



Executive Summary

PISA defines reading literacy as understanding, using, reflecting on and engaging with written texts in order to achieve one's goals, develop one's knowledge and potential, and participate in society. This definition applies to both print and digital reading.

Some 8% of students in the 16 participating OECD countries reached the highest level of digital reading performance.

Students proficient at Level 5 or above can evaluate information from several web-based sources, assess the credibility and utility of what they read, and navigate across pages of text autonomously and efficiently. But there is considerable variation across countries: more than 17% of students in Korea, New Zealand and Australia perform at this level, while fewer than 3% in Chile, Poland and Austria do.

At the same time, all participating countries and partner economies, except Korea, have significant numbers of low-performing students. In Chile, Austria, Hungary and Poland, more than one-quarter of students perform below Level 2 on the digital reading scale, and in the partner country Colombia, nearly 70% of students perform below this level. This does not mean that such students have no proficiency in digital reading; many students performing at this level can scroll and navigate across web pages, as long as explicit directions are provided, and can locate simple pieces of information in a short block of hypertext. Nevertheless, these students are performing at levels below those that allow them full access to educational, employment and social opportunities in the 21st century.

Korea is the top-performing country in digital reading by a significant margin, with a mean score of 568.

Korea is followed by New Zealand and Australia, both at 537 score points, Japan (519 score points), the partner economy Hong Kong-China (515 score points), Iceland (512 score points), Sweden (510 score points), Ireland (509 score points) and Belgium (507 score points). The partner country Colombia's mean score (368 score points) is well below those of the other participating countries and economies.

In most countries, student performance in digital and print reading is closely related.

On average, 7.8% of students in the 16 participating OECD countries perform at Level 5 or above on the digital reading scale, while a slightly higher percentage (8.5%) performs at Level 5 or 6 in print reading. On average, 16.9% of students perform below Level 2 in digital reading, while a similar percentage (17.4%) perform below the baseline Level 2 on the print reading scale.

However, in Poland, Hungary, Chile, Austria, Denmark, the partner economy Hong Kong-China and the partner country Colombia, students perform significantly better, on average, in print than in digital reading. Conversely, in Korea, Australia, New Zealand, Ireland, Sweden, Iceland and the partner economy Macao-China, students perform significantly better, on average, in digital than in print reading. There is a tendency for the higher-performing countries in both media to do better in digital media, while the lower-performing countries perform more strongly in print media, although Hong Kong-China is an exception.

In all participating countries and economies, the gender gap in performance is narrower in digital reading than in print reading.

Girls outperform boys in digital reading by an average of 24 score points, compared to an average of 39 score points in print reading. The gender gap in digital reading is widest in New Zealand (a difference of 40 score points),



Norway (35), Ireland (31), Iceland (30), Poland (29), Australia (28) and Sweden (26). When comparing boys and girls with similar levels of print reading proficiency and similar characteristics in some student and school aspects, boys achieve higher scores in digital reading than girls in Denmark (22 score point difference), Austria (17), Poland (11), Hungary (11), Sweden (8), Korea (7), Spain (6), Iceland (6), Australia (5) and the partner economies Hong Kong-China (17) and Macao-China (10).

Proficient digital readers tend to know how to navigate effectively and efficiently.

Navigation is a key component of digital reading, as readers “construct” their text through navigation. Thus, navigational choices directly influence what kind of text is eventually processed. Stronger readers tend to choose strategies that are suited to the demands of the individual tasks. Better readers tend to minimise their visits to irrelevant pages and locate necessary pages efficiently. However, PISA results show that even when guidance on navigation is explicit, significant numbers of students still cannot locate crucial pages. The digital reading assessment offers powerful evidence that today’s 15-year-olds, the “digital natives”, do not automatically know how to operate effectively in the digital environment, as has sometimes been claimed.

Students’ attitudes towards reading and their socio-economic backgrounds and immigrant status seem to have similar associations with both print and digital reading proficiency.

In most countries the average difference in digital reading performance between those students who are the most and least enthusiastic about reading is a striking 88 score points. On average, the least enthusiastic students are twice as likely to perform poorly in digital reading as the most enthusiastic readers; and in most countries, this finding holds for both boys and girls.

Engaging in certain online activities also has an impact on digital reading performance. In each of the 19 countries that took part in the digital reading assessment, the more frequently students search for information on line, the better their performance in digital reading. Being unfamiliar with online social practices, such as e-mailing and chatting, seems to be associated with low digital reading proficiency; but students who frequently e-mail and chat on line also perform less well than students who are only moderately involved in these activities.

Access to ICT has grown significantly in recent years and, as a result, fewer than 1% of students across OECD countries reported that they had never used a computer; but a digital divide in the use of ICT is still evident between and within countries.

