#107

PISA in Focus

Do students learn in co-operative or competitive environments?

Programme for International Student Assessment

OECD
BETTER POLICIES FOR BETTER LIVES

Do students learn in co-operative or competitive environments?

- Student co-operation was most prevalent, relative to competition, in Austria, Croatia, the Czech Republic, Denmark, Georgia, Germany, Japan, the Netherlands and Switzerland, whereas student competition was most prevalent, relative to co-operation, in Brazil, Ireland, Korea, Malta, Morocco, Saudi Arabia, Singapore, the United Kingdom and the United States.
- On average across OECD countries, students felt more comfortable in co-operative than in competitive learning environments.
- A more competitive learning environment was more strongly associated with favourable non-academic outcomes amongst boys than amongst girls.
- Students who see themselves as competitive, especially those who say they try harder when in competition with others, scored higher in reading than students who perceive themselves as less competitive.

The benefits of co-operative behaviours have been broadly documented in various social contexts, including neighbourhoods, hospitals, companies and in education. For instance, in the current COVID-19 crisis, greater co-operation can ease the trade-offs between health, social life and the economy by increasing citizens' compliance with social distancing advice, as new research suggests. In education, when students, teachers, parents and the school principal know and trust each other, work together, and share information, ideas and goals, students – particularly disadvantaged students – can benefit. However, co-operation and teamwork come with potential drawbacks too. Tasks might not be divided fairly and efficiently; team members sometimes work on tasks for which they are unsuited or that they dislike; some group members may freeride on their teammates' efforts; and co-ordinating tasks may be too complex and time-consuming. Evidence also suggests that competition can improve academic performance and speed in learning, if only because competition can be thrilling and enjoyable.

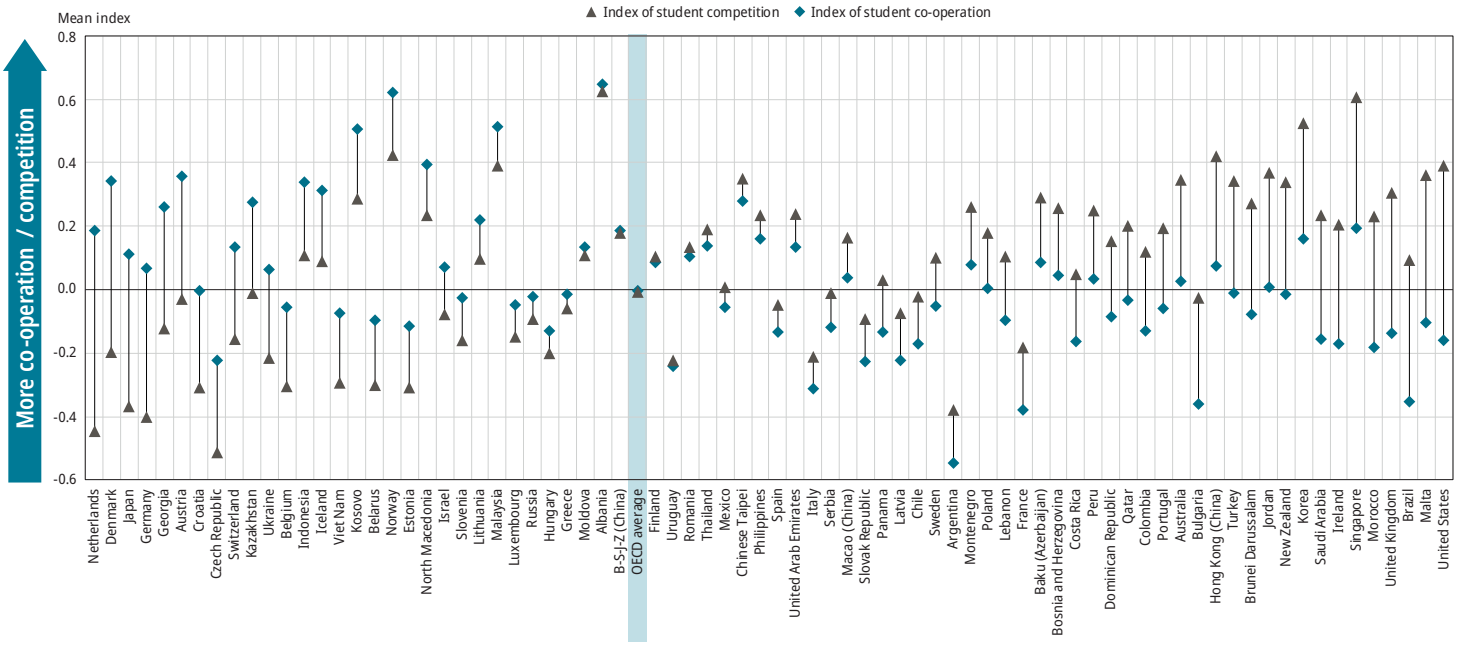
For the first time, PISA asked students how true ("not at all true", "slightly true", "very true", "extremely true") the following statements about their schools are: "Students seem to value co-operation/competition"; "It seems that students are co-operating/competing with each other"; and "Students seem to share the feeling that co-operating/competing with each other is important". These statements were combined to create the indices of student co-operation and student competition whose average is 0 and standard deviation is 1 across OECD countries. Positive values in these indices mean that students perceive that other students at the school co-operate or compete with each other to a greater extent than the average student in OECD countries.

