2	(1.6)	2.7	(1.4)	5.7	(1.8)
OECD	Norway	-0.70	(0.05)	3.1	(1.3)	0.7	(0.7)	4.9	(1.7)	2.7	(1.3)	5.5	(1.6)
OECD	Poland	-1.02	(0.07)	19.0	(3.3)	5.3	(1.8)	8.5	(2.1)	18.4	(2.8)	16.5	(2.8)
OECD	Portugal	-0.35	(0.07)	1.2	(0.8)	5.2	(1.9)	5.4	(1.9)	1.1	(0.9)	3.8	(1.6)
OECD	Slovak Republic	-1.10	(0.05)	11.4	(1.9)	0.8	(0.6)	5.1	(1.5)	19.9	(2.7)	53.9	(3.3)
OECD	Spain	-0.41	(0.07)	5.6	(1.8)	6.4	(2.1)	16.8	(2.5)	6.3	(1.8)	7.5	(1.5)
OECD	Sweden	-0.31	(0.07)	8.9	(2.2)	3.9	(1.4)	8.2	(2.1)	4.9	(1.7)	3.9	(1.5)
OECD	Switzerland	0.20	(0.07)	3.1	(1.5)	3.9	(1.6)	7.0	(1.4)	2.6	(1.3)	2.3	(1.0)
OECD	Turkey	-1.91	(0.11)	41.7	(4.2)	51.1	(4.4)	22.2	(4.3)	51.4	(4.4)	42.1	(3.8)
OECD	United States	0.25	(0.09)	2.8	(1.0)	2.3	(1.2)	8.2	(1.5)	2.0	(0.9)	6.9	(2.1)
	OECD average	-0.31	(0.01)	7.9	(0.4)	6.3	(0.4)	13.4	(0.5)	7.0	(0.4)	11.8	(0.4)
Partners	Brazil	-1.17	(0.10)	17.9	(3.3)	11.4	(2.4)	31.9	(3.5)	20.3	(2.7)	29.5	(3.1)
Partners	Hong Kong (China)	0.03	(0.08)	2.2	(2.2)	1.4	(1.0)	3.4	(1.5)	0.8	(0.8)	1.5	(1.0)
Partners	Indonesia	-1.08	(0.09)	36.2	(3.8)	43.0	(4.0)	13.2	(2.3)	47.9	(3.9)	38.9	(3.7)
Partners	Latvia	-0.80	(0.07)	4.3	(1.7)	1.0	(1.0)	9.9	(2.7)	9.4	(2.3)	16.1	(2.8)
Partners	Liechtenstein	0.52	(0.01)	0.0	c	0.0	c	9.5	(0.1)	0.0	c	1.2	(0.0)
Partners	Macao (China)	-0.46	(0.00)	2.4	(0.0)	13.0	(0.2)	3.2	(0.0)	0.3	(0.0)	0.0	c
Partners	Russian Federation	-1.58	(0.08)	16.3	(2.7)	10.3	(2.8)	24.3	(3.9)	27.6	(3.6)	27.0	(3.2)
Partners	Thailand	-0.82	(0.10)	11.7	(2.7)	3.0	(1.4)	16.4	(2.9)	15.8	(3.0)	13.5	(2.9)
Partners	Tunisia	-0.68	(0.07)	6.8	(2.1)	6.3	(1.9)	24.5	(3.0)	5.1	(1.8)	3.1	(1.4)
Partners	Uruguay	-1.21	(0.09)	18.5	(3.4)	14.3	(3.2)	29.7	(4.5)	31.8	(3.8)	46.2	(4.0)
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m

Notes: Values for Change between 2003 and 2012 (PISA 2012 - PISA 2003) in the *index of quality of schools' educational resources* which are bolded indicate a statistical significance between the 2003 and 2012 index for that country.

Only countries and economies with comparable data from PISA 2003 and PISA 2012 are shown.

For comparability over time, PISA 2003 values on the *index of quality of schools' educational resources* have been rescaled to the PISA 2012 scale of the index. PISA 2003 results reported in this table may thus differ from those presented in *Learning for Tomorrow's World: First Results from PISA 2003* (OECD, 2004) (see Annex A5 for more details).

