

Why Basic Skills Matter

New PIAAC Data About the Skills of Adults 16-74 in
the United States

COABE | April 11, 2016

Jaleh Soroui & Katie Landeros
American Institutes for Research

Presentation Overview

1.

What is PIAAC?

2.

Overview of 2012/2014 U.S. Results

3.

Selected Results

4.

Why These Results Matter

5.

PIAAC Resources

What is PIAAC?

- PIAAC is an international large-scale assessment administered in 2011-12 in 24 countries including the United States
- Organized by the Organization for Economic Cooperation & Development (OECD)
- It assessed 16 - to 65-year-olds, non-institutionalized, residing in each country, irrespective of nationality, citizenship, or language status
- Administered to a sample of about 5,000 adults on either laptop computer or paper and-pencil
- Results from the first round of PIAAC were released in 2013
- In 2013-14, the United States supplemented its original sample with 3,660 more adults, oversampled:
 - Unemployed (age 16-65)
 - Young adults (age 16-34)
 - Older adults (age 66-74)

What Does PIAAC Measure?

- Assessment of information-processing skills
 - Skills that are considered essential to effectively access, understand, analyze and use text-based information, and in some cases with mathematics, information in the form of representations of various types (e.g., pictures, graphical representations)
- Purpose is to gain a picture of the distribution of the adult population over the entire spectrum of proficiency in each of the domains assessed.

Definitions of Domains

Literacy is understanding, evaluating, using and engaging with written texts

to participate in society,
to achieve one's goals, and
to develop one's knowledge and potential.

Numeracy is the ability to access, use, interpret, and communicate mathematical information and ideas, in order to engage in and manage the mathematical demands of a range of situations in adult life.

Problem solving in technology-rich environments involves using digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks.

What Other Information Does PIAAC Collect?

Background questionnaire:

1. Work experience, education, training, health, and attitudes
2. Details on types and frequency of skill use for:
 - Reading- and numeracy-related activities
 - IT at work and in everyday life
3. A range of generic skills required of individuals in their work
 - e.g., public-speaking, collaborating, selling, organizing

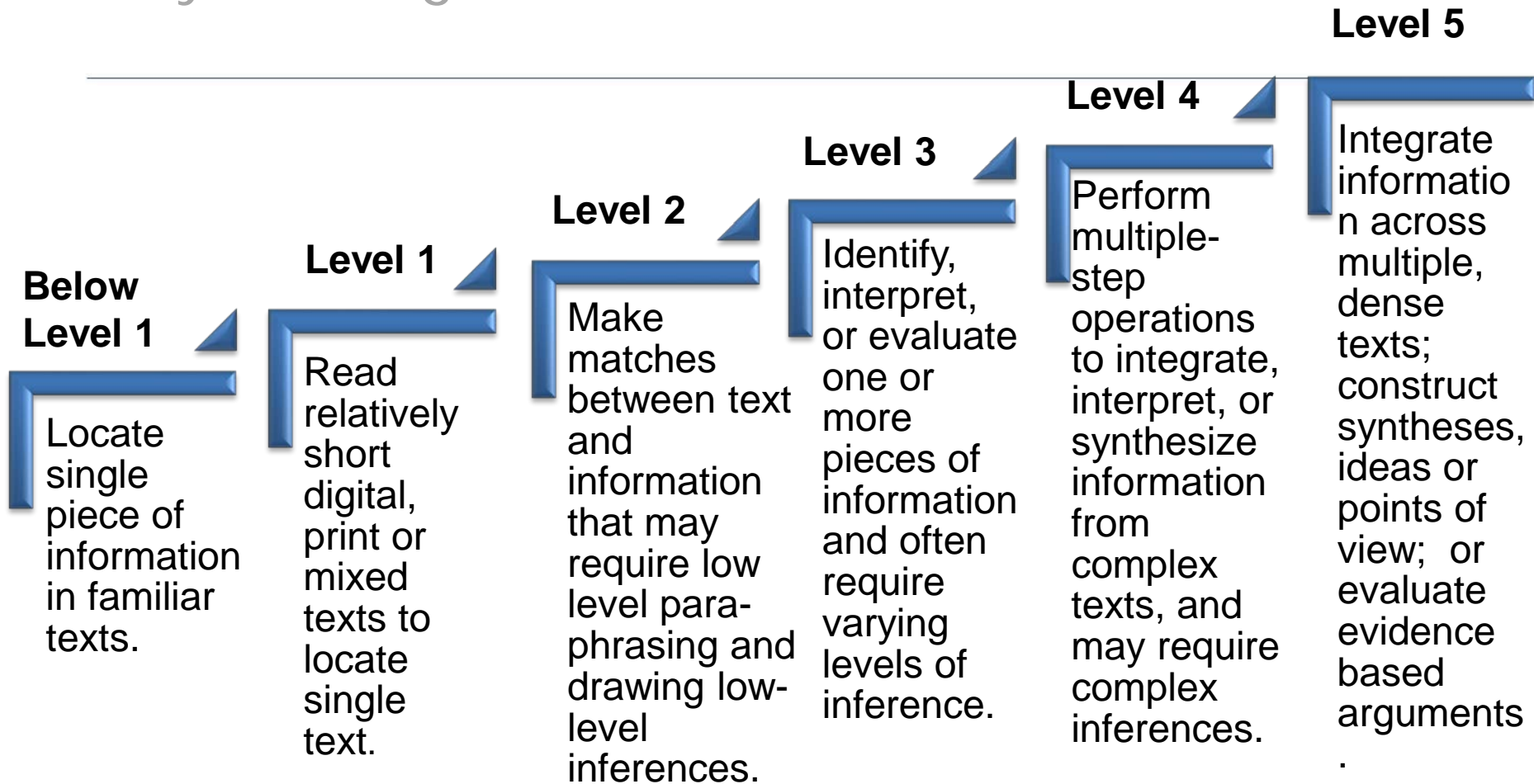
How Results are Reported

As **Average scores** on a 0-500 scale

As **Proficiency levels** anchored by a specific set of concrete skills:

- 6 levels for Literacy and Numeracy
- 4 levels for Digital Problem Solving

Descriptions of the PIAAC proficiency levels for literacy defining what adults can do at each level



PIAAC U.S. Results 2012/2014 data

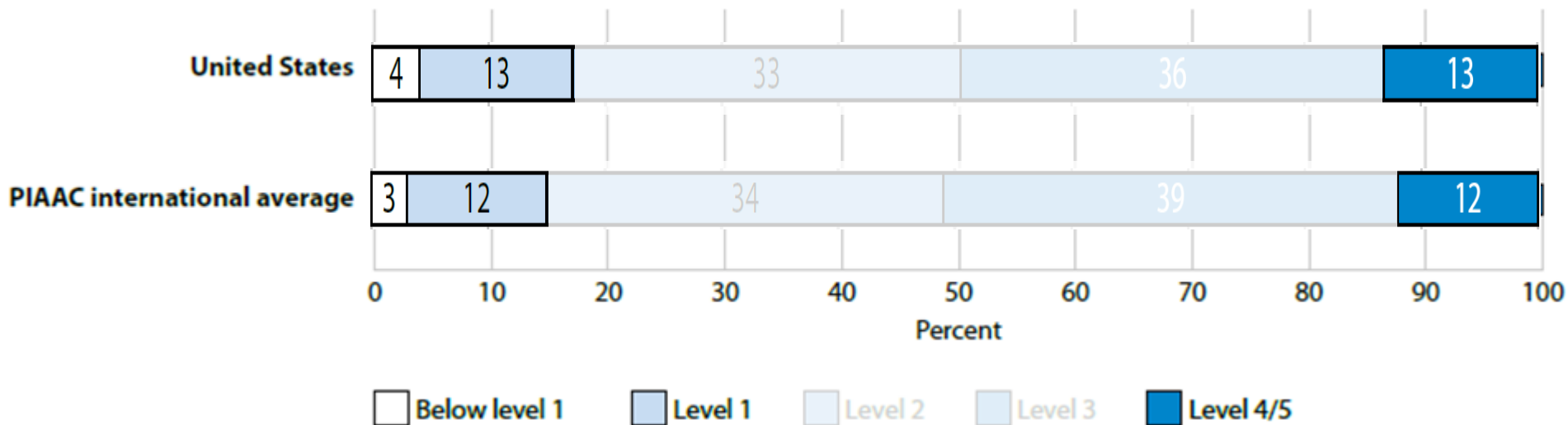
How did we do compared to other countries?

