

Addressing the Performance Gap: Transforming United States Education for Global Competitiveness

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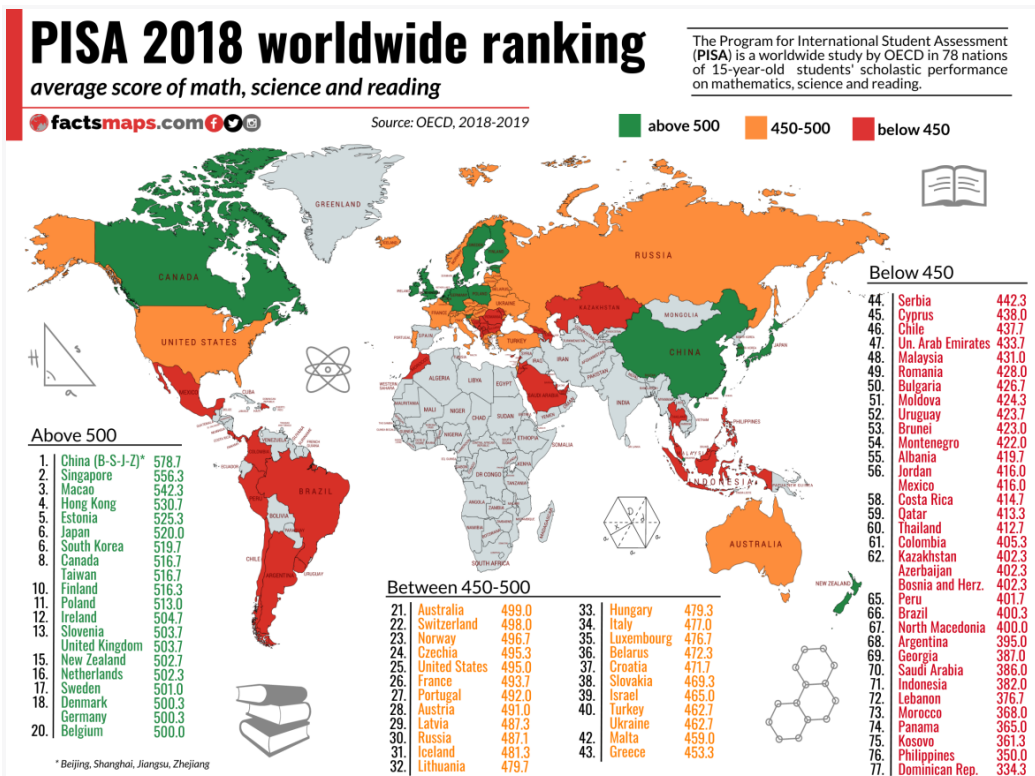
Introduction

[The Program for International Student Assessment \(PISA\)](#) emerged in the late 1990s when the Organization for Economic Cooperation and Development (OECD) identified a need for an international assessment beyond traditional performance measures. The first PISA assessment took place in 2000 and included 32 countries, which has risen to 80 in recent test evaluations. The test occurs every three years, and improvements are made each time to address different needs.

PISA tests employ a strategic structure to evaluate students' abilities and knowledge thoroughly. They cover areas such as reading, mathematics, and science, which strongly focus on measuring students' aptitude in applying knowledge in real-world scenarios. The test items aim to measure students' factual knowledge, analytical thinking, problem-solving skills, and capacity for [critical reasoning](#).

PISA test results have significantly influenced [educational policies](#) across the globe. Comparing student performance internationally offers policymakers and educators insights into the strengths and weaknesses of their respective systems. PISA findings inform decision-making processes, which lead to the creation of targeted interventions and reforms to enhance educational outcomes. Furthermore, data from PISA allows benchmarking and identification of best practices, promoting international collaboration and knowledge sharing in education.

