



PROGRAMME FOR INTERNATIONAL STUDENT ASSESSMENT (PISA) RESULTS FROM PISA 2018

21st-century readers: Developing literacy skills in a digital world

The Programme for International Student Assessment (PISA) is a triennial survey of 15-year-old students around the world that assesses the extent to which they have acquired the key knowledge and skills essential for full participation in societies. The assessment in 2018 focuses on reading, mathematics, science and the innovative domain of global competence. Reading was the main subject assessed in PISA 2018, and the reading framework was devised to include essential reading skills in a digital world.

The thematic report **21st-century readers: Developing literacy skills in a digital world** provides important insights into how 15-year-old students are developing reading skills that help them navigate through information in a technology-rich 21st century. This report focuses on policies and practices that can harness digitalisation to create better learning opportunities. It also looks at ways to counter digitalisation's disruptive effects in and for education.

Hungary

Summary of key findings

- In PISA 2018, having a strictly focused navigation and being able to actively explore single- and multiple-source items were strongly correlated with knowledge of effective reading strategies and reading performance. In Hungary, around 28% of students showed these navigation behaviours.
- Among OECD countries, Hungary scored in the bottom quartile in the index of knowledge of reading strategies for assessing the credibility of sources (lower than -0.20 points). However, the index socio-economic gap (0.38 points) was similar to the OECD average (0.37 points).
- In Hungary, 60% of the gender performance gap (OECD average: 65%) in reading can be accounted for by the difference between boys' and girls' knowledge of effective reading strategies - understanding and memorising a text, summarising information, and assessing the credibility of sources.
- The index of enjoyment of reading decreased between 2009 and 2018 on average across OECD countries (-0.06), and in one-third of countries and economies with available data on this index. In Hungary, the decrease in the index of enjoyment of reading (-0.10) was almost twice the OECD average change over the last decade.
- Compared to students who rarely or never read books, print-book readers in Hungary scored 37 points more in reading (OECD average: 49 points); digital-book readers scored 19 points more in reading (OECD average: 15 points); and students who balance print and digital reading scored 30 points more in reading (OECD average: 37 points) after accounting for students' and schools' socio-economic profile, and students' gender.

- In PISA 2018, the relationship between reading performance and time spent using digital devices for schoolwork was negative in 36 countries and economies, after accounting for students and schools' socio-economic status. In Hungary, the change in reading performance associated with an one-hour increase in the total time a week using digital devices for school is -12 points (OECD average: -7 points), after accounting for students' and schools' socio-economic status.

Digital divide

- In Hungary, 91% of students (OECD average-31: 89%) had both a connection to the Internet at home and a computer they could use for schoolwork in PISA 2018. This was 65 percentage points more than in PISA 2003 (OECD average-31: 28 percentage points more).
- In Hungary, some 78% (OECD average: 79%) of students attending disadvantaged schools¹ compared to 96% (OECD average: 94%) of students attending advantaged schools reported having access to the Internet and a computer they can use for schoolwork at home. In Denmark, Iceland and Poland, over 95% of students attending disadvantaged schools report that they had a computer linked to the Internet for doing schoolwork at home. In contrast, this percentage is lower than 20% in Indonesia, Mexico, Morocco, Panama, Peru, the Philippines, and Viet Nam.

Opportunity to learn

- In Hungary, 46% of students reported being trained at school on how to recognise whether online information is biased (OECD average: 54%). More than 75% of students had access to this school training in Albania, Singapore and the United States. However, less than 40% of students did so in Argentina, Brunei Darussalam, Costa Rica, Latvia, Morocco and Viet Nam.
- Across OECD countries, the percentage difference between students from advantaged² and disadvantaged backgrounds who were taught how to detect biased information on the Internet was 8 percentage points in favour of advantaged students. Hungary and Portugal are the only two OECD countries where this difference was in favour of students from disadvantaged backgrounds, respectively 6 and 7 percentage points.
- Education systems with a higher proportion of students who were taught digital skills in school and who have digital access at home were more likely to correctly distinguish fact from opinion in the PISA reading assessment even after accounting for country per capita GDP. In Hungary, the PISA reading released item of distinguishing fact from opinion was estimated to be 43% correct³ (OECD average: 47%).