Literacy	Numeracy	PS-TRE
Japan	Japan	Japan
Finland	Finland	Finland
Netherlands	Flanders-Belgium	Australia
Australia	Netherlands	Sweden
Sweden	Sweden	Norway
Norway	Norway	Netherlands
Estonia	Denmark	Austria
Flanders-Belgium	Slovak Rep.	Denmark
Czech Rep.	Czech Rep.	Czech Rep.
Slovak Rep.	Austria	Korea, Rep. of
Canada	Estonia	Germany
Korea, Rep. of	Germany	Canada
U.K.	Australia	Slovak Rep.
Denmark	Canada	Flanders-Belgium
Germany	Cyprus	U.K.
Austria	Korea, Rep. of	Estonia
United States	U.K.	Ireland
Cyprus	Poland	Poland
Poland	Ireland	United States
Ireland	United States	
France	France	Italy
Spain	Italy	Spain
Italy	Spain	Cyprus
		France

The U.S. average score in **literacy** was not measurably different than the international average, but in **numeracy** and **digital problem solving** it was below the international average.

Literacy: Compared to the international average, larger percentage of U.S. adults performed at both the top level (4/5) and the bottom levels (1 and below)

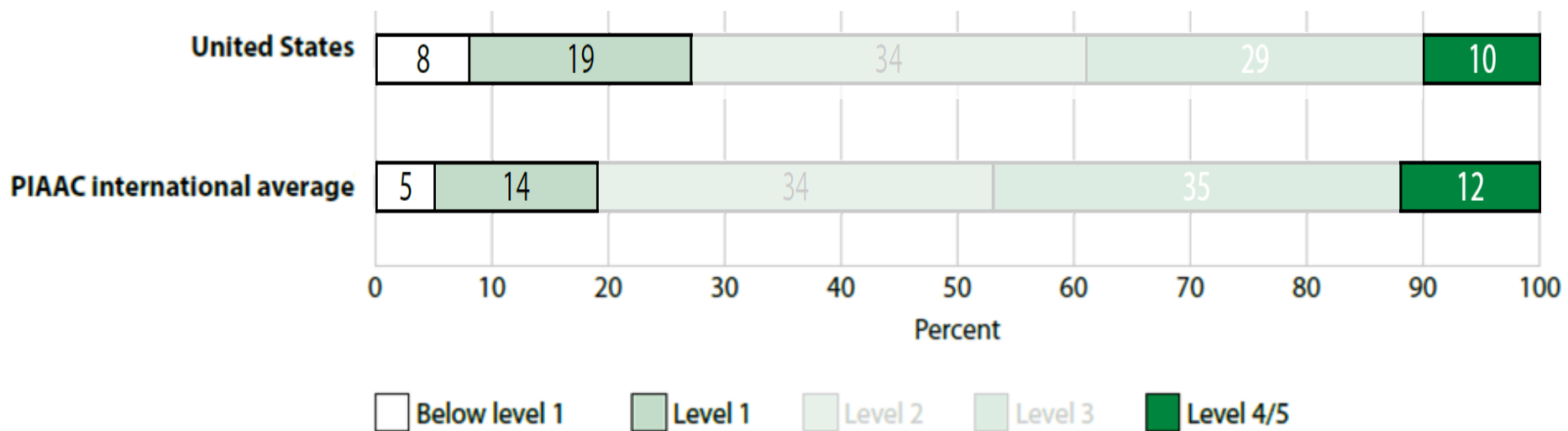
Percentage of adults age 16 to 65 at each level of proficiency on the PIAAC literacy scale



SOURCE: U.S. Department of Education, National Center for Education Statistics, Program for the International Assessment of Adult Competencies (PIAAC), U.S. National Supplement, 2014; Organization for Economic Cooperation and Development, Program for the International Assessment of Adult Competencies (PIAAC), 2012.

Numeracy: Compared to international average, the U.S. had a smaller percentage (10 vs 12 percent) at the top level (4/5) and a larger percentage at the bottom levels (27 vs 19 percent)

Percentage of adults age 16 to 65 at each level of proficiency on the PIAAC numeracy scale:

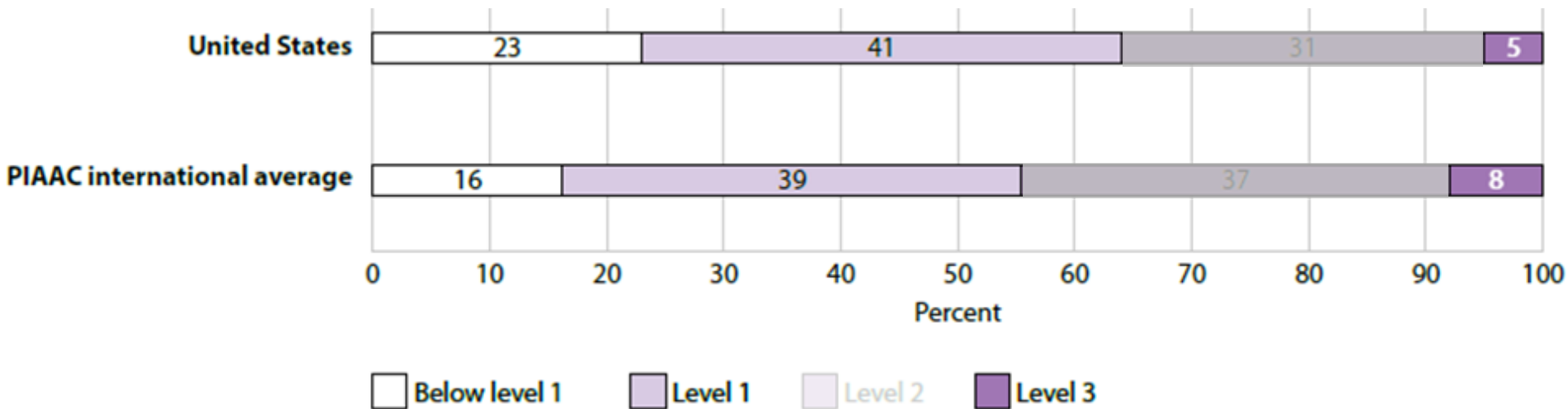


SOURCE: U.S. Department of Education, National Center for Education Statistics, Program for the International Assessment of Adult Competencies (PIAAC), U.S. National Supplement, 2014; Organization for Economic Cooperation and Development, Program for the International Assessment of Adult Competencies (PIAAC), 2012.

