



PROGRAMME FOR INTERNATIONAL
STUDENT ASSESSMENT (PISA)
RESULTS FROM PISA 2015
COLLABORATIVE PROBLEM SOLVING

United Kingdom

Modern life requires people to collaborate with one another. Many human activities involve groups of people, where individuals rely on each other for things that they cannot do themselves. More and more jobs require a high level of social skills, while the proportion of jobs that require minimal social skills is shrinking. PISA's first assessment of collaborative problem-solving skills shows how well-prepared 15-year-old students are to work together productively. The items in this assessment require students to establish a shared understanding with other group members, take appropriate action to solve the problem, and maintain team organisation – as students would do in real-world situations.

- With a mean score of 519 points, the United Kingdom ranks between 8th and 12th among the 32 OECD countries that participated in the collaborative problem-solving assessment, and between 12th and 16th among all 52 participating education systems. Students in the United Kingdom perform similarly to their counterparts in Denmark, Germany, the Netherlands and the United States.
- The United Kingdom's students perform even better in collaborative problem solving than their average or above-average performance in science, reading and mathematics would suggest.
- Roughly one in eight students (12%) in the United Kingdom achieves Level 4, the top level of proficiency in collaborative problem solving. These students can carry out advanced problem-solving tasks with high collaboration complexity, maintain an awareness of group dynamics, and take the initiative to perform actions or make requests to overcome obstacles and resolve disagreements. On average across OECD countries, only 8% of students can perform at this level.
- Just over one in five students (22%) in the United Kingdom perform below Level 2. On average across OECD countries, 28% of students perform below Level 2. These students are at best able to complete tasks with low problem complexity and limited collaboration complexity. They tend to focus on their individual role within the group, and might be able to enact plans when prompted to do so.
- The observed variation in students' performance in collaborative problem solving is roughly 17% higher in the United Kingdom than it is on average across OECD countries, meaning that there is a wider gap between high and low performers in the United Kingdom. This can be primarily attributed to large differences within schools in the United Kingdom between their high- and low-performing students.
- There is a gap of 34 score points between girls' performance in collaborative problem solving (536 points) and boys' performance (503 points) in the United Kingdom. The average gender gap across OECD countries is 29 score points.
- In the United Kingdom, there are no significant differences between advantaged and disadvantaged students in the collaboration-specific component of the assessment, after accounting for performance in science, reading and mathematics. There are also no significant

PISA 2015 defines collaborative problem-solving competence as “the capacity of an individual to effectively engage in a process whereby two or more agents attempt to solve a problem by sharing the understanding and effort required to come to a solution and pooling their knowledge, skills and efforts to reach that solution”.

differences between immigrant and non-immigrant students in the collaboration-specific component of the assessment, after accounting for performance in the three core PISA subjects, gender, and students' and schools' socio-economic profile.

- Students in the United Kingdom reported positive attitudes towards collaboration. Almost 90% of students stated that they enjoy seeing their classmates be successful and that they take into account what others are interested in. Over 85% of students reported that they are good listeners, that they enjoy considering different perspectives and that they enjoy co-operating with peers.
- Girls in the United Kingdom value their relationships with others more than boys do, as is observed in almost all other countries and economies. In particular, girls (90%) were seven percentage points more likely than boys (83%) to report that they are good listeners. Likewise, 92% of girls in the United Kingdom reported that they enjoy seeing their classmates be successful, five percentage points higher than the proportion of boys who so report (87%).
- However, as in most other education systems, boys in the United Kingdom value teamwork and the benefits that teamwork can bring more than girls do. Boys (71%) were six percentage points more likely than girls (66%) to report that they prefer working as part of a team to working alone, and boys (76%) were four percentage points more likely than girls (72%) to find that teams make better decisions than individuals.
- Immigrant students in the United Kingdom value both their relationships with others and the benefits that teamwork can bring more than non-immigrant students do.
- In the United Kingdom, students score 13 points higher in the particularly collaborative aspects of the assessment when they agree or strongly agree that they take into account what others are interested in, after accounting for performance in science, reading and mathematics, gender, and students' and schools' socio-economic profile.
- Students in the United Kingdom also score 13 points higher in the particularly collaborative aspects of the assessment if they access the Internet, chat, or social networks outside of school, after accounting for performance in science, reading and mathematics, gender, and students' and schools' socio-economic profile.
- There is a 10-point improvement in performance in the particularly collaborative aspects of the assessment among students in the United Kingdom if they strongly agreed that their parents support their education efforts and achievements, after accounting for performance in science, reading and mathematics, gender, and students' and schools' socio-economic profile.