1.The *index of quality of school educational resources* was derived from the items included in this table measuring school principals' perceptions of potential factors hindering instruction at their school (SC14, from the PISA 2012 school questionnaire). Higher values on this index indicate better quality of educational resources.

Source: OECD. *PISA 2012 Results (Volume IV): What Makes Schools Successful? Resources, Policies and Practices*, Table IV.3.43.

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D8.2. [2/2] Change between 2003 and 2012 in the quality of schools' educational resources

Results based on PISA school principals' reports

		PISA 2012												Change between 2003 and 2012 (PISA 2012 - PISA 2003) in the index of quality of schools' educational resources[1]	
		Index of quality of schools' educational resources[1]		Percentage of students in schools whose principal reported that the school's capacity to provide instruction is hindered a lot by a shortage or inadequacy of the following:											
				Science laboratory equipment		Instructional materials (e.g. textbooks)		Computers for instruction		Computer software for instruction		Library materials			
		Mean index	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	Dif.	S.E.
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
OECD	Australia	0.68	(0.03)	1.7	(0.5)	0.9	(0.4)	0.7	(0.3)	0.8	(0.3)	0.8	(0.4)	**0.41**	(0.08)
OECD	Austria	0.22	(0.09)	18.5	(3.3)	1.7	(1.0)	10.2	(2.5)	2.9	(1.3)	2.4	(1.1)	0.16	(0.12)
OECD	Belgium	0.30	(0.06)	3.2	(1.1)	0.7	(0.5)	6.1	(1.6)	2.9	(1.1)	4.6	(1.2)	**0.42**	(0.09)
OECD	Canada	0.27	(0.04)	2.1	(0.9)	1.0	(0.6)	5.8	(1.4)	2.7	(0.8)	1.6	(0.6)	**0.61**	(0.06)
OECD	Czech Republic	0.05	(0.06)	7.4	(2.0)	1.6	(0.8)	2.5	(1.2)	1.7	(0.9)	6.3	(1.9)	**0.46**	(0.09)
OECD	Denmark	-0.15	(0.05)	2.5	(1.3)	1.8	(1.5)	10.8	(2.2)	1.2	(0.8)	1.0	(0.7)	**0.18**	(0.09)
OECD	Finland	-0.20	(0.06)	1.5	(0.3)	3.6	(1.4)	11.4	(2.3)	6.2	(1.5)	5.4	(1.4)	**0.17**	(0.08)
OECD	France	0.38	(0.07)	2.6	(1.1)	0.8	(0.6)	3.7	(1.2)	2.8	(1.1)	2.4	(0.9)	m	m
OECD	Germany	0.09	(0.07)	5.8	(1.8)	0.0	c	4.3	(1.4)	2.0	(0.8)	2.4	(1.1)	**0.22**	(0.10)
OECD	Greece	-0.35	(0.07)	13.0	(2.7)	11.7	(2.6)	17.8	(3.2)	10.4	(2.5)	20.1	(3.3)	**0.43**	(0.15)
OECD	Hungary	0.17	(0.06)	11.8	(2.7)	2.8	(1.3)	3.2	(1.3)	3.5	(1.5)	2.8	(1.6)	**0.41**	(0.10)
OECD	Iceland	-0.34	(0.00)	14.4	(0.2)	0.0	c	20.0	(0.1)	5.4	(0.1)	3.0	(0.1)	**-0.31**	(0.01)
OECD	Ireland	0.11	(0.08)	9.4	(2.4)	1.3	(0.9)	8.8	(2.4)	4.8	(1.9)	13.7	(2.9)	**0.47**	(0.11)