On average across the OECD countries that took part in the PISA 2000 and 2009 surveys, the percentage of students who reported having at least one computer at home increased from 72% in 2000 to 94% in 2009. The increase in access to a home computer during this period was larger among socio-economically disadvantaged students (37 percentage points) than among advantaged students (7 percentage points). In addition, the proportion of students in OECD countries who reported having access to the Internet at home doubled from 45% to 89% during the same period.

While at least 95% of students in 16 OECD countries, the partner country Liechtenstein, and the partner economies Macao-China and Hong Kong-China reported that they use a computer at home, those proportions are significantly lower in Japan (76%), Chile (73%) and Turkey (60%). In Japan, students often use mobile phones, rather than personal computers, for emailing and accessing the Internet.

In all 27 OECD countries for which data are available for both PISA 2000 and 2009, there was an increase in the computer-student ratio at school during that period – evidence of substantial investment in ICT resources. But the proportion of students who reported using a computer at school varies substantially across countries and economies.

Within countries, the digital divide is often linked to students’ socio-economic background. Students from socio-economically advantaged backgrounds have higher levels of computer and Internet access at home; however, in some countries, the inequalities in the level of computer use at home is narrowed when disadvantaged students are given more opportunities to use a computer at school.

Using a computer at home is related to digital reading performance in all 17 participating countries and economies, but that is not always true for computer use at school.

The relationship between the frequency of computer use at home for leisure and for schoolwork and digital reading performance is not linear, but rather mountain-shaped: in other words, moderate users attain higher scores in digital reading than both rare and intensive users. In contrast, the relationship between students’ computer use at school and performance in digital reading tends to be negative with a slight curve, which means that more intensive use is



associated with lower scores. Students who use computers intensively at school may require additional assignments to catch up to other students or may need more time to complete their studies.

After accounting for students' academic abilities, the frequency of computer use at home, particularly computer use for leisure, is positively associated with navigation skills and digital reading performance, while the frequency of computer use at school is not. These findings suggest that students are developing digital reading literacy mainly by using computers at home to pursue their interests.


■ Table VI.A ■

AN OVERVIEW OF PERFORMANCE IN DIGITAL READING, NAVIGATION AND COMPUTER USE

				Computer use at home			Computer use at school		
	Digital reading performance	Gender difference in digital reading scores between boys and girls	Index of number of relevant pages visited (navigation skills)	Percentage of students who use a computer at home	Percentage difference between top and bottom quarters of the PISA index of economic, social and cultural status	Difference in digital reading scores between those students who use and those who do not use a computer at home	Percentage of students who use a computer at school	Percentage difference between top and bottom quarters of the PISA index of economic, social and cultural status	Difference in digital reading scores between those students who use and those who do not use a computer at school
	Mean score	Score dif.	Mean index	%	% dif.	Score dif.	%	% dif.	Score dif.
OECD average	499	-24	46.3	92.3	16.0	80	74.2	0.3	9
OECD	Korea	-18	52.8	87.5	19.5	49	62.7	3.5	2.1
	New Zealand	-40	49.7	92.5	20.2	90	83.4	6.4	20
	Australia	-28	49.6	96.7	7.8	84	91.6	5.6	42
	Japan	-23	50.1	75.9	38.6	48	59.3	2.6	14
	Iceland	-30	47.5	99.1	1.2	74	79.5	5.1	22
	Sweden	-26	47.8	97.7	4.7	105	89.1	4.7	28
	Ireland	-31	47.4	93.2	10.9	60	62.9	0.4	-3
	Belgium	-24	47.7	96.9	9	102	62.8	-1.1	9
	Norway	-35	46.9	98.7	2.7	77	93.0	2.5	25
	France	-20	46.1	m	m	m	m	m	m
	Denmark	-6	47.2	98.8	2.8	79	93.0	1.8	6
	Spain	-19	44.2	92.6	14.4	78	65.5	-4.0	11
	Hungary	-21	41.6	91.8	23.6	102	69.3	-8.9	-27
	Poland	-29	42.0	92.1	22.9	84	60.6	-9.1	-8
	Austria	-22	43.3	98.2	3.7	94	84.1	-3.2	-6
	Chile	-19	37.7	73.2	60.3	69	56.8	-2.0	2
Partners	Hong Kong-China	-8	48.1	96.4	5.2	33	82.6	0.2	3
	Macao-China	-12	46.5	96.4	5.2	61	80.1	-1.0	4
	Colombia	-3	31.5	m	m	m	m	m	m

Notes: Values that are statistically significant are indicated in bold (see Annex 3).

Source: OECD, *PISA 2009 Database*, Tables VI.2.4, VI.3.1, VI.5.1, VI.5.10a, VI.6.2 and VI.6.

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