- In 2012, schools in Spain had **almost one computer available for every two 15-year-old students.** The students-per-computer ratio of 2.2-to-1 is the 9th lowest among the 34 OECD countries. In general, however, countries that have invested heavily in ICT for education have seen no appreciable improvement in student achievement in reading, mathematics or science over the past ten years.

- **Students in Spain perform significantly below the OECD average in digital reading** (466 points on the PISA digital reading scale), and below students in other countries with similar performance in print reading. In the PISA assessment of digital reading, about one in 20 students in Spain (4.6%) did not navigate at all to find the information needed to solve a problem, and those who did navigate got lost more often than students in other countries, on average.

- **Students in Spain also perform below the OECD average in computer-based mathematics** (475 points on the PISA mathematics scale).

- Students in Spain **browse the Internet for schoolwork**, at or outside of school, more often than students in other OECD countries, on average. Students who reported that they browse the Internet for schoolwork at school tend to perform better in the PISA digital reading test than students who never browse the Internet for schoolwork.

- Regardless of socio-economic status, students in Spain spend about 2 hours and 20 minutes on line every weekend day, on average – more than the OECD average. In their leisure time on line, advantaged students (those among the top 25% in socio-economic status) are more likely than disadvantaged students to search the Internet for information or read online news, and less likely than disadvantaged students to chat on line or upload pictures or videos.

Key international findings

Over the past 10 years, there has been no appreciable improvement in student achievement in reading, mathematics or science, on average, in countries that have invested heavily in information and communication technologies for education. In 2012, in the vast majority of countries, students who used computers moderately at school had somewhat better learning outcomes than students who used computers rarely; but students who used computers very frequently at school did a lot worse, even after accounting for the students' socio-economic status.

The top-performing country in the PISA 2012 assessment of digital reading was Singapore, followed by Korea, Hong Kong-China, Japan, Canada and Shanghai-China. Students in Australia, Canada, Ireland, Korea, Singapore and the United States showed the most advanced web-browsing skills. More often than students elsewhere, they carefully selected links to follow before clicking on them, and followed relevant links for as long as was needed to answer the question. To use and understand online sources of information, students need such web-browsing skills in addition to the reading skills required for printed texts.

In most countries, differences between advantaged and disadvantaged students in access to computers and the Internet at home shrank between 2009 and 2012. In all but five OECD countries with available data, in 2012 disadvantaged students – those from the bottom 25% in socio-economic status – typically spent at least as much time on line, outside of school, as advantaged students did. But traditional socio-economic differences persist when looking at how students use their time on line, and they continue to have a strong impact on performance in reading. Indeed in all countries, advantaged students are significantly more likely to use their time on line to read news or obtain

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practical information. To benefit from online information about education, health or financial services and improve one's personal situation, having sufficient basic skills in reading is perhaps more important than easy access to the Internet.

Students' exposure to computers at school varies significantly across countries and schools. While the availability of devices and of an Internet connection at school explains much of this variation, teachers' readiness to integrate technology into instruction also depends on other factors, such as whether the devices can be accessed in the classroom or only in separate rooms, whether the school has a digital skills curriculum, and whether teachers in the school have learned how to use these devices to enhance student learning. Among all teachers, those who are more inclined to use and better prepared for practices such as group work, individualised learning and project work are more likely to use digital resources.

To learn more…

OECD (2015), Students, Computers and Learning: Making the Connection, PISA, OECD Publishing, http://dx.doi.org/10.1787/9789264239555-en