OECD	Italy	0.05	(0.04)	8.5	(1.1)	1.2	(0.4)	3.5	(0.7)	5.0	(0.9)	5.5	(0.9)	**0.20**	(0.08)
OECD	Japan	0.44	(0.08)	5.1	(1.7)	0.5	(0.5)	5.6	(1.9)	7.7	(2.0)	2.3	(1.0)	**0.69**	(0.13)
OECD	Korea	0.06	(0.08)	6.5	(2.2)	0.6	(0.6)	3.1	(1.4)	2.9	(1.5)	7.6	(2.4)	**-0.32**	(0.10)
OECD	Luxembourg	0.04	(0.00)	5.6	(0.1)	0.0	c	6.1	(0.0)	3.2	(0.0)	5.2	(0.1)	**0.07**	(0.00)
OECD	Mexico	-0.86	(0.04)	31.0	(1.7)	11.1	(1.2)	30.9	(1.9)	26.5	(1.6)	14.5	(1.0)	-0.16	(0.10)
OECD	Netherlands	0.19	(0.08)	4.6	(1.8)	0.0	c	12.4	(2.6)	7.1	(2.0)	1.3	(1.0)	0.04	(0.10)
OECD	New Zealand	0.20	(0.08)	1.2	(0.7)	0.8	(0.1)	6.4	(2.1)	0.4	(0.4)	0.1	(0.1)	0.20	(0.10)
OECD	Norway	-0.19	(0.06)	7.8	(1.9)	1.1	(0.8)	5.0	(1.6)	1.8	(1.1)	10.9	(2.3)	**0.51**	(0.08)
OECD	Poland	0.36	(0.08)	4.1	(1.6)	0.0	c	6.3	(1.7)	4.8	(1.5)	2.5	(1.3)	**1.38**	(0.10)
OECD	Portugal	0.17	(0.08)	4.5	(1.5)	0.8	(0.8)	8.7	(2.2)	4.6	(1.8)	2.2	(1.2)	**0.52**	(0.11)
OECD	Slovak Republic	-0.54	(0.05)	15.4	(2.5)	18.4	(2.7)	3.3	(1.1)	5.8	(1.8)	5.2	(1.6)	**0.55**	(0.07)
OECD	Spain	0.02	(0.05)	5.4	(1.3)	0.4	(0.2)	9.9	(1.4)	4.2	(1.0)	2.5	(0.7)	**0.43**	(0.09)
OECD	Sweden	0.05	(0.06)	2.7	(1.2)	0.0	c	15.9	(2.7)	5.2	(1.7)	4.0	(1.2)	**0.36**	(0.09)
OECD	Switzerland	0.55	(0.07)	1.6	(0.5)	1.2	(0.7)	4.8	(1.6)	1.5	(0.7)	2.4	(1.0)	**0.35**	(0.10)
OECD	Turkey	-0.40	(0.06)	22.1	(3.1)	8.3	(2.2)	15.0	(2.6)	9.8	(2.4)	9.8	(2.2)	**1.51**	(0.13)
OECD	United States	0.38	(0.08)	4.2	(1.7)	3.3	(1.5)	5.5	(1.9)	2.2	(1.2)	1.1	(0.6)	0.13	(0.12)
	OECD average	0.05	(0.01)	7.9	(0.3)	2.7	(0.3)	8.7	(0.4)	4.9	(0.3)	5.0	(0.3)	**0.36**	(0.02)
Partners	Brazil	-0.54	(0.05)	41.2	(1.9)	2.9	(0.7)	21.6	(2.2)	25.6	(2.3)	12.5	(1.6)	**0.63**	(0.11)
Partners	Hong Kong (China)	0.44	(0.07)	1.0	(0.8)	0.9	(0.7)	2.4	(1.2)	1.9	(1.1)	1.3	(0.9)	**0.41**	(0.10)
Partners	Indonesia	-0.76	(0.10)	28.8	(3.7)	9.6	(2.2)	23.1	(3.5)	21.0	(3.6)	13.8	(3.1)	**0.33**	(0.14)
Partners	Latvia	0.04	(0.05)	7.4	(1.9)	4.1	(1.6)	7.5	(2.0)	3.0	(1.3)	4.8	(1.7)	**0.83**	(0.08)
Partners	Liechtenstein	0.77	(0.01)	0.0	c	0.0	c	0.0	c	0.0	c	0.0	c	**0.24**	(0.01)
Partners	Macao (China)	0.36	(0.00)	0.0	c	2.4	(0.0)	0.1	(0.0)	0.3	(0.0)	4.0	(0.0)	**0.82**	(0.00)
Partners	Russian Federation	-0.48	(0.07)	17.1	(2.5)	3.4	(1.1)	12.8	(2.7)	12.0	(1.7)	5.0	(1.2)	**1.10**	(0.11)
Partners	Thailand	-0.68	(0.07)	26.2	(3.4)	2.7	(1.2)	14.3	(2.5)	15.1	(2.6)	19.9	(2.5)	0.14	(0.12)
Partners	Tunisia	-1.34	(0.08)	30.8	(3.7)	17.3	(3.1)	37.0	(4.6)	25.3	(3.9)	47.9	(3.6)	**-0.66**	(0.11)
Partners	Uruguay	0.12	(0.08)	8.2	(2.2)	6.9	(1.9)	12.3	(2.3)	13.1	(2.6)	6.7	(1.9)	**1.33**	(0.12)
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m

