

# International Comparisons of Adult Literacy and Numeracy Skills Over Time

**DATA POINT**  
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This Data Point summarizes trends in adult literacy and numeracy skills since the 1990s for the United States and for those countries that participated with the United States in all three international adult literacy studies over the past three decades: Canada, Hungary, Italy, Norway, the Netherlands, and New Zealand. Results in this Data Point are presented as average scores on the Program for the International Assessment of Adult Competencies (PIAAC) scale of 0-500 for both literacy and numeracy.<sup>1</sup>

## International literacy studies since the 1990s

The first assessment of literacy skills of adults conducted in multiple countries and languages was the International Adult Literacy Survey (IALS) study. Developed in the early 1990s, IALS built on advances in national measurements of adult literacy skills in the United States and Canada, as well as on earlier international studies. Between 1994 and 1998, IALS was administered in 22 countries. It consisted of a background questionnaire to collect information about participants' education and work experience, and a literacy assessment to measure participants' skills.

In the early 2000s, the Adult Literacy and Lifeskills Survey (ALL) was developed on the shoulders of IALS. To be able to directly measure changes in adult skills from the 1990s, ALL repeated many of the same literacy items used in IALS. ALL also added some new literacy items, as well as a series of items assessing numeracy. Between 2003 and 2008, ALL was administered in 11 countries.

In the 2010s, the Program for the International Assessment of Adult Competencies (PIAAC) advanced the measurement of adult skills further by administering assessments of digital problem-solving skills and a wider range of literacy and numeracy skills primarily on the computer. PIAAC was designed to be comparable with IALS and ALL, using enough of the same items to allow

for the measurement of trends in adult skills (OECD 2019). PIAAC Cycle I was administered in 39 countries between 2012 to 2017, and (like IALS and ALL) was administered to adults (ages 16-65) in households.

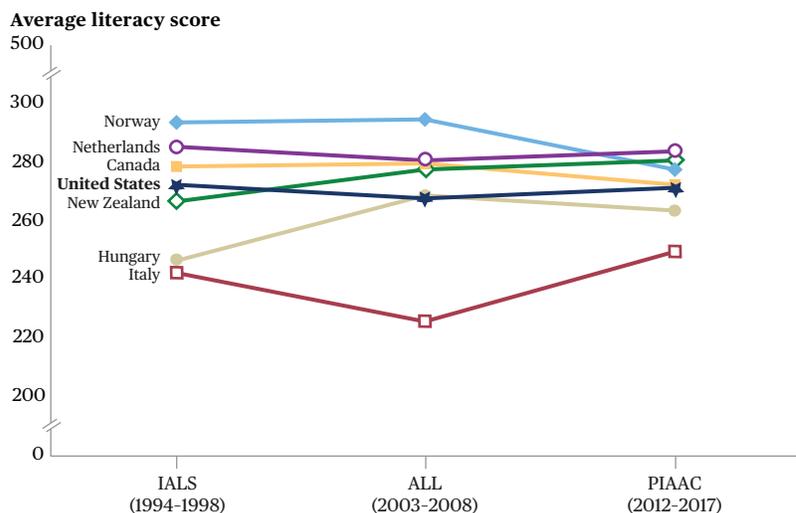
## How have levels of literacy changed over time?

For the United States, average literacy scores for adults declined from 273 on IALS (in 1994) to 268 on ALL (in

2003) and then increased to 272 on PIAAC (in 2012/14, **FIGURE 1**). The U.S. average scores for 1994 and 2012/14 were not statistically different.

Looking at the patterns for other countries that participated in all three international studies (**FIGURE 1**),<sup>2</sup> a similar pattern to the U.S.—a decline in scores from 1994-98 to 2003-08 and an increase from 2003-08 to 2012-17—was observed in

**FIGURE 1. Average literacy scores for adults ages 16 to 65, by participating country: Various years, 1994-2017**



NOTE: Standard error tables are available at <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2022005>. PIAAC data for Italy, the Netherlands, Canada, and Norway were collected in 2012, for New Zealand they were collected in 2015, and for Hungary in 2017. For the United States, PIAAC 2012/2014 data are presented.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Statistics Canada and Organization for Economic Cooperation and Development (OECD), International Adult Literacy Survey (IALS), 1994-98; Adult Literacy and Lifeskills Survey (ALL), 2003-08; and Program for the International Assessment of Adult Competencies (PIAAC), PIAAC 2012-17