In recent years, the PiSa tests, spearheaded by the OECD have become essential in assessing the quality of global education. They were born from a desire to improve educational systems and to facilitate countries learning from each other. By evaluating students' competencies beyond academic knowledge, PISA tests provide valuable insights into educational effectiveness, contributing to the relentless quest for global educational excellence.



<https://factsmaps.com/pisa-2018-worldwide-ranking-average-score-of-mathematics-science-reading/>

Changes over time:

The PISA tests have undergone a series of [updates and refinements](#) since their inception in 2000. These updates encompass various aspects of the assessment, ensuring its relevance and effectiveness in evaluating educational systems. Here are some specific changes that were made to the PISA tests over time:

- Expansion of Subject Areas:** Initially, the PISA tests focused solely on reading literacy. However, in subsequent assessments, mathematics (added in 2003), and science (added in 2006), were incorporated as separate subject areas. In addition in 2015, a problem-solving section was added as a distinct subject area, further broadening the assessment's scope.
- Transition to Computer-Based Testing:** The shift from paper-based to computer-based testing appeared in 2015. This change allowed more interactive item formats, including dynamic simulations and multimedia components. Computer-based testing also facilitated adaptive features, tailoring questions based on students' responses and providing a more customized assessment experience.
- Emphasis on 21st-Century Skills:** The PISA tests have evolved to reflect the growing importance of skills relevant to the 21st century. In the 2018 assessment, there was an increased focus on evaluating students' ability to analyze and interpret complex information, think critically, and solve problems in real-world contexts. This shift acknowledges the need for students to prepare for the demands of the modern world.

- d) **Enhanced Internationalization:** As the PISA assessment gained recognition and participation from many countries, the international representation of educational systems increased. This broader participation provides a more comprehensive picture of academic performance worldwide, fostering cross-cultural comparisons and learning opportunities.
- e) **Continuous Refinement:** The PISA tests undergo ongoing refinement to address emerging educational trends and challenges. Examples include updating test items, adapting frameworks, and incorporating feedback from participating countries, researchers, and educators. The continuous evolution of the assessment ensures its alignment with the evolving educational landscape.

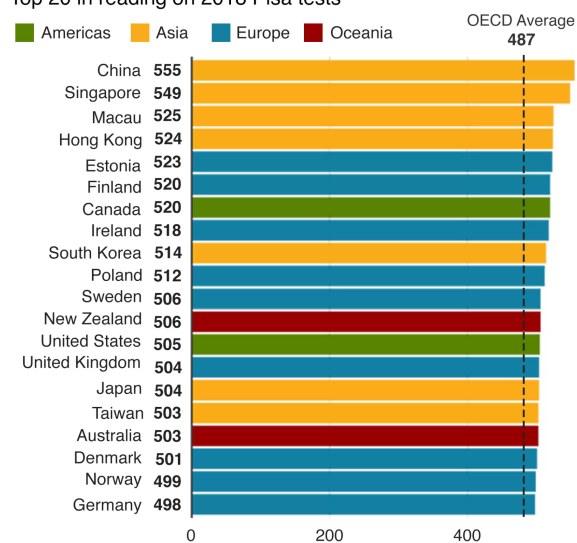
These specific updates and refinements to the PISA tests illustrate the commitment to continuous improvement, enabling the assessment to remain relevant and valuable in evaluating educational systems and informing policy decisions. By adapting to changing educational needs, technological advancements, and the demands of the 21st century, the PISA tests provide an effective tool for assessing educational quality globally.

The United States and the PISA Test

PISA test scores continually underscore a [performance gap](#) between the United States and countries across different regions, including Canada, other OECD nations, and several Asian countries. The 2018 assessment showed the United States ranked slightly below the OECD average in reading, mathematics, and science. The graph below shows the rankings for the reading portion of the test where the United States was among the top 20 countries.

