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PISA in Focus

Does the digital world open up an increasing divide in access to print books?

Programme for International Student Assessment

OECD
BETTER POLICIES FOR BETTER LIVES

Does the digital world open up an increasing divide in access to print books?

- In 2000, socio-economically disadvantaged students reported having access to 133 books at home on average, which is over half of what advantaged students reported having access to. In 2018, disadvantaged students reported having access to 107 books, which is around half of what advantaged students reported having access to.
- In 2018, students who reported reading books "more often in paper format" have access to an average of 195 books at home. Students who reported reading "equally often in paper format and on digital devices" have 179 books at home, while students who reported reading books "more often on digital devices" have 131 books at home. Students who reported that they "rarely or never read books" have an average of 113 books at home.
- Compared with students who rarely or never read books, students who read books more often in paper format scored 49 points higher in the PISA 2018 reading test after accounting for students' and schools' socio-economic profile and students' gender. A corresponding performance advantage for students who read books more often on digital devices is 15 points.
- PISA 2018 results show that, on average, students who read books equally often in print and on digital devices or more often in paper format reported enjoying reading more than students who read books more often on digital devices by 0.5 index points (which is equivalent to 0.5 standard deviations of the index) even after accounting for students' and schools' socio-economic profile, and gender.

Over the last two decades, reading has shifted from taking place on paper to, increasingly, screens. As digitalisation spreads, there have been growing concerns about unbalanced access to new types of resources between socio-economically advantaged and disadvantaged students. PISA 2018 results show that socio-economic differences in access to digital resources at home have reduced over the last 10 years. For example, in 2009, 97% of advantaged students and 75% of disadvantaged students reported having access to the Internet at home on average across OECD countries. The socio-economic gap of 22 percentage points reduced to five percentage points over these 10 years. In 2018, 99% of advantaged students reported having access to the Internet at home while 94% of disadvantaged students reported the same[1].

What about access to more traditional types of resources, such as print books? PISA 2018 results show disadvantaged students have not been catching up with advantaged students in terms of access to print books at home. And, as many other studies have shown, PISA results confirm that access to cultural capital such as books is a strong predictor of student performance. On average across OECD countries, students who reported having access to over 100 books at home scored 44 points higher in reading than those who reported having access to 100 or fewer books at home, even after accounting for their parents' education level and occupation[2]. While the implications of this persistent gap need to be studied, this policy brief draws education stakeholders' attention to this issue and provides evidence for the discussion of equity in education.

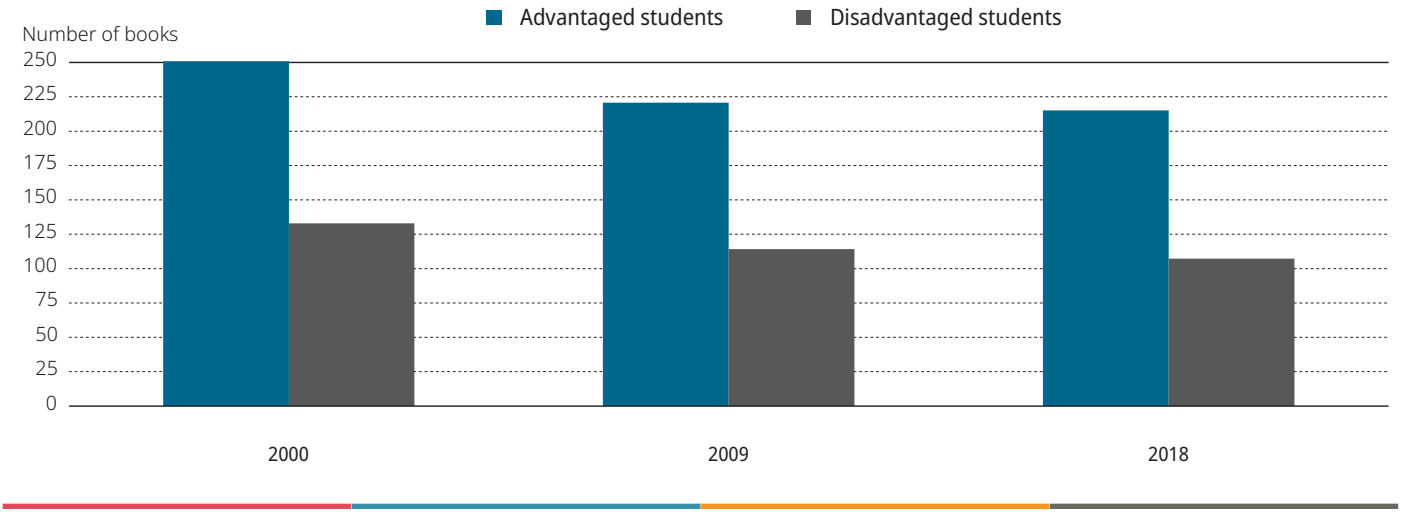
The socio-economic gap reflected in books at home was persistent between 2000 and 2018