Problem Solving in Technology-Rich Environments (PS-TRE):

Compared to international average, the U.S. had a smaller percentage (5 vs 8 percent) at the top level (3) and a larger percentage at the bottom levels (64 vs 55 percent)

Percentage of adults age 16 to 65 at each level of proficiency on the PIAAC problem solving in technology-rich environments scale

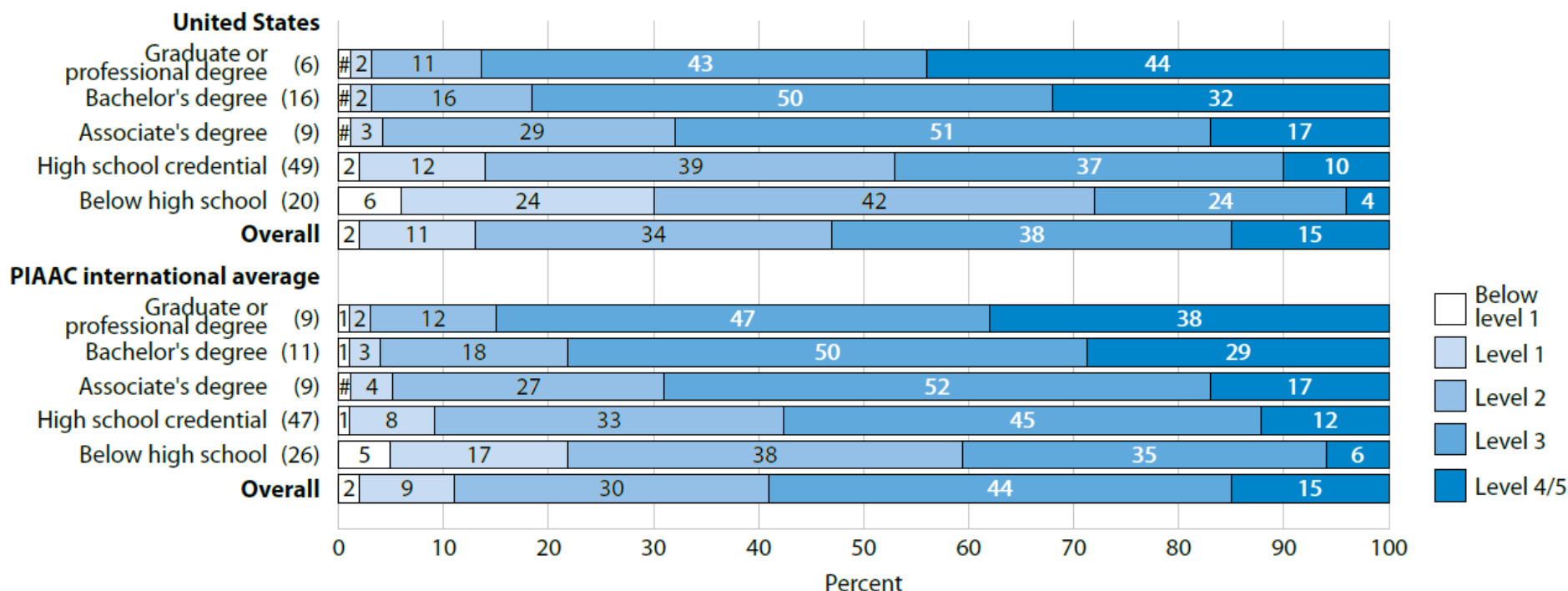


SOURCE: U.S. Department of Education, National Center for Education Statistics, Program for the International Assessment of Adult Competencies (PIAAC), U.S. National Supplement, 2014; Organization for Economic Cooperation and Development, Program for the International Assessment of Adult Competencies (PIAAC), 2012.

Education & Literacy Skills:

A larger percentage of U.S. young adults with a higher education degree performed at the top levels (4/5) in literacy than their international peers

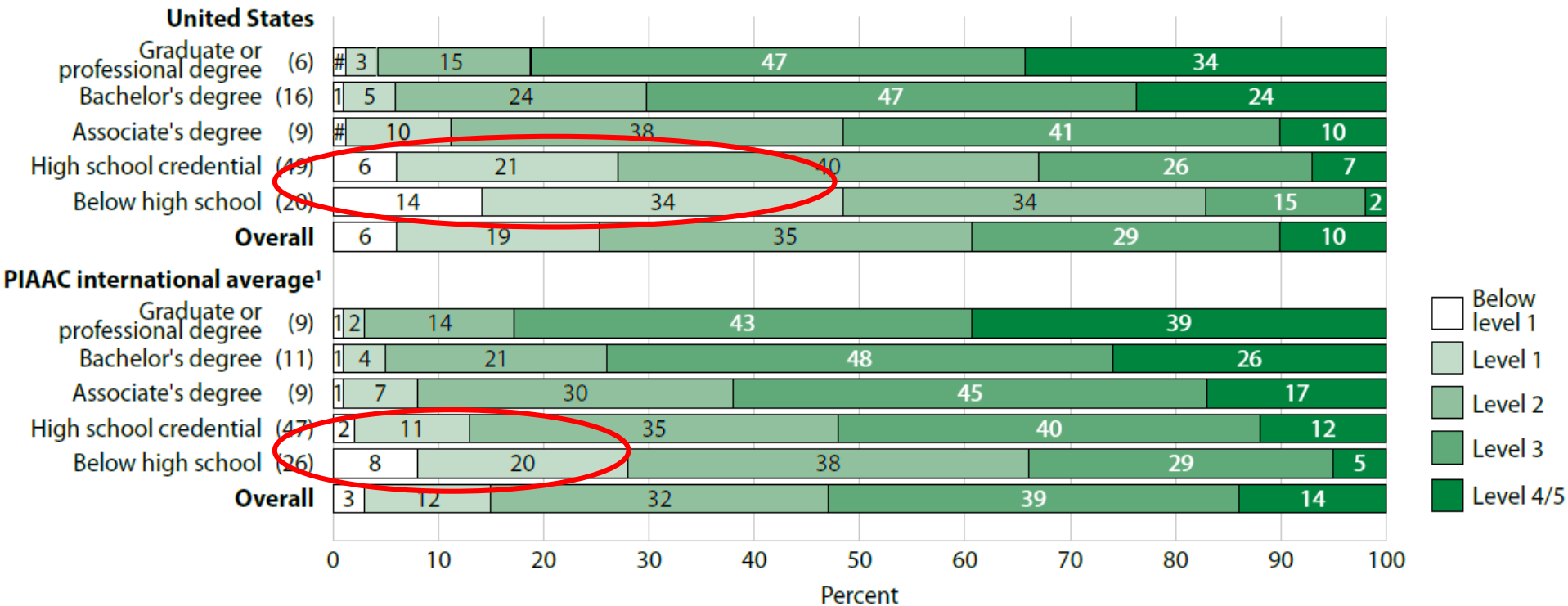
Percentage of adults age 16 to 34 at each level of proficiency on the PIAAC literacy scale, by highest level of educational attainment



SOURCE: U.S. Department of Education, National Center for Education Statistics, Program for the International Assessment of Adult Competencies (PIAAC), U.S. National Supplement, 2014; Organization for Economic Cooperation and Development, Program for the International Assessment of Adult Competencies (PIAAC), 2012.