The PISA report on school climate shows that, on average across OECD countries, co-operation amongst students in school was somewhat more prevalent than student competition. For instance, some 62% of students reported that it is very or extremely true that their schoolmates co-operate with each other, while about 50% of students reported the same about competing with each other.

Perhaps more interesting is identifying the education systems where the differences between student co-operation and competition were the greatest. According to this metric, the countries where student co-operation was most prevalent, relative to competition, were Austria, Croatia, the Czech Republic, Denmark, Georgia, Germany, Japan, the Netherlands and Switzerland, whereas the countries where student competition was most prevalent, relative to co-operation, were Brazil, Ireland, Korea, Malta, Morocco, Saudi Arabia, Singapore, the United Kingdom, and the United States.

Student co-operation and competition

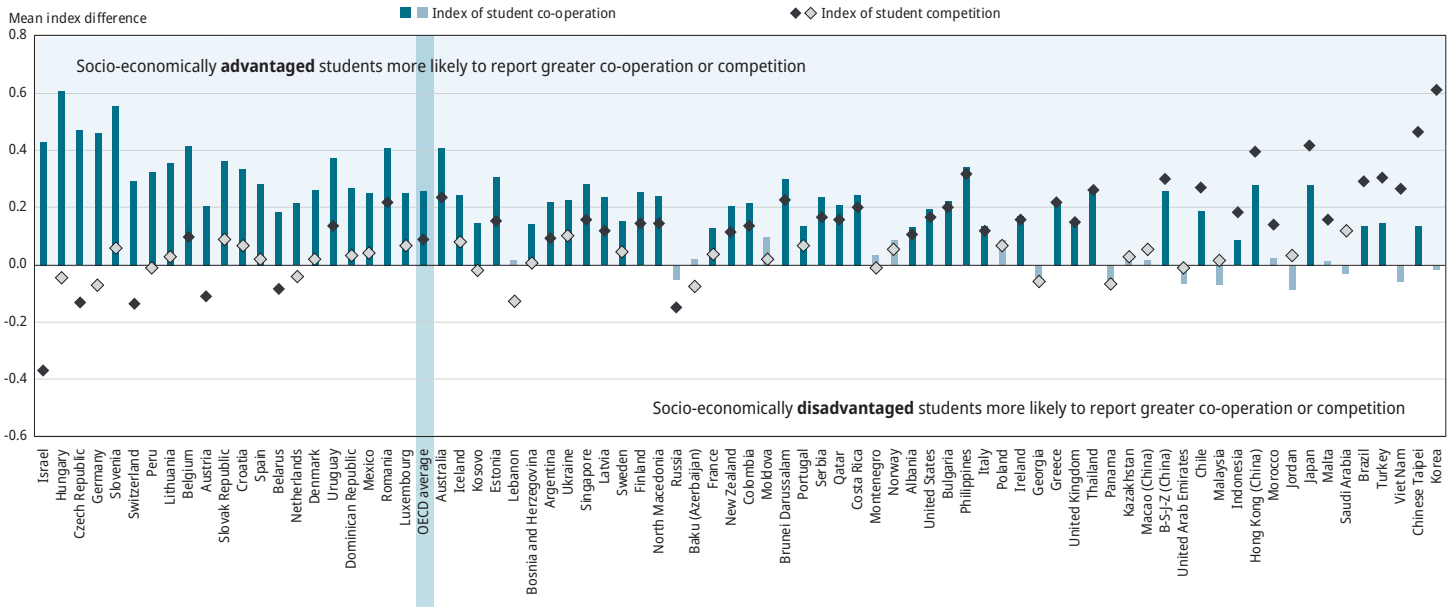
Based on students' reports



Countries and economies are ranked in descending order of the difference between the indices of student co-operation and student competition.
Source: OECD, PISA 2018 Database, Table III.B1.8.3.