Navigating digital environments

- Almost one in five students (19%) on average across OECD countries reported feeling lost in the PISA test when navigating through different pages. In Hungary, as well as in Beijing, Shanghai, Jiangsu and Zhejiang (China) (hereafter "B-S-J-Z [China]"), Belarus, Denmark, Finland, Germany, Ireland, Italy, Lithuania, the Russian Federation, and Spain, less than 15% of students reported these difficulties while approximately one out of two students did so in Indonesia, the Philippines, and Thailand .
- In Hungary, around 28% of students followed item instructions in the PISA reading assessment by carefully selecting pages relevant to the tasks and limiting visits to irrelevant pages (strictly focused navigation) and actively navigating both single- and multiple-source items (actively explorative navigation). These navigation behaviours were strongly correlated with knowledge of effective reading strategies and reading performance. In comparison, more than half of the students showed those

navigation behaviours in B-S-J-Z (China), Hong Kong (China), Korea, Singapore and Chinese Taipei, and at least 40% in Canada, Japan, Macao (China), New Zealand, the United Kingdom, and the United States.

- Among OECD countries, Hungary scored in the bottom quartile in the index of knowledge of reading strategies for assessing the credibility of sources (lower than -0.20 points). However, the index socio-economic gap (0.38 points) was similar to the OECD average (0.37 points).

Strategies to tackle inequality and gender gaps

- In Hungary, students scored below the OECD average in reading performance (476, OECD average: 487) and reported a level of perceived difficulty of the PISA reading assessment (- 0.07) below the OECD average (0.01). As in 69 other countries/economies, disadvantaged students in Hungary perceived the PISA reading assessment as more difficult than advantaged students even after accounting for students' reading scores. This perception-of-difficulty gap between advantaged and disadvantaged students was the largest in B-S-J-Z (China), Luxembourg, and Singapore – close to a half standard deviation after accounting for reading performance (approximately -0.50). This gap in Hungary was -0.21 (OECD average: -0.22).
- On average across OECD countries, and after accounting for students' socio-economic backgrounds, boys reported lower levels than girls for the perceived difficulty of the PISA reading test, even though boys scored 25 points lower than girls. In Hungary, boys and girls did not report significantly different levels of perceived difficulty for the PISA reading test on average, even though boys scored 26 points lower than girls in reading after accounting for students' socio-economic backgrounds.
- Almost one third (OECD average: 29%) of the association between socio-economic background and reading performance can be accounted for by the difference between socio-economically advantaged and disadvantaged students' reported self-perception of reading competence.
- In Hungary, 60% of the gender performance gap (OECD average: 65%) in reading can be accounted for by the difference between boys' and girls' knowledge of effective reading strategies - understanding and memorising a text, summarising information, and assessing the credibility of sources.