Education & Numeracy skills: A larger percentage of U.S. young adults with a high school degree or below performed at the bottom levels than their international peers

Percentage of adults age 16 to 34 at each level of proficiency on the PIAAC numeracy scale, by highest level of educational attainment: 2012 and 2014



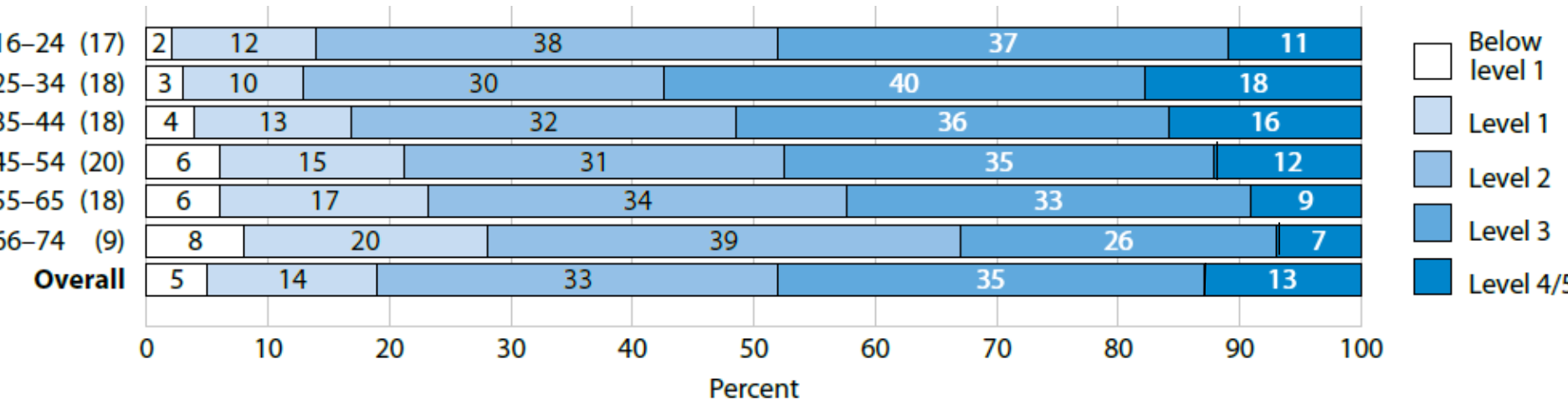
Summary of results: U.S. and international, 16 to 65 year olds

- U.S. literacy score at international average but numeracy and Problem Solving in Technology-rich Environment (PS-TRE) scores are below international average
- U.S. has larger percentage at bottom levels in all 3 domains
- U.S. has larger percentage at the top level in literacy but smaller percentages in numeracy and PS-TRE
- A larger percentage of U.S. young adults with a college degree or higher education performed at the top proficiency levels in literacy than their international peers.
- A larger percentage of U.S. young adults with a high school degree or below performed at the bottom levels than their international peers in literacy and numeracy

Age & Literacy Skills:

Larger percentages of adults age 25-34 and 35-44 performed at the top level (4/5) in literacy than adults at all the other age intervals

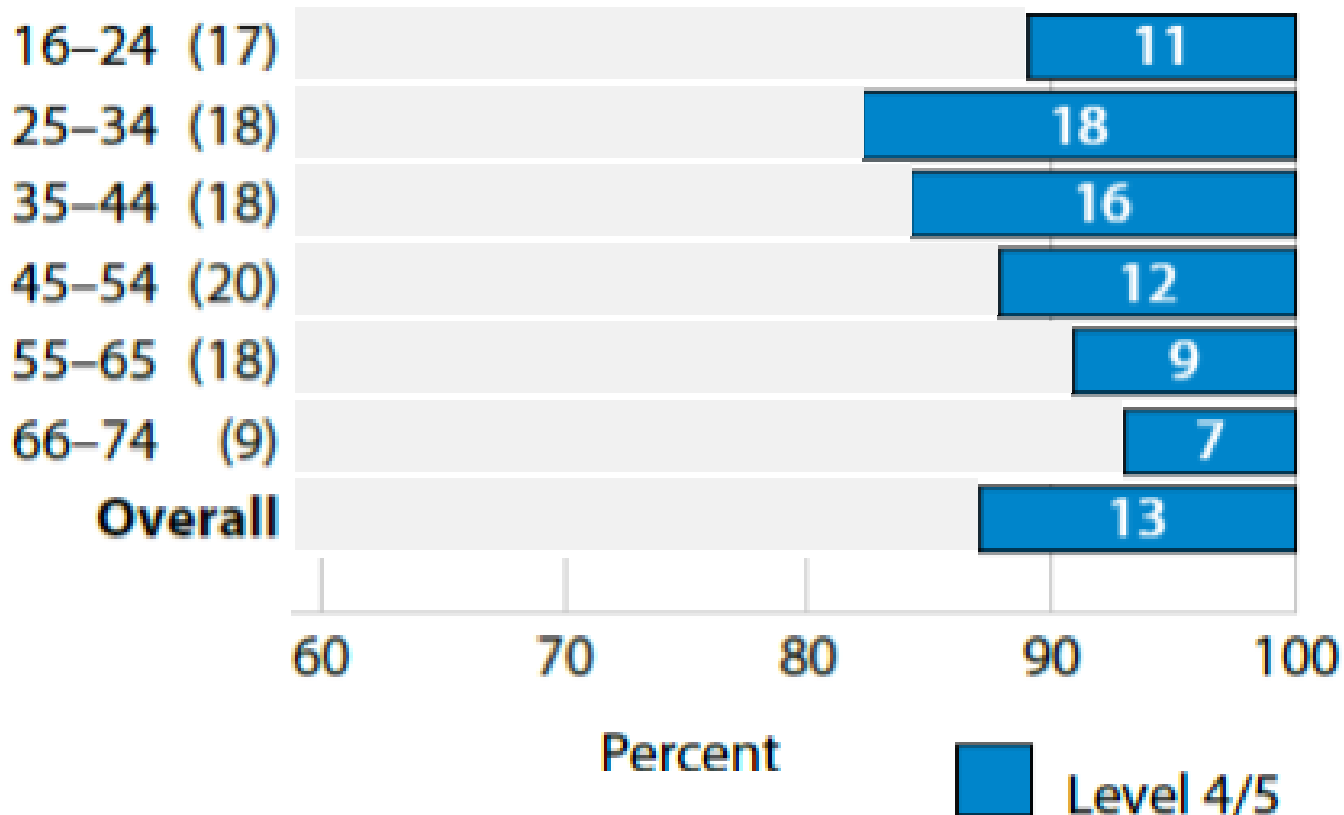
Percentage of U.S. adults age 16 to 74 at each level of proficiency on the PIAAC literacy scale, by 10-year age intervals



SOURCE: U.S. Department of Education, National Center for Education Statistics, Program for the International Assessment of Adult Competencies (PIAAC), U.S. National Supplement, 2014; Organization for Economic Cooperation and Development, Program for the International Assessment of Adult Competencies (PIAAC), 2012.