On average across OECD countries, both socio-economically advantaged and disadvantaged students reported having access to fewer books at home in 2018 compared to 2000, with student socio-economic background being measured by student responses about their family wealth and

home educational resources. During this 18-year period, not only was the socio-economic gap in terms of accessing books at home not reduced, disadvantaged students fell even further behind advantaged students. In 2000, advantaged students reported having access to 250 books while disadvantaged students reported having access to 133 books, which was over half of what advantaged students reported. In 2018, advantaged students reported having access to 215 books while disadvantaged students reported just half of this, at 107 books.

Change in number of books at home between 2000, 2009, and 2018, by family wealth and home educational resources

Based on students' reports, OECD average-31



Notes: Differences between advantaged and disadvantaged students for each cycle are all statistically significant.
Students are considered socio-economically advantaged if they are amongst the 25% of students with the highest values in the average of the index of family wealth and the index of home educational resources in their country or economy, and students are classified as socio-economically disadvantaged if their values are amongst the bottom 25% within their country or economy.
Source: OECD, PISA 2018 Database, Table 7.

In Germany and the Netherlands, advantaged students reported having access to a similar number of books at home between 2000 and 2018 while disadvantaged students reported much fewer books at home in 2018 than 2000 – 23% fewer books in Germany and 33% fewer in the Netherlands. Consequently, the socio-economic gap in terms of accessing books at home increased in these countries. In contrast, in Chile and Mexico, the socio-economic gap decreased as disadvantaged students reported having access to more books at home in 2018 than 2000 while advantaged students reported having access to fewer books at home in 2018 than 2000[3].

Number of books at home is related to student's usual mode of reading

PISA 2018 asked students to what extent the following statements best described how they read books: "I rarely or never read books"; "I read books more often in paper format"; "I read books more often on digital devices" (e.g. e-reader, tablet, smartphone, computer); and "I read books equally often in paper format and on digital devices." On average across OECD countries, 35% of students responded that they rarely or never read books; 36% responded they read books more often in paper format; 15% reported that they read books more often on