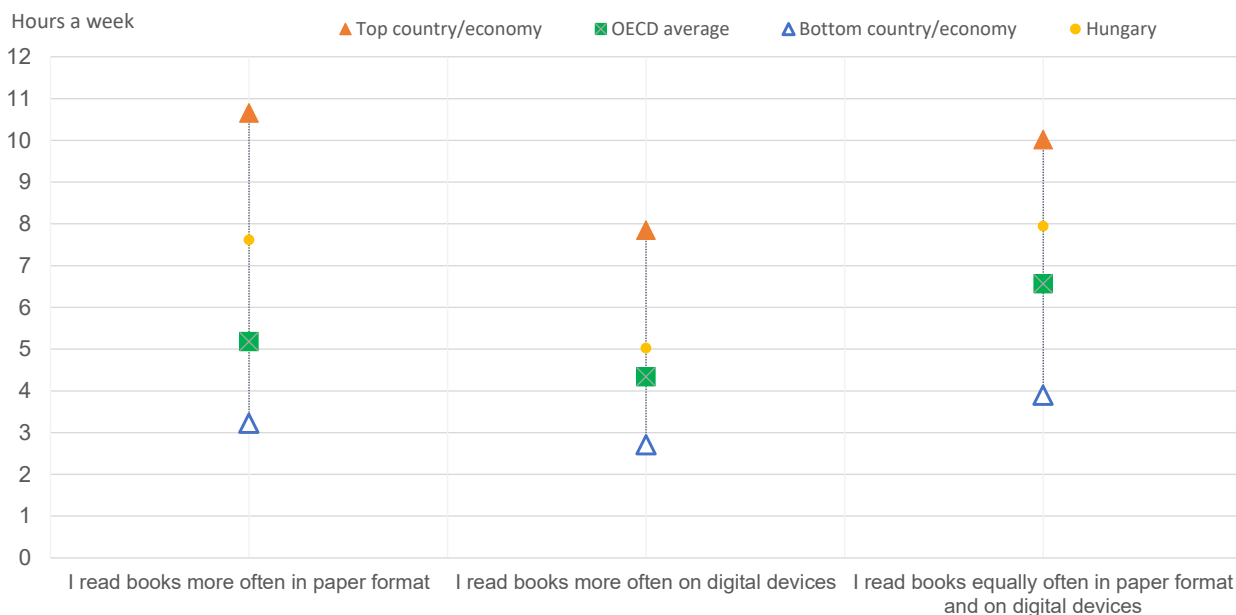
Print reading in a digital world

- Compared to students who rarely or never read books, print-book readers in Hungary scored 37 points more in reading (OECD average: 49 points); digital-book readers scored 19 points more in reading (OECD average: 15 points); and students who balance print and digital reading scored 30 points more in reading (OECD average: 37 points) after accounting for students' and schools' socio-economic profile, and students' gender.
- Compared to students who rarely or never read books, print-book readers in Hungary read about 5 hours more a week (OECD average: 4 hours); digital-book readers read about 3 hours more a week (OECD average: 3 hours); and those who balance both formats read 6 hours more a week (OECD average: 5 hours) after accounting for students' and schools' socio-economic background and students' gender (OECD average: 5 hours).
- The index of enjoyment of reading decreased between 2009 and 2018 on average across OECD countries (-0.06), and in one-third of countries and economies with available data on this index. In Hungary, the decrease in the index of enjoyment of reading (-0.10) was almost twice the OECD average change over the last decade.

- Girls and students from a higher socio-economic background typically report higher levels of enjoyment of reading. The gender gap was the largest in Germany, Hungary, and Italy – more than 0.80 points or close to a standard deviation. The socioeconomic gap was the largest in the Czech Republic, Finland, France, Germany, Hungary, Ireland, and Switzerland, with at 0.62 points, which is almost two-thirds of a standard deviation.

Figure 1. Average time of reading for enjoyment by the format of reading

Difference between students who read books in the following way and those who "rarely or never read books", after accounting for students' and schools' socio-economic profile, and students' gender