Considering differences across schools, students in socio-economically advantaged schools were more likely than students in disadvantaged schools to report both co-operation and competition amongst their peers, on average across OECD countries. Interestingly, in some school systems, such as Austria, Belgium, the Czech Republic, Germany, Hungary, Israel, Lithuania, Peru, Slovenia and Switzerland, advantaged schools were characterised, in comparison with their disadvantaged counterparts, by their co-operative environment. However, in Brazil, Hong Kong (China), Japan, Jordan, Korea, Malta, Morocco, Saudi Arabia, Chinese Taipei, Turkey and Viet Nam, advantaged schools were largely defined, in comparison to disadvantaged schools, by their competitive environment.

Socio-economic difference in student co-operation and competition



Note: Statistically significant values are shown in darker tones.
Countries and economies are ranked in descending order of the difference between advantaged and disadvantaged students in their perception of co-operation and competition at school.
Source: OECD, PISA 2018 Database, Table III.B1.8.6 and III.B1.8.7.

Students, and especially girls, feel more comfortable in co-operative than in competitive learning environments

On average across OECD countries, student co-operation and, to a lesser extent, student competition were positively associated with more favourable student outcomes, such as reading performance, sense of belonging at school and positive feelings. However, students in more competitive learning environments expressed greater fear of failure, while those in co-operative environments were less afraid of failing.

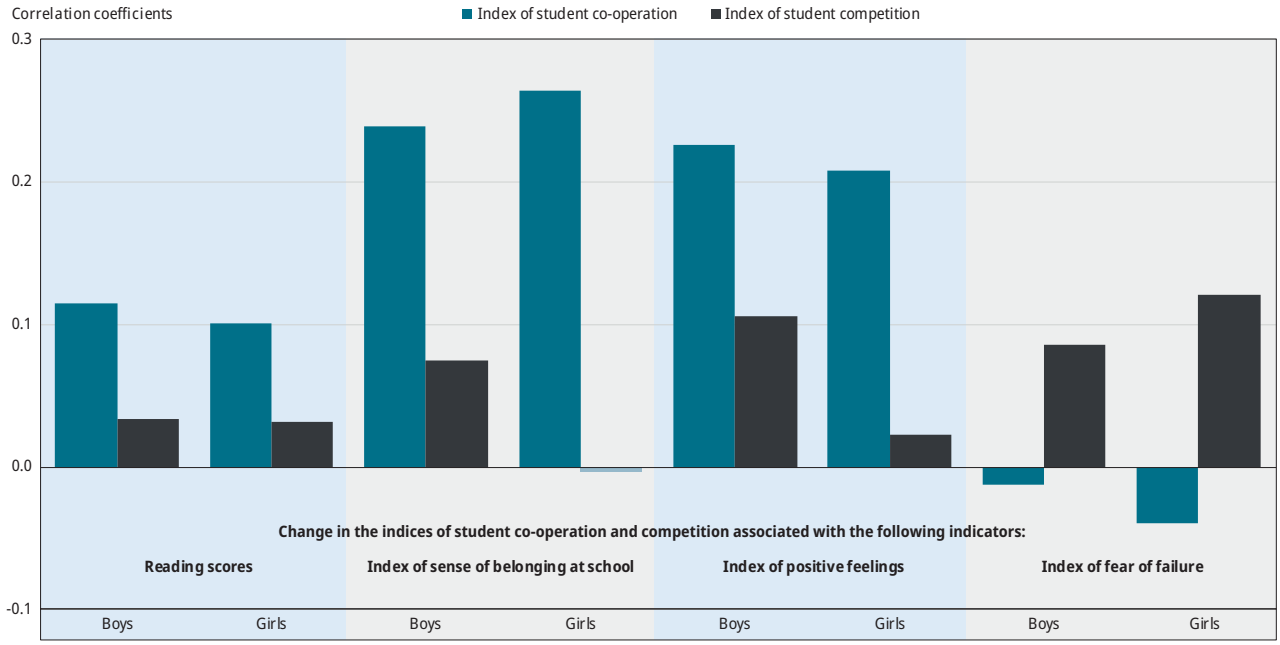
Interestingly, these results show that, while boys and girls feel equally comfortable in co-operative school environments, they do not necessarily take the same pleasure in learning when competing with others.

On average across OECD countries, student competition and sense of belonging at school were positively associated only amongst boys, and more intense student competition was related to greater fear of failure especially amongst girls. In addition, boys were more likely than girls to express positive feelings when they reported greater competition amongst their schoolmates.

These findings are consistent with other studies showing that not everyone enjoys competition in the same way. For instance, previous research suggests that women tend to avoid competition more often than men do, and that women often shun careers that are excessively competitive. Other research shows that boys and girls react differently to competitive test-taking environments, with boys enjoying them more, and girls more frequently underperforming, compared to when students sit tests in less competitive settings.

Student co-operation and competition, and student outcomes

Correlation analysis, OECD average



Note: All values are statistically significant except the correlation coefficient between the indices of student competition and sense of belonging amongst girls.
Source: OECD, PISA 2018 Database.