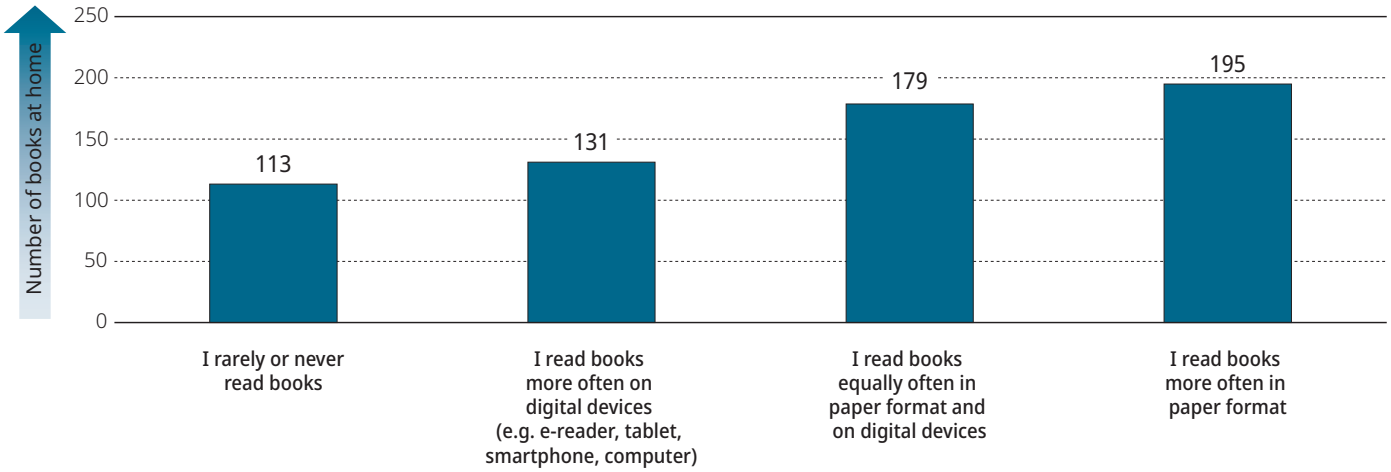
digital devices; and 12% responded that they read books equally often in paper format and on digital devices. More than 40% of students in Hong Kong (China), Indonesia, Malaysia, Chinese Taipei and Thailand reported reading books more often on digital devices. In contrast, more than 45% of students in Japan, Korea, Slovenia and Turkey reported reading books on paper more often than on digital devices[4].

On average across OECD countries, students who reported reading books "more often in paper format" or "equally often in paper format and on digital devices" tend to have more books at home than students who did not report the same. On average across OECD countries, students who reported reading books "more often in paper format" have 195 books at home and students who reported reading "equally often in paper format and on digital devices" have 179 books at home. Students who reported reading books "more often on digital devices" have an average of 131 books at home and students who reported that they "rarely or never read books" have 113 books at home[5]. Even after accounting for students' socio-economic profile, students who read books on paper or balance their reading time between paper and digital tend to have more books at home than students who reported reading books more often on digital devices. This implies that the observed relationship between the number of books at home and the predominant mode of reading books is not entirely driven by student socio-economic profile.

With cross-sectional data such as PISA, it is impossible to conclude whether a certain number of books at home is a pre-requisite for students' preference in reading books in paper format. Students who have more books at home may be encouraged to read books in paper format. Students who like to read books in paper format may keep more books at home. Or, both of these may be true.

Number of books and format of reading

OECD average



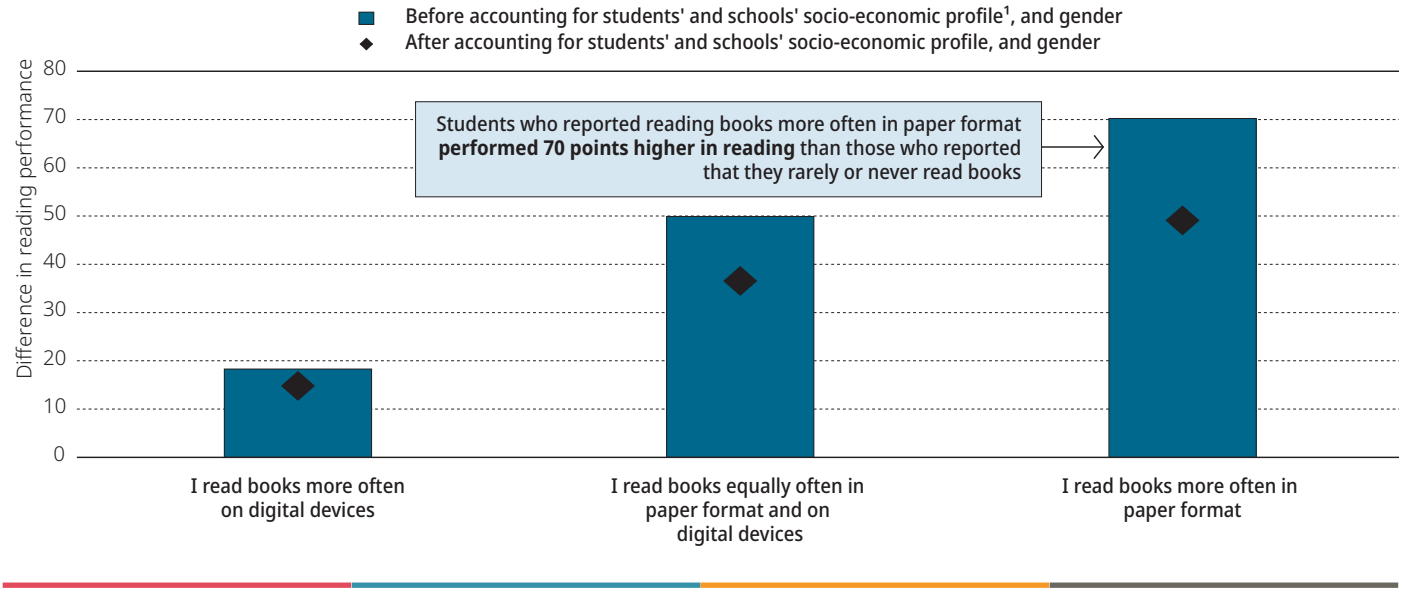
Source: OECD, PISA 2018 Database, Table 4.