UK rises into top 20 for reading

Top 20 in reading on 2018 Pisa tests



Source: OECD

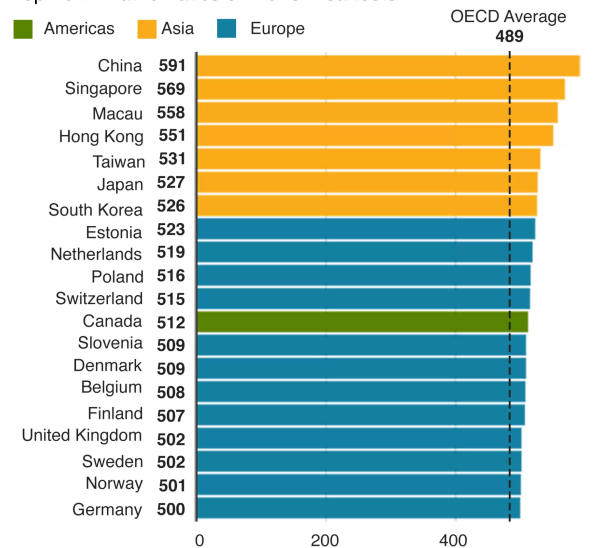


<https://www.bbc.com/news/education-50563833>

A review of the Math scores shows clearly that Asian countries dominate. The United States is not listed because it was not among the top 20 countries. The United States average was 478, slightly below the OECD average of 489.

Asian education systems lead maths rankings

Top 20 in mathematics on 2018 Pisa tests



Source: OECD

BBC

<https://www.bbc.com/news/education-50563833>

A. The US and China

When comparing the United States to Asian countries such as Singapore and China on the PISA tests, the United States consistently lags behind. Several factors contribute to this performance gap including the high value that Chinese parents traditionally have placed on after-school tutoring.

- Between 2015 and 2030, the urban, confident, and growing Chinese middle class will spend [12.5% of overall consumption growth on education](#) for people under 30. That is higher than most countries except Sweden which spends 12.6%
- Before 2021, when the Chinese government began a crackdown on after school tutoring companies. Chinese parents spent an average of \$2,000 to \$4,000 annually on [after-school tutoring](#) and activities for *elementary school students*. This far exceeded typical spending by American families. However, in 2021, President Xi Jinping instituted the [shuang jian policy](#) (which translates as the double-reduction policy). The Chinese government cracked down on an industry that made billions in China. Since the demand for these services continues to be high, companies have gone underground to offer their services, sometimes at much higher rates. It also caused after school tutoring companies to change their strategy and offer their services to children of [Chinese parents living abroad](#).

- Before 2021, over 90% of Chinese high school students took after-school tutoring classes to prepare for college entrance exams, with families spending anywhere from \$7,000 to over \$14,000 annually on exam prep courses. This is many times higher than test prep spending by the average American family.
- Overall household spending on education was estimated to be about 5-10% of annual income for middle-class Chinese families with children. For American households, education spending is around 2% on average.
- In China, parents start saving for college almost from birth. The average college savings per urban child is over \$46,000. American parents save about \$20,000 on average per child for college.
- The costs for elite Chinese private schools greatly exceed even the most expensive American private schools, with tuition and fees ranging from \$10,000 to \$14,000 per year just for elementary school.

So while Americans spend significantly on education, Chinese parents spend a more significant portion of their incomes across all levels from early childhood through college education. It will be interesting to see what the *shuang jian* policy will do to China's 2025 PISA scores.

B. The US and Canada

Canada is another country that does very well on the PISA exam and in general [outperforms](#) other OECD when it comes to education. There are a [few key factors](#) that may contribute to Canada consistently outperforming the United States on the PISA exam.