Notes: Values for Change between 2003 and 2012 (PISA 2012 - PISA 2003) in the *index of quality of schools' educational resources* which are bolded indicate a statistical significance between the 2003 and 2012 index for that country.

Only countries and economies with comparable data from PISA 2003 and PISA 2012 are shown.

For comparability over time, PISA 2003 values on the *index of quality of schools' educational resources* have been rescaled to the PISA 2012 scale of the index. PISA 2003 results reported in this table may thus differ from those presented in *Learning for Tomorrow's World: First Results from PISA 2003* (OECD, 2004) (see Annex A5 for more details).

1.The *index of quality of school educational resources* was derived from the items included in this table measuring school principals' perceptions of potential factors hindering instruction at their school (SC14, from the PISA 2012 school questionnaire). Higher values on this index indicate better quality of educational resources.

Source: OECD. *PISA 2012 Results (Volume IV): What Makes Schools Successful? Resources, Policies and Practices*, Table IV.3.43.

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D8.3. PISA score in reading for 15-year-olds and mean score-point difference between paper-and-pencil and computer-delivered reading test, by gender (PISA 2012)

Mean score and variation

		Mean score in reading and gender differences (based on paper-based assessment)								Mean score-point difference between paper-and-pencil and computer-delivered reading test[1]					
		Boys and girls		Boys		Girls		Difference (B - G)		Boys		Girls		Difference (B - G)	
		Mean	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Australia	512	(1.6)	495	(2.3)	530	(2.0)	**-34**	(2.9)	**-10**	(1.7)	**-7**	(1.5)	**-4**	(1.6)
OECD	Austria	490	(2.8)	471	(4.0)	508	(3.4)	**-37**	(5.0)	4	(3.7)	**15**	(3.3)	**-10**	(3.7)
	Belgium	509	(2.3)	493	(3.0)	525	(2.7)	**-32**	(3.5)	3	(2.6)	**9**	(2.4)	**-6**	(2.5)
	Canada	523	(1.9)	506	(2.3)	541	(2.1)	**-35**	(2.1)	**-16**	(2.4)	-2	(2.4)	**-14**	(1.3)
	Chile	441	(2.9)	430	(3.8)	452	(2.9)	**-23**	(3.3)	**-18**	(2.9)	**-4**	(2.9)	**-14**	(2.5)
	Denmark	496	(2.6)	481	(3.3)	512	(2.6)	**-31**	(2.8)	-3	(2.8)	**5**	(2.5)	**-8**	(1.9)
	Estonia	516	(2.0)	494	(2.4)	538	(2.3)	**-44**	(2.4)	**-10**	(2.5)	-3	(2.4)	**-7**	(1.6)
	France	505	(2.8)	483	(3.8)	527	(3.0)	**-44**	(4.2)	**-16**	(3.2)	5	(3.4)	**-21**	(2.4)
	Germany	508	(2.8)	486	(2.9)	530	(3.1)	**-44**	(2.5)	**7**	(3.2)	**22**	(2.8)	**-15**	(2.0)