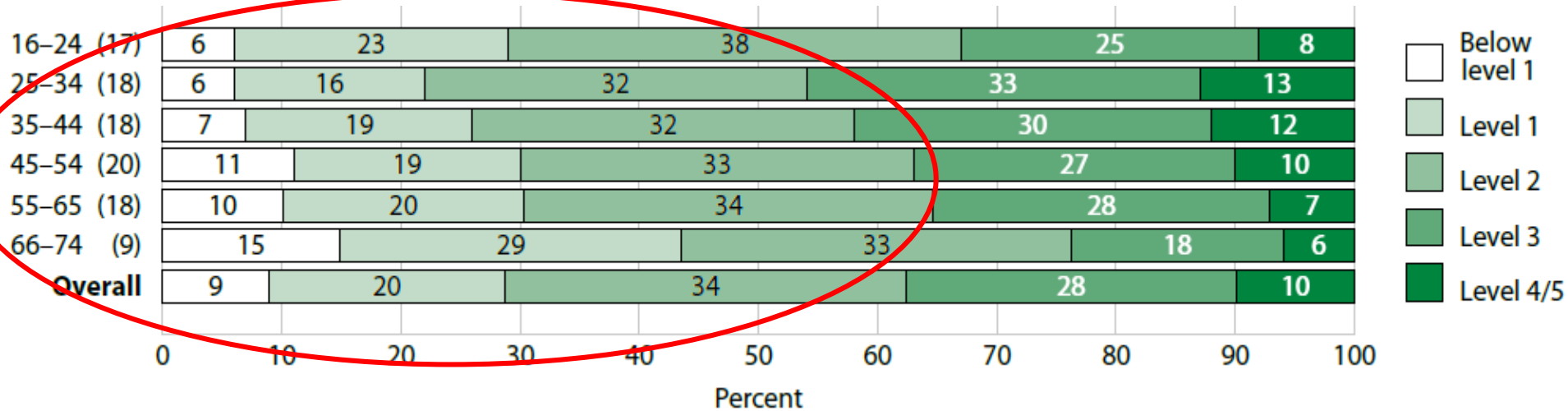
Age & Literacy Skills:

Larger percentages of adults age 25-34 and 35-44 performed at the top level (4/5) in literacy than adults at all the other age intervals



At every age level, more than 50% of U.S. adults are performing at Level 2 and below

Percentage of U.S. adults age 16 to 74 at each level of proficiency on the PIAAC numeracy scale, by 10-year age intervals: 2012 and 2014



Summary of results: U.S. 16 to 74 year olds

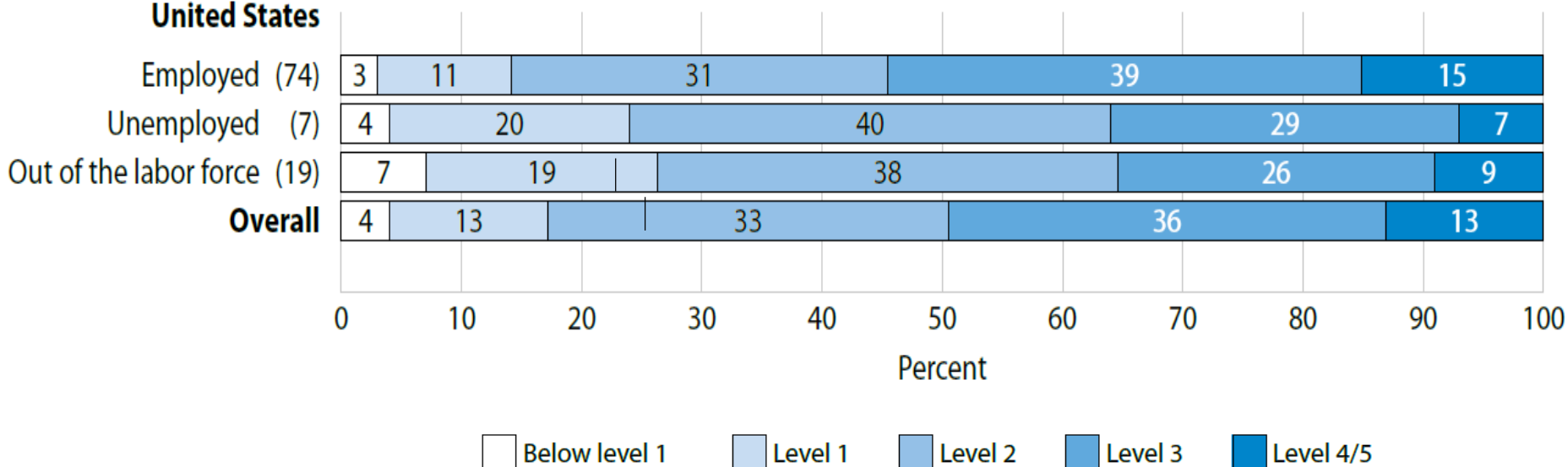
- Larger percentages of adults age 25-34 and 35-44 performed at the top level in literacy (and numeracy) than those age 55+
- However, at every age group in numeracy more than 50% are at below level 2. Even among 25-34 year-olds, more than 50% are performing at level 2 and below

Employment Status and Literacy Skills:

A larger percentage of U.S. adults who were unemployed or out of the labor force performed at the bottom levels in literacy than those employed

Percentage of adults age 16 to 65 at each level of proficiency on the PIAAC literacy scale, by employment status: 2012 and 2014

United States



SOURCE: U.S. Department of Education, National Center for Education Statistics, Program for the International Assessment of Adult Competencies (PIAAC), U.S. National Supplement, 2014; Organization for Economic Cooperation and Development, Program for the International Assessment of Adult Competencies (PIAAC), 2012.

Employment Status and Literacy Skills :

A larger percentage of U.S. adults who were unemployed or out of the labor force performed at the bottom levels in literacy than those employed

United States



Percent

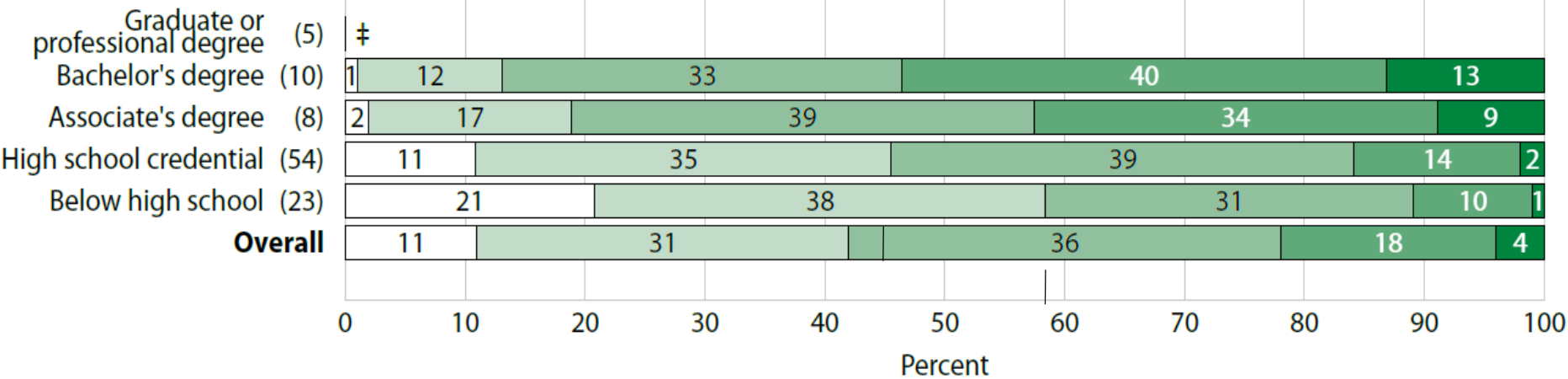
conomic

Education & Numeracy Skills of the Unemployed:

Over 75 percent of U.S. unemployed adults have a high school diploma or less education. About half of these adults performed at the bottom proficiency levels in numeracy