Students who read books on paper or balance their reading time between paper and digital tend to perform better on the PISA reading test and report enjoying reading more

PISA 2018 results show that strong readers who had higher scores in the PISA 2018 reading test use digital technology but it depends on what it is for. Strong readers often use digital devices to read for information such as news or browse the Internet for school work[6]. In contrast, when it comes to books, strong readers tend to read them in paper format or balance their reading time between paper and digital rather than on digital devices. In other words, students who reported reading paper books or balance their reading time between paper and digital tend to achieve higher scores in reading than students who reported reading books on digital devices or never or rarely reading books.

Reading performance and format of reading

Difference between students who read books in the following way and those who "rarely or never read books", OECD average



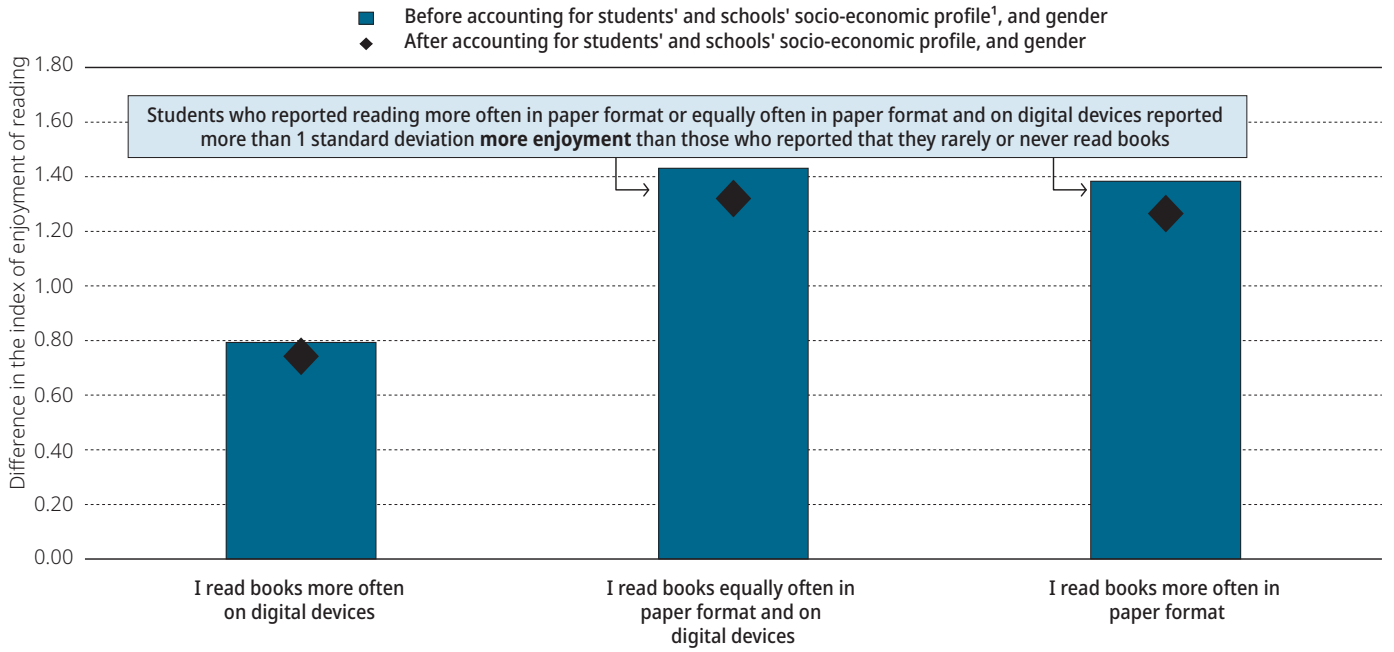
1. The socio-economic profile is measured by the PISA index of economic, social and cultural status (ESCS).
Note: All values are statistically significant.
Source: OECD, PISA 2018 Database, from the report "21st-Century Readers", Figure 4.6 and Table 4.16.
StatLink https://doi.org/10.1787/888934239933
StatLink https://doi.org/10.1787/888934240674