What is PISA?

The Programme for International Student Assessment (PISA) is a triennial survey that assesses the extent to which 15-year-old students near the end of compulsory education have acquired the knowledge and skills that are essential for full participation in modern societies. The assessment does not just ascertain whether students can reproduce knowledge; it also examines how well students can extrapolate from what they have learned and apply that knowledge in unfamiliar settings, both in and outside of school.

PISA offers insights for education policy and practice, and helps monitor trends in students' acquisition of knowledge and skills across countries and in different demographic subgroups within each country. The findings allow policy makers to gauge the knowledge and skills of students in their own countries in comparison with those in other countries, set policy targets against measurable goals achieved by other education systems, and learn from policies and practices applied elsewhere.

Key features of the PISA 2015 assessment of collaborative problem solving

The assessment

- Collaborative problem solving was assessed on computers. The assessment lasted 30 minutes, with different students taking different combinations of test items. A total of 90 minutes of collaborative problem-solving items were created.
- The assessment was interactive. Students interacted with computer agents in order to advance towards a solution to a given problem. Test items were a mixture of multiple-choice items requiring students to select the best response to their computer partners, and items requiring students to solve the problem, generally by clicking on a region in the central display area. Sample items can be explored online at: www.oecd.org/pisa/test.
- Students assessed in collaborative problem solving also completed assessments in science and, depending on the test form, may have completed an assessment in reading or mathematics. They also answered a background questionnaire, which took 30 minutes to complete, that sought information about themselves, their homes and their school and learning experiences.

The students

- Only a subsample of all students assessed in science in 2015 also participated in the collaborative problem-solving assessment. Around 125 000 students were assessed in collaborative problem solving, representing about 6 million 15-year-olds in the schools of the 52 participating countries and economies.
- Education policy in the United Kingdom is devolved across four jurisdictions: England, Northern Ireland, Scotland and Wales. In the United Kingdom, 4 300 students in 550 schools completed the assessment of collaborative problem solving. These students were split between 1 584 students in 206 schools in England, 715 students in 95 schools in Northern Ireland, 953 students in 109 schools in Scotland, and 1 048 students in 140 schools in Wales.

Map of PISA countries and economies



| ■ OECD countries | ■ Partner countries and economies in PISA 2015 | ■ Partner countries and economies in previous cycles |
|------------------|--|--|
| Australia | Albania | Azerbaijan |
| Austria | Algeria | Himachal Pradesh-India |
| Belgium | Argentina | Kyrgyzstan |
| Canada | Brazil | Liechtenstein |
| Chile | B-S-J-G (China)* | Mauritius |
| Czech Republic | Bulgaria | Miranda-Venezuela |
| Denmark | Colombia | Panama |
| Estonia | Costa Rica | Serbia |
| Finland | Croatia | Tamil Nadu-India |
| France | Cyprus ¹ | |
| Germany | Dominican Republic | |
| Greece | Former Yugoslav Republic of Macedonia | |
| Hungary | Georgia | |
| Iceland | Hong Kong (China) | |
| Ireland | Indonesia | |
| Israel | Jordan | |
| Italy | Kazakhstan | |
| Japan | Kosovo | |
| | Lebanon | |
| | Lithuania | |
| | Macao (China) | |
| | Malaysia | |
| | Malta | |
| | Moldova | |
| | Montenegro | |
| | Peru | |
| | Qatar | |
| | Romania | |
| | Russian Federation | |
| | Singapore | |
| | Chinese Taipei | |
| | Thailand | |
| | Trinidad and Tobago | |
| | Tunisia | |
| | United Arab Emirates | |
| | Uruguay | |
| | Viet Nam | |

Note: Countries and economies marked in bold participated in the PISA 2015 collaborative problem-solving assessment.

* B-S-J-G (China) refers to the four PISA participating Chinese provinces: Beijing, Shanghai, Jiangsu, 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 ».

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For more information on the Programme for International Student Assessment and to access the full set of PISA 2015 results, visit:

www.oecd.org/edu/pisa