Percentage of unemployed adults age 16 to 65 at each level of proficiency on the PIAAC numeracy scale, by highest level of educational attainment: 2012 and 2014

United States



Below Level 1
 Level 1
 Level 2
 Level 3
 Level 4/5

Education & Numeracy Skills of the Unemployed:

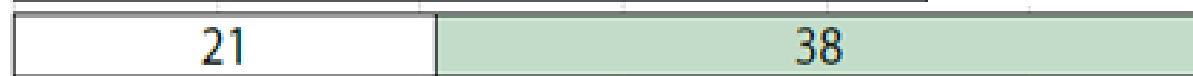
Over 75 percent of U.S. unemployed adults have a high school diploma or less education. About half of these adults performed at the bottom proficiency levels in numeracy

United States

High school credential (54)



Below high school (23)



Percent



Percent

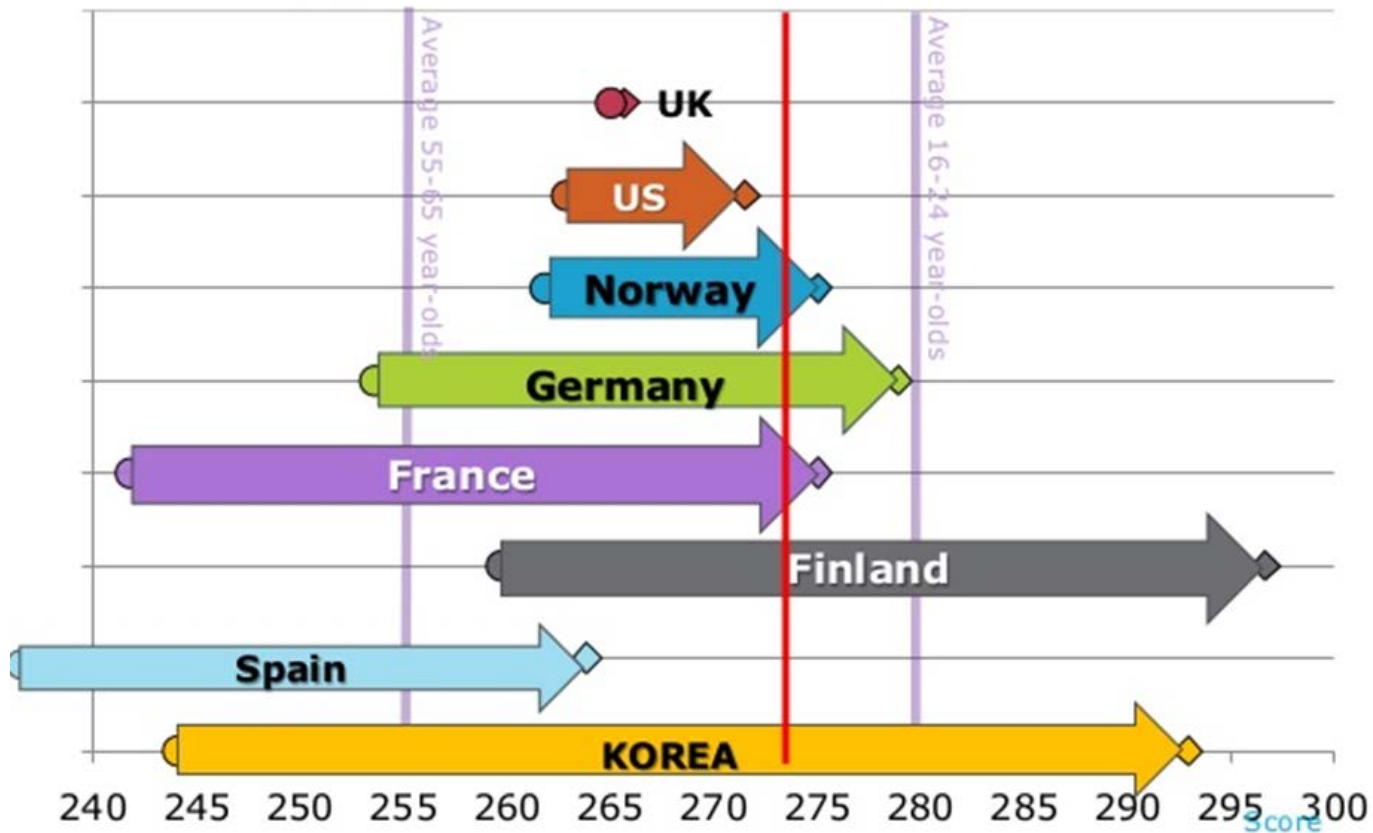


Summary of results: skills and unemployment

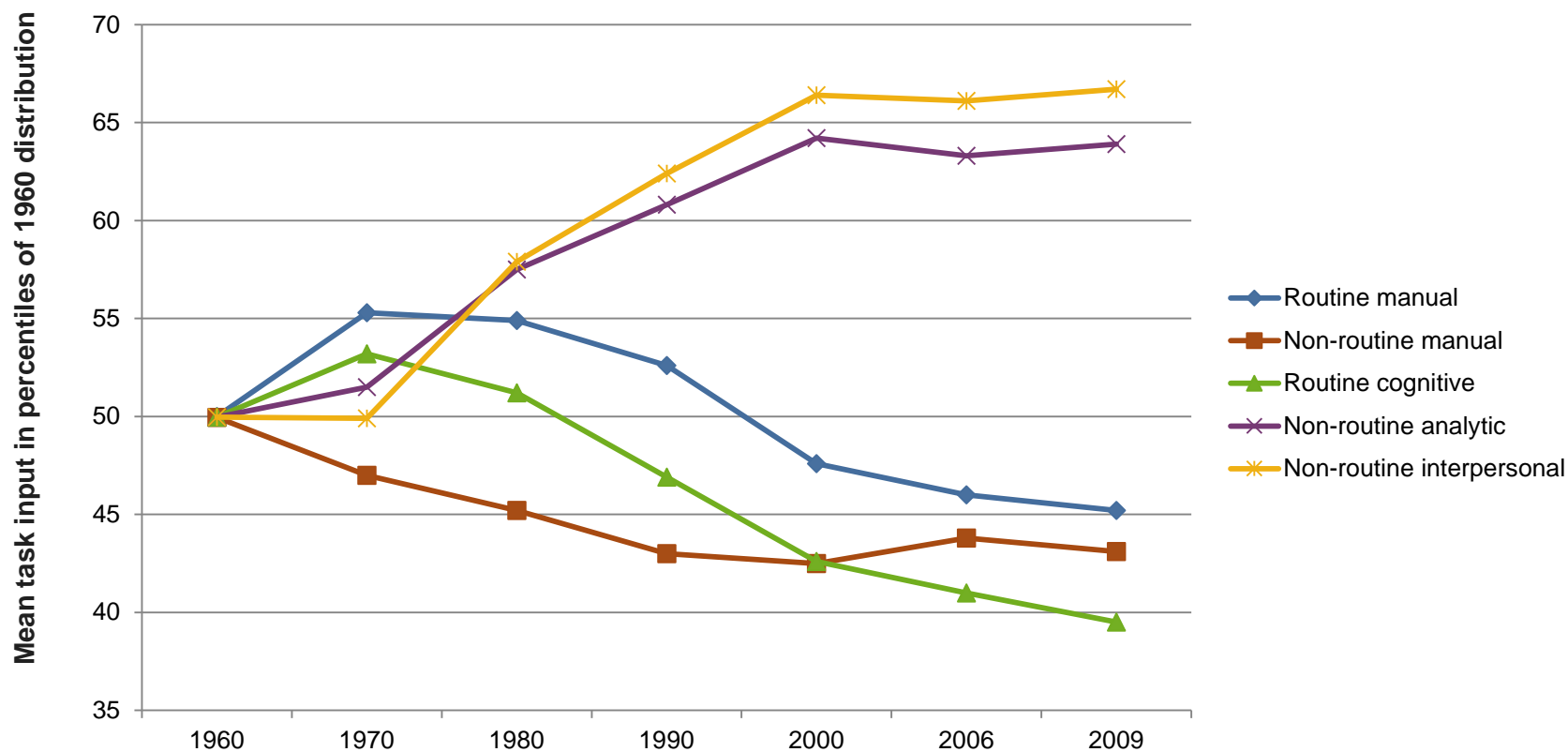
- A larger percentage of U.S. adults who were unemployed or out of the labor force performed at the bottom levels in literacy than those employed
- Over 75 percent of U.S. unemployed adults have a high school diploma or less education. About half of these adults performed at the bottom proficiency levels in numeracy