- **More equitable school funding.** Canada tends to provide more [equitable funding](#) between affluent and poorer neighborhoods than the United States resulting in better resource allocation.
- **Higher teacher pay and standards.** Canadian teachers are [paid slightly better](#) than United States teachers. Furthermore, certification standards are quite high in provinces like Ontario. This might attract more talented candidates to teach.
- **National standards and curriculum.** Canada has a more unified national curriculum and standards for key subject areas. The United States has more variability between states, districts, and schools.
- **Less child poverty.** Canada has [less childhood poverty](#) compared to the United States, which might contribute to better academic performance overall.
- **Focus on skills application.** Some experts suggest that Canadian PISA questions and approaches emphasize real-world application of skills over content knowledge. This aligns better with the exam.
- **Cultural factors.** Canadian academics hypothesize cultural factors like greater value on cooperation and consensus vs. individual achievement might foster stronger educational outcomes.
- **Immigrant children.** Canada also has a great track record in educating immigrants and, within three years, PISA scores demonstrate that [immigrant children do just as well as native born children](#).

While Canada has some structural advantages, the United States could make improvements in equitable school funding, national standards, and teaching quality to help boost student performance on assessments like PISA relative to peers. However, some cultural influences and structural factors might be harder to change.

PISA and Race and Ethnic Minorities

The PISA exam itself does not directly address minority student achievement gaps. However, the results of the PISA exam shed light on how minority students in different countries are performing. A few key points:

- The PISA reports disaggregated scores by immigrant status and race/ethnicity. This allows for comparisons of scores between a country's native and immigrant students, as well as between different racial/ethnic groups.
- The results show substantial disparities in scores between minority and majority student groups within many participating countries, including the United States
- For example, the United States has a larger achievement gap between White and Hispanic students and between White and Black students, than many other OECD countries.
- The test creators and educators can use the PISA data on minority performance gaps to help shape policies and teaching practices to close these gaps within their school systems.
- By participating in PISA, countries also agree to be accountable for providing equitable educational opportunities. The visibility of minority achievement gaps through PISA puts pressure on systems to address them.
- Some top performing countries/systems like Hong Kong and Singapore have relatively small gaps between ethnic groups, demonstrating more equitable outcomes are possible.

PISA tests results reveal significant disparities in performance between minority and majority populations in many countries. However, the PISA test does not address minority performance but it does shine a light on where large gaps exist, and provides a benchmark for countries to gauge their progress in boosting minority achievement over time through targeted interventions.

PISA understands the importance of addressing the needs of minority populations and employs measures to support their inclusion. For instance, the tests are translated into multiple languages, allowing students to respond in their native language, thereby reducing potential language-based barriers to success. Additionally, PISA incorporates a specialized module that assesses the attitudes and dispositions of immigrant students, aiming to identify factors contributing to performance disparities between immigrant and native-born students.

The OECD is committed to fostering equal opportunities for all students, regardless of their background or circumstances. PISA is a crucial tool in identifying and addressing the needs of

minority populations. The assessment's efforts to accommodate various languages and assess immigrant students' attitudes, contribute to understanding and rectifying disparities in performance.

PISA's focus on minority populations extends to specific measures implemented in Canada and Other OECD countries. In Canada, PISA tests are available in English and French, allowing students to engage in their preferred language and potentially reducing linguistic barriers. In addition, including a module targeting immigrant students allows the identification of underlying factors contributing to performance gaps between immigrant and native-born students.

To support the needs of minority populations, the OECD collaborates with countries to develop policies and programs focusing on areas such as early childhood education, teacher training, and school resources. By addressing these areas, PISA aims to bridge the achievement gap and foster a more equitable educational system.

PISA acknowledges the link between economic development and the education of minority populations and employs various strategies to ensure their inclusion. The assessment's focus on language accommodation, immigrant student assessment, and collaboration with countries to develop targeted policies reflects its commitment to fostering equal educational opportunities for all students. By addressing the needs of minority populations, PISA contributes to narrowing performance disparities and fostering a more equitable educational landscape.