	Hungary	488	(3.2)	468	(3.9)	508	(3.3)	**-40**	(3.6)	**35**	(3.7)	**42**	(3.5)	**-7**	(3.0)
	Ireland	523	(2.6)	509	(3.5)	538	(3.0)	**-29**	(4.2)	1	(4.0)	5	(2.8)	-3	(3.9)
	Israel	486	(5.0)	463	(8.2)	507	(3.9)	**-44**	(7.9)	**16**	(4.2)	**33**	(3.5)	**-17**	(4.3)
	Italy	490	(2.0)	471	(2.5)	510	(2.3)	**-39**	(2.6)	**-28**	(4.6)	-4	(3.2)	**-24**	(4.3)
	Japan	538	(3.7)	527	(4.7)	551	(3.6)	**-24**	(4.1)	**-11**	(2.7)	-2	(2.4)	**-8**	(2.7)
	Korea	536	(3.9)	525	(5.0)	548	(4.5)	**-23**	(5.4)	**-27**	(3.3)	**-11**	(3.1)	**-16**	(3.6)
	Norway	504	(3.2)	481	(3.3)	528	(3.9)	**-46**	(3.3)	4	(3.7)	5	(3.9)	-1	(2.2)
	Poland	518	(3.1)	497	(3.7)	539	(3.1)	**-42**	(2.9)	**37**	(3.4)	**45**	(3.4)	**-8**	(2.0)
	Portugal	488	(3.8)	468	(4.2)	508	(3.7)	**-39**	(2.7)	**-9**	(3.1)	**13**	(2.7)	**-22**	(1.9)
	Slovak Republic	463	(4.2)	444	(4.6)	483	(5.1)	**-39**	(4.6)	**-21**	(2.7)	-1	(2.6)	**-21**	(2.6)
	Slovenia	481	(1.2)	454	(1.7)	510	(1.8)	**-56**	(2.7)	2	(1.4)	**18**	(1.4)	**-16**	(1.5)
	Spain	488	(1.9)	474	(2.3)	503	(1.9)	**-29**	(2.0)	**17**	(4.2)	**22**	(3.8)	-5	(2.4)
	Sweden	483	(3.0)	458	(4.0)	509	(2.8)	**-51**	(3.6)	**-24**	(3.2)	**-6**	(2.6)	**-18**	(2.1)
	United States	498	(3.7)	482	(4.1)	513	(3.8)	**-31**	(2.6)	**-15**	(3.0)	**-12**	(2.7)	-2	(1.6)
	OECD average	496	(0.5)	478	(0.6)	515	(0.5)	**-38**	(0.6)	**-4**	(0.7)	**8**	(0.6)	**-12**	(0.6)
Partners	Brazil	410	(2.1)	394	(2.4)	425	(2.2)	**-31**	(1.9)	**-26**	(3.4)	**-18**	(3.5)	**-8**	(2.1)
Partners	Colombia	403	(3.4)	394	(3.9)	412	(3.8)	**-19**	(3.5)	0	(3.3)	**14**	(3.4)	**-14**	(2.7)
	Hong Kong (China)	545	(2.8)	533	(3.8)	558	(3.3)	**-25**	(4.7)	**-8**	(3.3)	-2	(3.3)	**-7**	(2.8)
	Macao (China)	509	(0.9)	492	(1.4)	527	(1.1)	**-36**	(1.7)	**-15**	(1.5)	**3**	(1.1)	**-17**	(1.9)
	Russian Federation	475	(3.0)	455	(3.5)	495	(3.2)	**-40**	(3.0)	-2	(3.6)	**21**	(3.1)	**-22**	(2.3)
	Shanghai (China)	570	(2.9)	557	(3.3)	581	(2.8)	**-24**	(2.5)	**31**	(2.8)	**45**	(2.3)	**-14**	(2.0)
	Singapore	542	(1.4)	527	(1.9)	559	(1.9)	**-32**	(2.6)	**-32**	(1.0)	**-17**	(1.2)	**-14**	(1.5)
	Chinese Taipei	523	(3.0)	507	(4.3)	539	(4.3)	**-32**	(6.4)	-4	(2.3)	**11**	(2.2)	**-15**	(2.1)
	United Arab Emirates	442	(2.5)	413	(3.9)	469	(3.2)	**-55**	(4.8)	**32**	(3.5)	**38**	(3.4)	-5	(4.9)
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: Differences that are statistically significant are indicated in bold. Only countries that have participated in the optional digital reading assessment in PISA 2012 are shown.