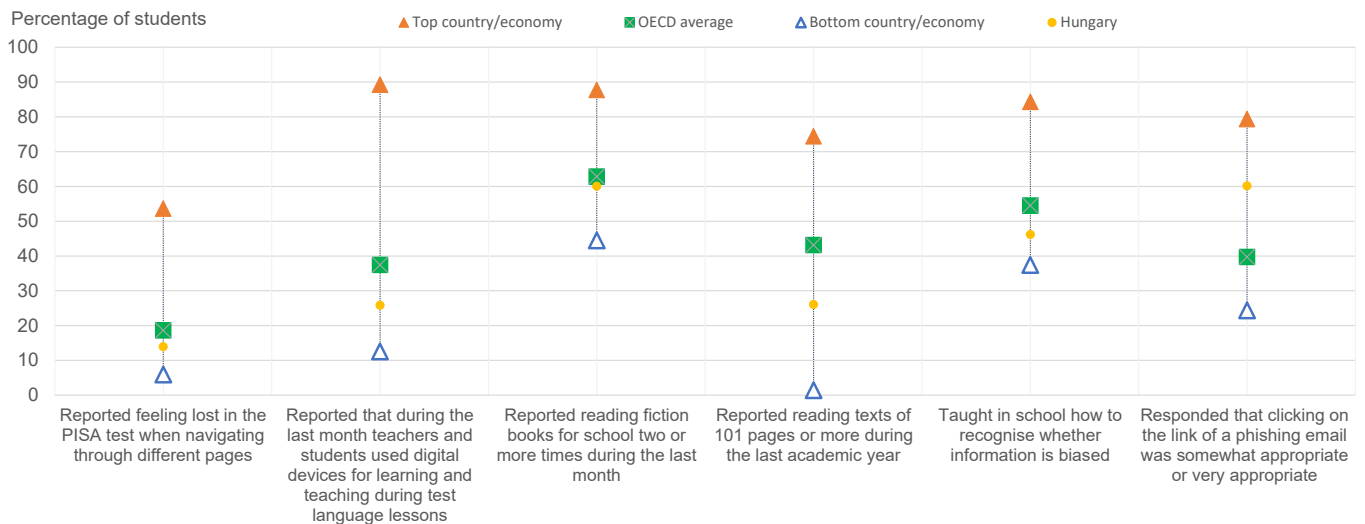
Teachers' practices

- Disadvantaged students and boys – who typically have a lower reading performance - perceived less stimulation from their teachers in reading activities in 49 countries/economies participating in PISA 2018. In Hungary, girls, as compared to boys (0.10, OECD average: 0.07), and advantaged students, as compared to disadvantaged students (0.22, OECD average: 0.15), perceived more stimulation in reading from their teachers. Girls also scored on average 26 points more than boys in reading (OECD average: 30 points), and advantaged students 113 points more than disadvantaged students (OECD average: 88).
- The association between teachers' stimulation of reading engagement and students' enjoyment of reading is positive in all participating countries and economies in PISA 2018. It is positive, as well, with reading performance in 61 countries and economies after accounting for students' and schools' socio-economic profile. In Hungary, one-unit increase in the index of teacher's stimulation of reading engagement perceived by student is associated with an average increase in reading performance by 8 points (OECD average: 7 points).
- Reading fiction texts and reading long texts for school more frequently was positively associated with reading performance in most countries/economies, after accounting for students' and schools' socio-economic profile. However, in Hungary, students who reported reading fiction books two or more times during the last month did not score differently on average than students who did not, after accounting for students' and schools' socio-economic profile (OECD average: 9 points). Students who had to read longer pieces of texts for school (101 pages or more) achieved 30 points more in reading

than those who reported reading smaller pieces of text (10 pages or less), after accounting for students' and schools' socio-economic profiles and students' gender (OECD average: 31)

- The average duration of time per week students spent using digital devices during classroom lessons and outside of the classroom for language lessons across OECD countries was 41 minutes. Students in Australia, New Zealand, Sweden and the United States reported spending more than 1 hour a week, and students in Denmark reported about 2 hours a week. In Hungary, students reported spending 26 minutes a week. Compared to 37% across OECD countries, only 26% of students in Hungary reported that during the last month both the teacher and students used a digital device for learning and teaching during test language lessons.
- The relationship between reading performance and time spent using digital devices for schoolwork was negative in 36 countries and economies. The change in reading performance associated with a one-hour increase in the total time a week using digital devices for school is -12 points (OECD average: -7 points), after accounting for students' and schools' socio-economic status. In Australia, Denmark, Korea, New Zealand, and the United States, this relationship was positive, after accounting for students and schools' socio-economic status.