Students who read books on paper or balance their reading time between paper and digital reported enjoying reading more than other students, including those who reported never or rarely reading books and those who read books on digital devices.

PISA 2018 asked students their degree of agreement ("strongly disagree", "disagree", "agree", "strongly agree") with several statements about their attitudes towards reading: "I read only if I have to"; "Reading is one of my favourite hobbies"; and "I read only to get information that I need." Students' responses to these questions were summarised in an index of enjoyment of reading[7]. The average results across OECD countries show a clear relationship between reading print books and enjoyment regardless of whether students read equally often on paper and on digital devices or more often on paper.

Enjoyment of reading and reading format

Difference between students who read books in the following way and those who "rarely or never read books", OECD average



1. The socio-economic profile is measured by the PISA index of economic, social and cultural status (ESCS).
Note: All values are statistically significant.
Source: OECD, PISA 2018 Database, from the report "21st-Century Readers", Figure 4.9.
StatLink https://doi.org/10.1787/888934239990

In sum, the number of books is related to both student performance in reading and student enjoyment of reading. The analyses show that these relationships are partially mediated by students' prevalent mode of reading books and the relationships still hold even within each prevalent mode of reading books. For example, among students who read books more often in paper format on average across OECD countries, those who reported having access to over 100 books at home scored 38 points higher in reading than those who reported having access to 100 or fewer books at home even after accounting for their parents' education level and occupation[8].

The bottom line

Even though much of the world has become increasingly digitalised, the issue of equal access to print books should not be forgotten. While disadvantaged students are catching up in terms of access to digital resources, their access to cultural capital like paper books at home has diminished and the socio-economic gap has been persistent. PISA 2018 results also show that the number of books is related to students' performance in reading and their enjoyment of reading. While the implications of the socio-economic gap in books at home need to be further studied, this policy brief draws education stakeholders' attention to this persistent disparity, which could potentially result in growing educational inequity.

Notes

1. See Tables 1 to 3 for further information (Link).
2. See Table 4 for further information (Link).
3. See Table 7 for further information (Link).
4. See Table B.4.11 of the 21st-Century Readers report (OECD, 2021), https://doi.org/10.1787/888934240674.
5. See Table 5 for further information (Link).
6. See Tables B4.18 and B.6.16 of the 21st-Century Readers report (OECD, 2021), https://doi.org/10.1787/888934240674.
7. The index is standardised to have a mean of 0 and a standard deviation of 1 across OECD countries.
8. See Tables 4 and 6 for further information (Link).

For more information

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See: OECD (2021), *21st-Century Readers: Developing Literacy Skills in a Digital World*, PISA, OECD Publishing, Paris, https://www.oecd.org/publications/21st-century-readers-a83d84cb-en.htm.
Further analyses in Tables 1 to 7 (Link).