Why do these results matter?

Literacy skills in younger and older generations

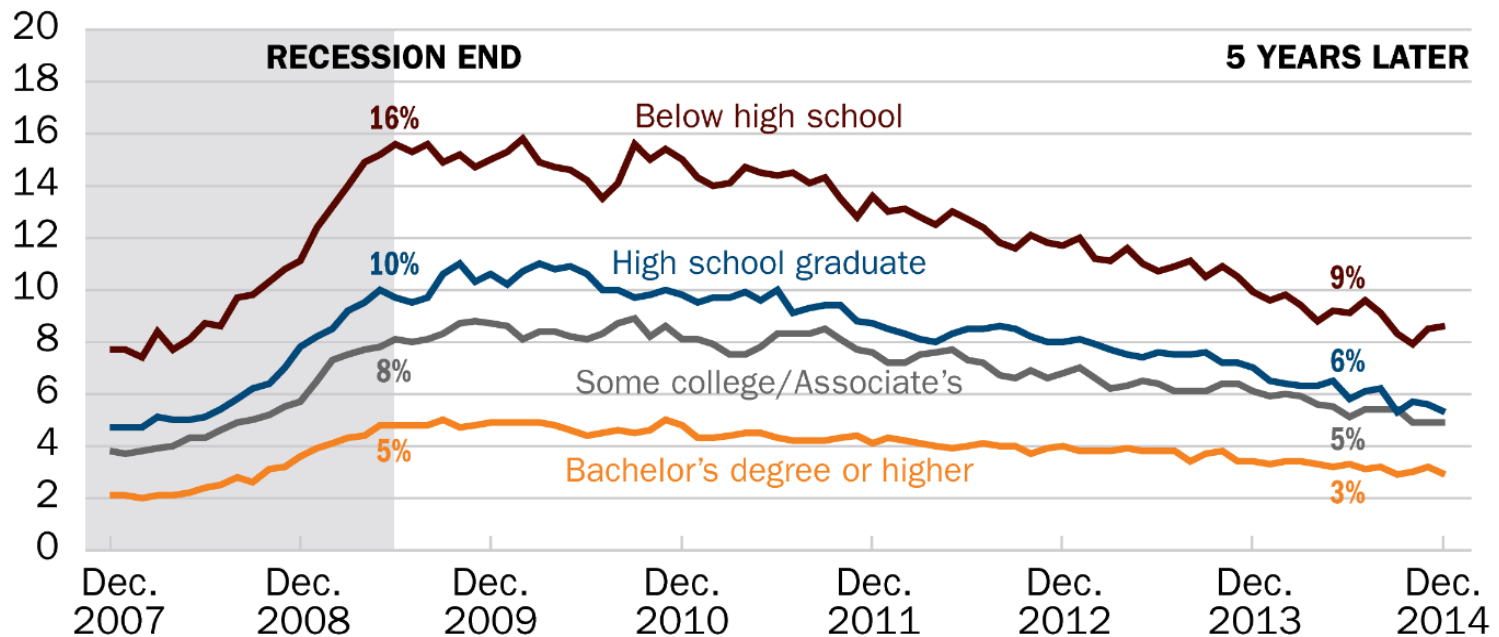


Why we need highly skilled workers



People with less education and fewer skills face higher rates of unemployment

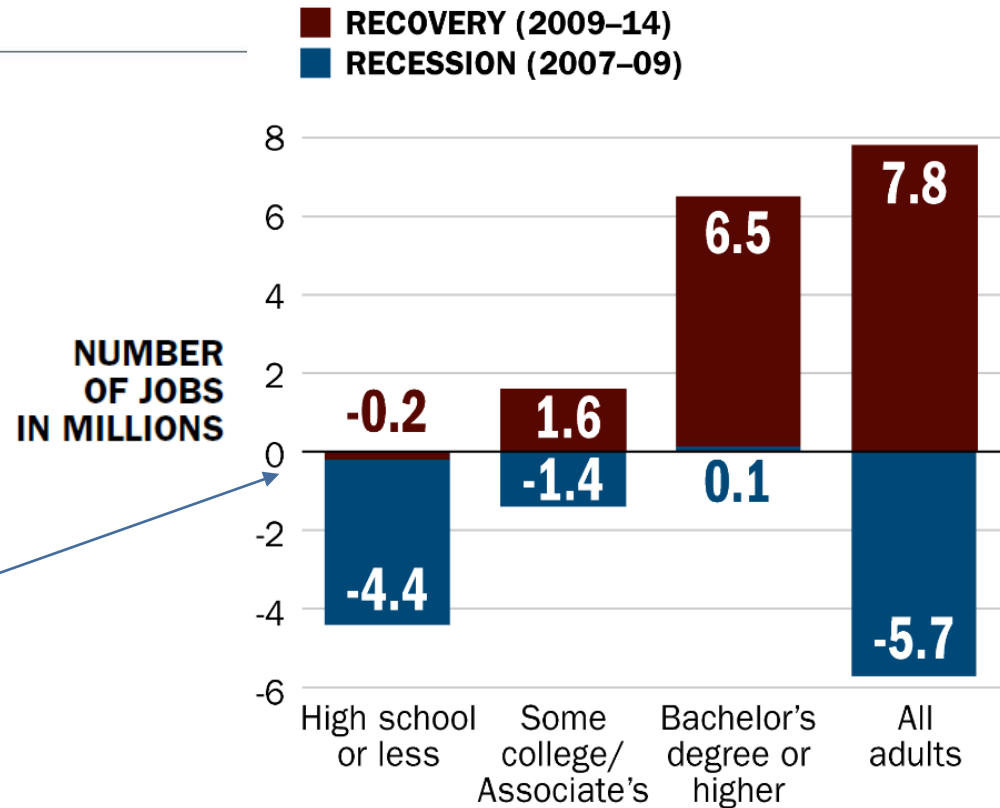
UNEMPLOYMENT RATE, BY EDUCATIONAL ATTAINMENT



SOURCE: U.S. Bureau of Labor Statistics. *The Economics Daily*. "Unemployment rates by educational attainment in August 2015."

How did employment change in the recent recession?