1. Negative figures (in columns 9, 11 and 13) mean that 15-year-old students have obtained better performances on computer-delivered reading test.

Source: OECD. PISA 2012 Database.

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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D8

Table D8.4. Teachers and information and communication technology

Results from TALIS 2013, percentage of lower secondary education teachers

		Percentage of lower secondary education teachers indicating students use ICT for projects or class work "frequently" or "in all or nearly all lessons"[1]		Percentage of lower secondary education teachers indicating they have a high level of need for professional development in the following areas:				Percentage of lower secondary education teachers who report having participated in professional development with the following content in the 12 months prior to the survey and percentage of participating teachers who report a moderate or large positive impact of this professional development on their teaching							
				ICT skills for teaching		New technologies in the workplace		ICT skills for teaching				New technologies in the workplace			
								Participation		Moderate or large positive impact		Participation		Moderate or large positive impact	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Australia	67	(1.9)	14	(0.9)	12	(0.8)	72	(1.7)	70	(1.8)	57	(1.8)	68	(2.0)
OECD	Belgium (Flanders)	27	(1.1)	11	(0.7)	5	(0.5)	37	(1.8)	80	(1.5)	13	(0.8)	82	(2.4)
OECD	Chile	60	(2.3)	13	(0.9)	17	(1.1)	51	(2.2)	87	(1.7)	38	(1.8)	86	(2.3)
OECD	Czech Republic	37	(1.1)	15	(0.7)	10	(0.7)	53	(1.6)	83	(1.3)	42	(1.4)	82	(1.5)
OECD	Denmark	74	(1.9)	19	(1.2)	14	(1.1)	49	(1.9)	81	(1.6)	29	(2.0)	78	(2.3)
OECD	England	37	(1.4)	8	(0.7)	8	(0.6)	39	(1.7)	64	(1.5)	32	(1.7)	64	(2.1)
OECD	Estonia	29	(1.3)	24	(0.9)	21	(1.0)	63	(1.3)	84	(1.1)	47	(1.7)	84	(1.3)
OECD	Finland	18	(0.9)	17	(1.0)	14	(0.8)	48	(1.9)	68	(1.9)	42	(1.7)	63	(2.3)
OECD	France	24	(1.0)	25	(0.9)	17	(0.7)	40	(1.4)	77	(1.7)	11	(0.8)	74	(3.1)
OECD	Iceland	32	(1.4)	29	(1.5)	19	(1.2)	44	(1.4)	78	(1.9)	34	(1.5)	80	(2.4)
OECD	Israel	19	(1.3)	24	(1.2)	23	(0.9)	60	(1.6)	79	(1.5)	48	(1.4)	78	(1.4)
OECD	Italy	31	(1.4)	36	(0.8)	32	(0.9)	53	(1.3)	82	(1.4)	45	(1.4)	80	(1.6)
OECD	Japan	10	(0.6)	26	(0.9)	16	(0.7)	36	(1.4)	69	(1.9)	15	(0.9)	69	(2.5)
OECD	Korea	28	(1.2)	25	(1.1)	19	(1.0)	54	(1.3)	90	(0.8)	37	(1.0)	91	(0.8)
OECD	Mexico	56	(1.2)	21	(1.0)	28	(1.1)	73	(1.0)	84	(1.0)	55	(1.4)	81	(1.1)