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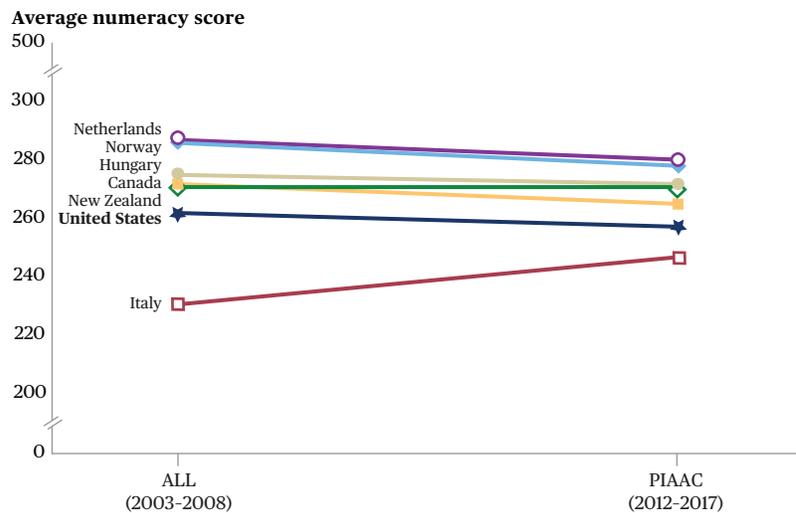
the Netherlands and Italy. Hungary showed the opposite pattern—an increase in literacy scores from 1994–98 to 2003–08 and a decline in scores from 2003–08 to 2012–17. The pattern in Canada and Norway was no change between 1994–98 and 2003–08 and a decline in literacy scores from 2003–08 to 2012–17. New Zealand was the only country with the pattern of an increase in literacy scores between 1994–98 to 2003–08 and an increase again from 2003–08 to 2012–17. In fact, New Zealand went from being outperformed by four out of six other countries in 1994–98 to being outperformed by one in 2012–2017. In contrast, Norway has gone from being at the top of the ranking to being outperformed by two out of six other countries. Other countries' literacy rankings did not shift as noticeably between 1994–98 and 2012–2017.

### How have levels of numeracy changed over time?

For the United States, the average numeracy score for adults declined from 262 on ALL (in 2003) to 257 on PIAAC (in 2012/2014, **FIGURE 2**).

A similar pattern to the U.S.—a decline in numeracy scores from 2003–08 to 2012–17—was observed in Canada, Hungary, the Netherlands, and Norway (**FIGURE 2**). Italy was the only country with a pattern of an increase from 2003–08 to 2012–17. Meanwhile, New Zealand saw no significant change in numeracy scores over the same period. Countries' numeracy rankings did not shift noticeably between 2003–08 and 2012–2017.

**FIGURE 2. Average numeracy scores for adults ages 16 to 65, by participating country: Various years, 2003–2017**



NOTE: Standard error tables are available at <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2022005>. PIAAC data for Italy, the Netherlands, Canada, and Norway were collected in 2012, for New Zealand they were collected in 2015 and for Hungary in 2017. For the United States, PIAAC 2012/2014 data are presented.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Statistics Canada and Organization for Economic Cooperation and Development (OECD), Adult Literacy and Lifeskills Survey (ALL), 2003–08; and Program for the International Assessment of Adult Competencies (PIAAC), PIAAC 2012–17.

### Reference

Organization for Economic Cooperation and Development (OECD) (2019). *Technical Report of the Survey of Adult Skills (PIAAC) (3rd Edition)*. Paris: OECD Publishing. Retrieved November 8, 2021, from: [https://www.oecd.org/skills/piaac/publications/PIAAC\\_Technical\\_Report\\_2019.pdf](https://www.oecd.org/skills/piaac/publications/PIAAC_Technical_Report_2019.pdf).

### Endnotes

<sup>1</sup> IALS and ALL results were re-scaled to match the statistical models used in creating PIAAC scores for literacy and, in the case of ALL,

numeracy. Rescaling was possible because PIAAC repeated a sufficient number of the same test questions used in IALS and ALL. For details, see Preface-14 through Preface-16 of OECD 2019.

<sup>2</sup> PIAAC data for Italy, the Netherlands, Canada, and Norway were collected in 2012, for New Zealand they were collected in 2015, and for Hungary in 2017. For the United States, PIAAC 2012/2014 data are presented because U.S. 2012/2014 data are used for international comparisons (see FAQ #29 for a full explanation at <https://nces.ed.gov/surveys/piaac/faq.asp>).