Closing the Performance Gap in the United States:

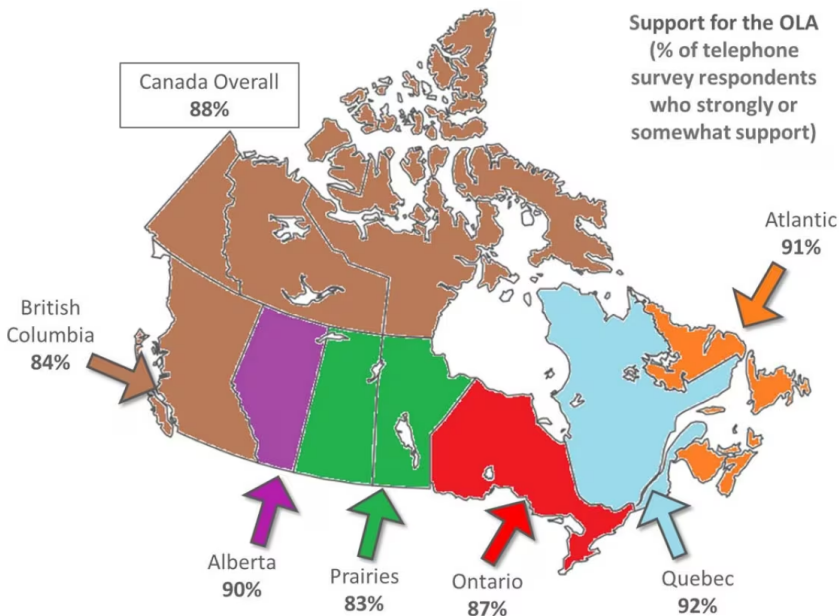
Beyond the socioeconomic factors that influence the academic outcomes of Hispanic and Black students in the United States lie deeper and entrenched challenges. In 2018, a significant disparity was evident in the reading scores of the PiSA exam across different ethnic groups. Asian-American students led with an average score of 556 followed by White students at 531. Hispanic and Black students trailed with scores of 481 and 448 respectively, giving the United States an overall average score of 505 for reading.

It is crucial to note that Latinos, who are experiencing a population surge in the United States, represent a demographic that cannot be overlooked as the United States plans for its future position in global politics. If the prevailing performance gap is not addressed promptly, the national average scores are likely to decline further in coming years and impact the status of the United States in relation to other OECD nations. In comparison, even though Canada's reading scores for First Nations children stands at 482, compared to 520 for non-First Nations, it is overall a more equitable educational system and manifests fewer disparities overall.

Equally significant is the contrast in linguistic inclusivity between the two nations. While Canada honors its bilingual heritage by officially recognizing and promoting both English and French – respecting its 20% population of French descent – the United States has not accorded a similar treatment to the Spanish language. In general, United States citizens are not as comfortable with [bilingualism](#). Furthermore, despite Hispanics constituting 19.1% of the United States

population in 2023, and likely to grow to 29% by 2050, the Spanish language unfortunately, does not enjoy equal status in 2023, and bilingualism has not been embraced by a majority of United States citizens.

The graph below shows the strong support for Canada's Official Language Act (OLA) which governs the use of French and English in Canada. It has an overall support of 88%.



<https://www.cbc.ca/news/canada/montreal/canada-bilingual-official-languages-act-1.3744563>

The need for a strong bilingual education is underlined in a recent UCLA study entitled "[Bilingualism in America's Future](#)." Ensuring that the growing Latino population receives a comprehensive education is essential to maintain United States prominence among OECD countries. Unfortunately, many public school bilingual programs in the United States are inadequate in promoting biliteracy, which impedes the nation's overall academic standing. This not only undermines individual potential but also compromises the country's [competitive edge](#) globally, particularly against European nations.

Recommendations

Looking forward, it is imperative to calibrate the educational system by strengthening bilingual programs to nurture and respect the linguistic diversity represented in the United States. This will go a long way and ensure better academic achievement for all United States students.

In addition, the United States should consider implementing the following changes to close the performance gap and enhance student outcomes.

- **Increase equitable funding for schools.** Spending on lower-income schools and districts should be brought closer to the levels of higher-income areas. This report from

the Department of Education shows significant [spending gaps](#) between high and low-poverty schools.

