



## Foreword

For as long as there have been societies, people have had to work with others. As the world becomes even more interconnected, it will need more people who know how to collaborate. Do today's students have the skills it takes to work with others? Do they know how to listen to other people, how to act as part of a team to achieve a goal?

There have been few attempts to assess how well students collaborate with one another. The PISA 2015 collaborative problem-solving assessment is the first large-scale test of its kind. The assessment finds that, as expected, students who do well in the core academic subjects of science, reading and mathematics, also tend to do well in collaborative problem solving; and girls outperform boys in every participating country and economy. But there are large differences between countries in their students' mastery of the specific skills needed for successful collaboration; and, on average across OECD countries, not even one in ten students can handle problem-solving tasks that require them to maintain awareness of group dynamics, take the initiative to overcome obstacles, and resolve disagreements and conflicts.

As workplaces around the globe are demanding – and paying higher wages for – people with well-honed social skills, schools need to do more to help their students develop these skills. They can do so through regular course work, through organised physical education activities, and by creating learning environments where diversity is celebrated, where students' relationships with both their peers and their teachers are strengthened, and where students are encouraged to share their ideas and participate in class.

This report is the product of a joint effort between the countries participating in PISA, the national and international experts and institutions working within the framework of the PISA Consortium, and the OECD Secretariat.

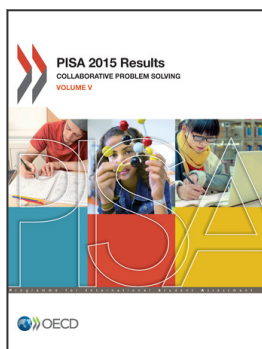
The development of this volume was led by Andreas Schleicher and Yuri Belfali and guided by Francesco Avvisati and Miyako Ikeda. This volume was drafted by Jeffrey Mo with Alfonso Echazarra and edited by Marilyn Achiron. Day-to-day management was performed by Giannina Rech. H  l  ne Guillou provided statistical and analytical support with the help of Judit P  l. Rose Bolognini co-ordinated production and Fung Kwan Tam designed the publication. Administrative support was provided by Claire Chetcuti, Juliet Evans, Thomas Marwood, Lesley O'Sullivan and Hanna Varkki. Additional members of the OECD PISA and communications teams who provided analytical and communications support include Peter Adams, Guillaume Bousquet, Cassandra Davis, Tue Halgreen, Bonaventura Francesco Pacileo, Mario Piacentini, Michael Stevenson and Sophie Vayssettes.

To support the technical implementation of PISA, the OECD contracted an international consortium of institutions and experts, led by Irwin Kirsch of the Educational Testing Service (ETS). Overall co-ordination of the PISA 2015 assessment, the development of instruments, and scaling and analysis were managed by Claudia Tamassia of ETS; development of the electronic platform was managed by Michael Wagner of ETS. Development of the science and collaborative problem-solving frameworks, and adaptation of the frameworks for reading and mathematics, were led by John de Jong and managed by Catherine Hayes of Pearson. Survey operations were led by Merl Robinson and managed by Michael Lemay of Westat. Sampling and weighting operations were led by Keith Rust and managed by Sheila Krawchuk of Westat. Design and development of the questionnaires were led by Eckhard Klieme and managed by Nina Jude of the Deutsches Institut f  r P  dagogische Forschung (DIPF).



Art Graesser chaired the expert group that guided the preparation of the collaborative problem-solving framework and instruments. This group also included Eduardo Cascallar, Pierre Dillenbourg, Patrick Griffin, Chee Kit Looi and Jean-François Rouet. The expert group that guided the preparation of the science assessment framework and instruments was chaired by Jonathan Osborne and also included Marcus Hammann, Sarah Howie, Jody Clarke-Midura, Robin Millar, Andrée Tiberghien, Russell Tytler and Darren Wong. Charles Alderson and Jean-François Rouet assisted in adapting the reading framework, and Zbigniew Marciniak, Berinderjeet Kaur and Oh Nam Kwon assisted in adapting the mathematics framework. David Kaplan chaired the expert group that guided the preparation of the questionnaire framework and instruments. This group included Eckhard Klieme, Gregory Elacqua, Marit Kjærnsli, Leonidas Kyriakides, Henry M. Levin, Naomi Miyake, Jonathan Osborne, Kathleen Scalise, Fons van de Vijver and Ludger Woessmann. Keith Rust chaired the Technical Advisory Group, whose members include Theo Eggen, John de Jong, Jean Dumais, Cees Glas, David Kaplan, Irwin Kirsch, Christian Monseur, Sophia Rabe-Hesketh, Thierry Rocher, Leslie A. Rutkowski, Margaret Wu and Kentaro Yamamoto.

The development of the report was steered by the PISA Governing Board, chaired by Lorna Bertrand (United Kingdom) and Michelle Bruniges (Australia), with Jimin Cho (Korea), Maria Helena Guimarães de Castro (Brazil), Dana Kelly (United States), Sungsook Kim (Korea), and Carmen Tovar Sanchez (Spain) as vice chairs. Annex C of this volume lists the members of the various PISA bodies, including Governing Board members and National Project Managers in participating countries and economies, the PISA Consortium, and the individual experts and consultants who have contributed to PISA in general.



**From:**  
**PISA 2015 Results (Volume V)**  
Collaborative Problem Solving

**Access the complete publication at:**  
<https://doi.org/10.1787/9789264285521-en>

**Please cite this chapter as:**

OECD (2017), "Foreword", in *PISA 2015 Results (Volume V): Collaborative Problem Solving*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264285521-1-en>

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