Figure 2. Indicators of reading in a digital world



Key features of PISA 2018

The content

- The PISA 2018 survey focused on reading, with mathematics, science and global competence as minor areas of assessment. PISA 2018 also included an assessment of young people's financial literacy, which was optional for countries and economies.

The students

- Some 600 000 students completed the assessment in 2018, representing about 32 million 15-year-olds in the schools of the 79 participating countries and economies.

The assessment

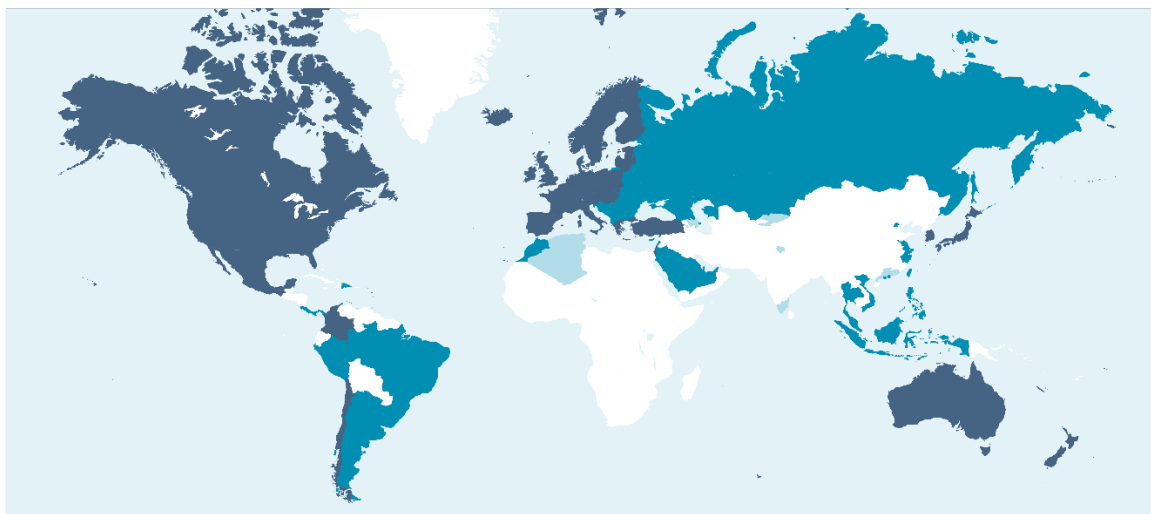
- Computer-based tests were used in most countries, with assessments lasting a total of two hours. In reading, a multi-stage adaptive approach was applied in computer-based tests whereby students were assigned a block of test items based on their performance in preceding blocks.
- Test items were a mixture of multiple-choice questions and questions requiring students to construct their own responses. The items were organised into groups based on a passage of text describing a real-life situation. About 930 minutes of test items for reading, mathematics, science and global competence were covered, with different students taking different combinations of test items.
- Students also answered a background questionnaire, which took about 35 minutes to complete. The questionnaire sought information about the students themselves, their attitudes, dispositions and beliefs, their homes, and their school and learning experiences. School principals completed a questionnaire that covered school management and organisation, and the learning environment.
- Some countries/economies also distributed additional questionnaires to elicit more information. These included: in 19 countries/economies, a questionnaire for teachers asking about themselves and their teaching practices; and in 17 countries/economies, a questionnaire for parents asking them to provide information about their perceptions of and involvement in their child's school and learning.
- Countries/economies could also choose to distribute three other optional questionnaires for students: 52 countries/economies distributed a questionnaire about students' familiarity with computers; 32 countries/economies distributed a questionnaire about students' expectations for further education; and 9 countries/economies distributed a questionnaire, developed for PISA 2018, about students' well-being.

What is unique about PISA?

