



Germany

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 525 points, Germany ranks between 7th and 10th among the 32 OECD countries that participated in the collaborative problem-solving assessment, and between 10th and 14th among all 52 participating education systems. Students in Germany perform similarly to their counterparts in Australia, Denmark, the Netherlands, Chinese Taipei, the United Kingdom and the United States.
- More than one in eight students (13%) in Germany achieve 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 (21%) in Germany 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 13% higher in Germany than it is on average across OECD countries, meaning that there is a wider gap between high and low performers in Germany. This can be primarily attributed to large differences between high- and low-performing schools in Germany than are observed in other OECD countries. Such differences are also observed in the three core PISA subjects of science, reading and mathematics.
- There is a gap of 30 score points between girls' performance in collaborative problem solving (540 points) and boys' performance (510 points) in Germany. The average gender gap across OECD countries is 29 score points.
- Germany's students perform even better in collaborative problem solving than their already above-average performance in science, reading and mathematics would suggest. Immigrant students perform even better than their non-immigrant counterparts, after accounting for performance in science, reading and mathematics, gender, and students' and schools' socio-

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”.*

economic profile. Students who attend schools with higher numbers of students with special needs also perform significantly better.

- Students in Germany have positive attitudes towards collaboration. Over 90% of students state that they enjoy co-operating with peers – the fourth-highest proportion among OECD countries. Almost 90% of students state that they are good listeners and that they take into account what others are interested in. However, only 65% of students find that teamwork improves their own efficiency.
- Girls in Germany value their relationships with others more than boys do, as is observed in most other countries and economies. In particular, girls (86%) are eight percentage points more likely than boys (78%) to state that they enjoy seeing their classmates be successful. Likewise, 92% of girls in Germany report that they take into account what others are interested in, five percentage points higher than the proportion of boys who so report (87%).
- In Germany, students perform six score points higher in collaborative problem solving when they agree or strongly agree that they enjoy seeing their classmates succeed, 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.
- In Germany, 1 911 students in 243 schools completed the assessment of collaborative problem solving.

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	Cyprus¹	
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.

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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:

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