OECD	New-Zealand	55	(1.6)	16	(0.9)	14	(0.7)	67	(1.3)	70	(1.5)	49	(1.4)	69	(1.4)
OECD	Netherlands	35	(2.1)	15	(1.1)	12	(1.2)	48	(1.9)	73	(1.9)	30	(2.1)	71	(2.6)
OECD	Norway	74	(1.7)	18	(1.4)	9	(0.5)	33	(2.1)	78	(2.3)	7	(1.0)	77	(4.8)
OECD	Poland	36	(1.5)	11	(0.8)	13	(0.8)	52	(1.5)	85	(1.1)	41	(1.5)	84	(1.4)
OECD	Portugal	34	(0.9)	9	(0.5)	9	(0.6)	49	(1.6)	92	(0.9)	36	(1.4)	92	(1.1)
OECD	Slovak Republic	45	(1.3)	19	(0.9)	15	(0.7)	60	(1.3)	92	(0.8)	33	(1.4)	90	(1.2)
OECD	Spain	37	(1.3)	14	(0.7)	14	(0.7)	68	(1.6)	87	(0.9)	56	(1.5)	86	(1.1)
OECD	Sweden	34	(1.7)	25	(0.8)	18	(0.8)	47	(1.6)	66	(1.9)	37	(1.7)	65	(2.2)
OECD	United States	46	(1.8)	8	(0.8)	15	(1.0)	49	(2.0)	73	(1.8)	57	(2.2)	73	(1.6)
	OECD average	40	(1.4)	18	(0.9)	15	(0.8)	51	(1.6)	80	(1.5)	36	(1.5)	79	(2.0)
Partners	Abu Dhabi (UAE)	72	(1.7)	9	(0.8)	18	(1.3)	77	(1.4)	90	(1.0)	69	(1.7)	88	(1.0)
Partners	Brazil	30	(1.1)	27	(0.7)	37	(0.9)	46	(1.0)	79	(1.0)	53	(1.2)	79	(1.0)
Partners	Bulgaria	34	(1.3)	20	(0.9)	23	(1.3)	56	(1.8)	85	(1.5)	53	(1.7)	82	(1.5)
Partners	Croatia	24	(0.9)	20	(0.9)	24	(0.9)	58	(1.5)	73	(1.1)	41	(1.3)	74	(1.3)
Partners	Cyprus[2, 3]	46	(1.4)	13	(0.7)	20	(1.0)	54	(1.6)	81	(1.9)	48	(1.4)	78	(2.1)
Partners	Georgia	47	(1.8)	31	(1.4)	39	(1.1)	58	(1.9)	89	(1.5)	33	(1.8)	85	(1.9)
Partners	Latvia	41	(1.5)	19	(1.1)	24	(1.0)	72	(1.5)	87	(1.2)	59	(1.6)	86	(1.3)
Partners	Malaysia	19	(1.3)	38	(1.2)	31	(1.0)	71	(1.3)	88	(0.8)	56	(1.3)	83	(1.1)
Partners	Romania	26	(1.2)	19	(0.9)	22	(0.9)	60	(1.4)	91	(1.0)	30	(1.2)	88	(1.4)
Partners	Russian Federation	48	(1.5)	17	(1.0)	21	(0.9)	81	(1.1)	87	(1.1)	89	(0.9)	89	(0.9)
Partners	Serbia	23	(0.9)	20	(0.8)	21	(0.8)	46	(1.2)	84	(1.2)	33	(1.3)	83	(1.3)
Partners	Singapore	30	(0.8)	12	(0.6)	10	(0.6)	68	(0.8)	73	(1.0)	40	(0.9)	69	(1.5)
Partners	Shanghai (China)	15	(0.9)	25	(0.9)	16	(0.8)	64	(1.1)	83	(1.0)	26	(1.1)	82	(1.3)
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

1. These data are reported by teachers and refer to a randomly chosen class they currently teach from their weekly timetable.

2. Footnote by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

3. Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Source: OECD. *TALIS 2013 Results: An International Perspective on Teaching and Learning*, Tables 4.10, 4.12 and 6.1.

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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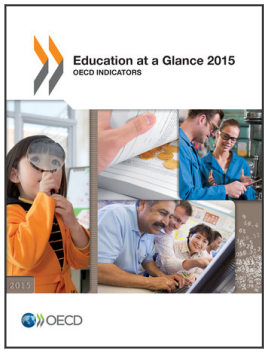

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