- **Establish national standards.** This could improve consistency and help students across the United States meet the same benchmarks. The [Common Core State Standards](#) attempted to align standards but adoption was not universal.
- **Invest more in teacher training and retention.** Better pay, ongoing training, and mentoring could elevate the teaching profession. High [turnover rates](#) contribute to lower quality of education and instruction.
- **Reduce childhood poverty rates.** Initiatives to lower poverty could mitigate socio-economic obstacles to academic achievement. Research from the United States Department of Health and Human Services paper shows [poverty impacts development and learning](#).
- **Make early childhood education more accessible.** Increased enrollment in preschool programs can positively impact skills at age 15. The High/Scope Perry Preschool Study demonstrated [long-term benefits](#).
- **Evaluate best practices from top-performing PISA countries.** Adopting techniques from Singapore or Estonia's math programs could be beneficial. Singapore's students [excel in critical thinking skills](#).
- **Prioritize critical thinking and problem-solving skills.** Modify curricula to focus more on applying knowledge over rote memorization, [starting at an early age](#).
- **Share strategies between high and low-performing schools.** OECD countries have agreed that [equity is important](#). Furthermore, allow collaboration and idea-sharing to spread effective methods. A profound understanding of children's backgrounds as well as [innovation](#) and training is important.

With concerted effort across administrators, teachers, and policymakers, the United States could make progress on PISA rankings, though achieving parity with top countries will likely take many years.

The performance gap between the United States and countries like Canada, other OECD nations, and Asian countries on the PISA test underlines the need for significant changes within the United States education system. By placing a greater emphasis on education, enhancing curriculum, rigor, investing in teacher quality, and fostering a culture of education, the United States can improve student performance, bridge the gap, and ensure its students are well-prepared to thrive in the global economy. Achieving educational excellence requires collaboration, innovation, and a collective commitment to providing every student with an equitable and exceptional education.

In Conclusion

There are criticisms about the administration of the PISA. Some argue that it [disadvantages countries in the Global South](#) where students often have to work and study to keep their families afloat. Furthermore, in any given country, including those that score very high, there will be criticism of how they are able to achieve those scores. However, there is no doubt that the

PISA has grown in legitimacy over the years and is increasingly used by more countries all over the world to measure and improve educational policy.

Please see the ranking below. We will give an update to this article when the 2022 PISA scores are published in December of this year.

PROGRAM FOR INTERNATIONAL STUDENT ASSESSMENT (PISA) SCORES*						
*The 2022 Scores will be available in December of 2023						
	READING		MATH		SCIENCE	
	2000	2018	2000	2018	2000	2018
1	Canada	China	Korea	China	Finland	China
2	New Zealand	Singapore	Japan	Singapore	Canada	Singapore
3	Australia	Hong Kong SAR	Hong Kong-China	Macao SAR	Japan	Macao SAR
4	Ireland	Macao SAR	Taiwan	Hong Kong SAR	Korea	Hong Kong SAR
5	Finland	Estonia	Switzerland	Taiwan	Australia	Estonia
6	Korea	Canada	Canada	Japan	New Zealand	Japan
7	Sweden	Finland	Belgium	Korea	United Kingdom	Taiwan
8	Norway	Ireland	Netherlands	Switzerland	Austria	Finland
9	United Kingdom	Korea	Austria	Netherlands	Czech Republic	Korea
10	Switzerland	Poland	Australia	Estonia	Germany	Canada
11	Belgium	Taiwan	Czech Republic	Canada	Switzerland	Ireland
12	Netherlands	Japan	Finland	Denmark	Belgium	Denmark
13	Austria	United States	Germany	Finland	Netherlands	Germany
14	France	Norway	New Zealand	Poland	Ireland	Netherlands
15	United States	Denmark	Denmark	Germany	Sweden	Switzerland
16	Germany	Switzerland	France	Belgium	Denmark	Australia
17	Denmark	Netherlands	Ireland	Australia	Norway	Poland