PISA is unique because of its:

- policy orientation, which links data on student learning outcomes with data on students' backgrounds and attitudes towards learning, and with key factors that shape their learning in and outside of school; by doing so, PISA can highlight differences in performance and identify the characteristics of students, schools and education systems that perform well.
- innovative concept of "literacy", which refers to students' capacity to apply their knowledge and skills in key areas, and to analyse, reason and communicate effectively as they identify, interpret and solve problems in a variety of situations.
- relevance to lifelong learning as PISA asks students to report on their motivation to learn, their beliefs about themselves, and their learning strategies.
- regularity, which enables countries to monitor their progress in meeting key learning objectives.
- breadth of coverage, which, in PISA 2018, encompassed all 37 OECD countries and 42 partner countries and economies.

Map of PISA countries and economies



OECD member countries	Partner countries and economies in PISA 2018	Partner countries and economies in previous cycles
Australia	Albania	Algeria
Austria	Argentina	Azerbaijan
Belgium	Baku (Azerbaijan)	Guangdong (China)
Canada	Belarus	Himachal Pradesh (India)
Chile	Bosnia and Herzegovina	Kyrgyzstan
Colombia	Brazil	Liechtenstein
Czech Republic	Brunei Darussalam	Mauritius
Denmark	B-S-J-Z (China)**	Miranda (Venezuela)
Estonia	Bulgaria	Tamil Nadu (India)
Finland	Costa Rica	Trinidad and Tobago
France	Croatia	Tunisia
Germany	Cyprus ¹	
Greece	Dominican Republic	
Hungary	Georgia	
Iceland	Hong Kong (China)	
Ireland	Indonesia	
Israel	Jordan	
Italy	Kazakhstan	
Japan	Kosovo	
Korea	Lebanon	
Latvia	Macao (China)	
	Malaysia	
	Malta	
	Republic of Moldova	
	Montenegro	
	Morocco	
	Republic of North Macedonia	
	Panama	
	Peru	
	Philippines	
	Qatar	
	Romania	
	Russian Federation	
	Saudi Arabia	
	Serbia	
	Singapore	
	Chinese Taipei	
	Thailand	
	Ukraine	
	United Arab Emirates	
	Uruguay	
	Viet Nam	

* Puerto Rico participated in the PISA 2015 assessment (as an unincorporated territory of the United States).

** B-S-J-Z (China) refers to four PISA 2018 participating Chinese provinces: Beijing, Shanghai, Jiangsu and Zhejiang. In PISA 2015, the four PISA participating Chinese provinces were: Beijing, Shanghai, Jiangsu and Guangdong.

1. 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".

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.

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document, as well as any data and any map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Note regarding data from 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.

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”.


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.

References

OECD (2021), *21st-century readers: Developing literacy skills in a digital world*, PISA, OECD Publishing, Paris, <https://doi.org/10.1787/a83d84cb-en>

For more information on PISA 2018, visit <http://www.oecd.org/pisa/>

Data can also be found on line by following the **StatLinks**  under the tables and charts in the publication.

Questions can be directed to: PISA team Directorate for Education and Skills EDU.PISA@oecd.org	Country note author: Pierre Guïedard Directorate for Education and Skills Pierre.GOUEDARD@oecd.org
-------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------

¹ The socio-economic profile is measured by the PISA index of economic, social and cultural status (ESCS). A socio-economically disadvantaged (advantaged) school is a school in the bottom (top) quarter of the ESCS in the relevant country/economy.

² The socio-economic profile is measured by the PISA index of economic, social and cultural status (ESCS). A socio-economically disadvantaged (advantaged) student is a student in the bottom (top) quarter of the ESCS in the relevant country/economy.

³ Rapa Nui Question 3 is a partial credit item where non-credit is scored 0, partial credit is scored 0.5, and full credit is scored 1. Therefore, the estimated percentage correct for full credit in this item is lower than 47%, on average across OECD countries. This item was estimated to be 39% correct, on average across all PISA 2018 participating countries and economies. Rapa Nui Question 3 is a Level 5 item. This means that students need to have a proficiency level 5 to have a 62% probability of getting full credit in this item (see Figure I.2.1, (OECD, 2019_[2])).