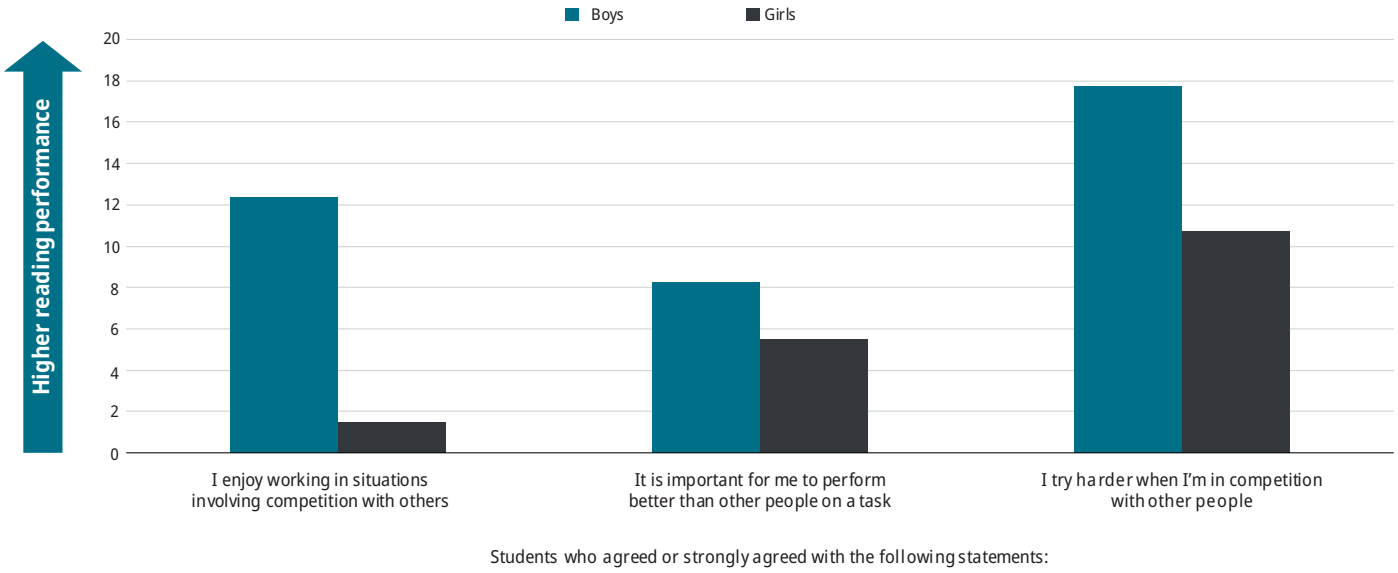
Students who see themselves as competitive do well academically

However, it is one thing how much students perceive their schoolmates to compete with each other, and another how competitive students see themselves as being. In this regard, PISA asked 15-year-old students whether they agree ("strongly disagree", "disagree", "agree", "strongly agree") with the following statements about themselves: "I enjoy working in situations involving competition with others"; "It is important for me to perform better than other people

on a task"; and "I try harder when I'm in competition with other people". PISA results reveal that students who see themselves as competitive scored higher in reading than students who perceive themselves as less competitive, even after accounting for socio-economic status. Just like with the degree of student competition at school, these positive associations were stronger amongst boys than amongst girls. Comparing the three items that make up the index of attitudes towards competition, the strongest positive association with reading performance was observed amongst those students who agreed or strongly agreed that that they try harder when they are in competition with others. While these results should not be interpreted causally, they suggest that competition may produce the greatest benefits when it drives students to invest greater effort.

Attitudes towards competition and reading performance, by gender

OECD average



Note: All values are statistically significant.
Results based on linear regressions, after accounting for students' and schools' socio-economic profile. The socio-economic profile is measured by the PISA index of economic, social and cultural status (ESCS).
Source: OECD, PISA 2018 Database.

The bottom line

Fruitful and positive learning environments promote co-operative behaviours, but also competitive ones, if only because competition can be thrilling and enjoyable, and a competitive spirit may improve academic performance. For instance, team competitions, which combine both co-operative and competitive behaviours, are exciting and rewarding for participants. However, for teamwork to function successfully, researchers have recommended meeting some conditions, such as ensuring that students acquire leadership and communication skills, making the goals of team members interdependent and establishing some kind of individual accountability. Moreover, if schools and teachers aspire to create gender-neutral learning environments, they may need to avoid excessive competition amongst students.

For more information

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See: OECD (2019), *PISA 2018 Results (Volume III): What School Life Means for Students' Lives*, PISA, OECD Publishing, Paris, https://doi.org/10.1787/acd78851-en.