CHANGES IN EMPLOYMENT,
BY EDUCATIONAL ATTAINMENT



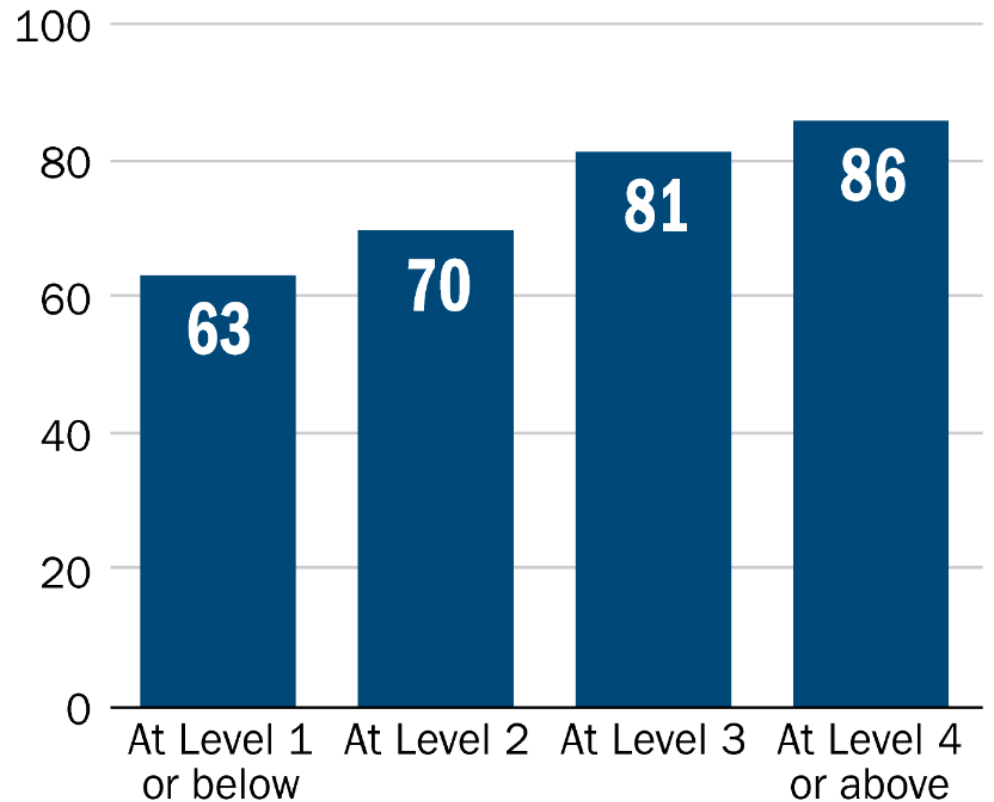
Workers with a high school degree or less bear the brunt of recession job losses.

SOURCE: U.S. Bureau of Labor Statistics, *Employment Level, 25 years and over – December 2007, December 2009, and December 2014*, retrieved from FRED, Federal Reserve Bank of St. Louis, March 1, 2016.

Skills play a major role

Among those with only a high school degree, those with higher literacy skills are more likely to be employed.

PERCENT EMPLOYED, BY PIAAC LITERACY PROFICIENCY LEVELS

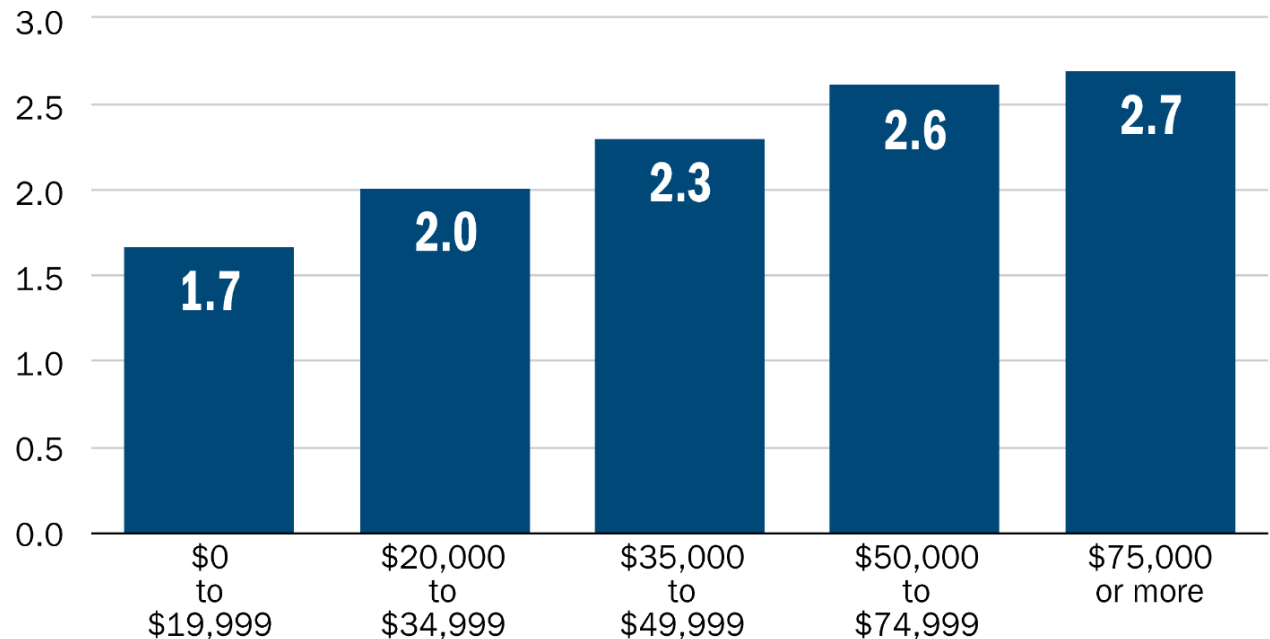


SOURCE: National Center for Education Statistics, Program for the International Assessment of Adult Competencies (PIAAC), 2012/2014.

Salary and job tenure correlate with reading, math, and computer skills

The use of reading, math, and computer skills at work is associated with earning more and having more years of paid work.

INDEX OF READING SKILL USE AT WORK, BY INCOME



SOURCE: National Center for Education Statistics, Program for the International Assessment of Adult Competencies (PIAAC), 2012/2014.

What else PIAAC can offer:

- Access to the Data itself:
 - NCES Portal
 - NCES or OECD International Data Explorer.
- Education & Skills Online, an assessment tool for practitioners
- Outreach Toolkits: Ready made presentations
- Research-to-practice guides for practitioners
- Research reports that analyze the data
- Regular updates through the PIAAC Buzz
- PIAAC Gateway site



PIAAC 2012/2014 Results

IAP Home | PIAAC Publications & Products | Staff | Assessments & Surveys | Contact Us

PIAAC Results Portal

The PIAAC Results Portal allows you to browse figures and tables that compare the performance of U.S. adults with adults in other participating countries. By making a selection from the variables that appear in the sidebar, you can generate a variety of results. To get started, click on the "Make Selections" button which will open the sidebar. Then, select the sample population and the variable in which you are interested. You can display your results as either average scores or as the percentage of adults at various proficiency levels. Results are also displayed by the specific PIAAC domain you select. By default, results show the U.S. and PIAAC international average, but you can view results from the specific PIAAC countries by checking the "Include PIAAC countries" box if available. Your results can be printed directly from your browser, or you can save the results on your computer by clicking on the Excel icon to create a file. While statistically significant differences (set at a statistical significance level of 0.05) will be noted in some figures and tables, not all possible comparisons have been tested for significance. [Learn more about the PIAAC Results Portal.](#)

« Make Selections

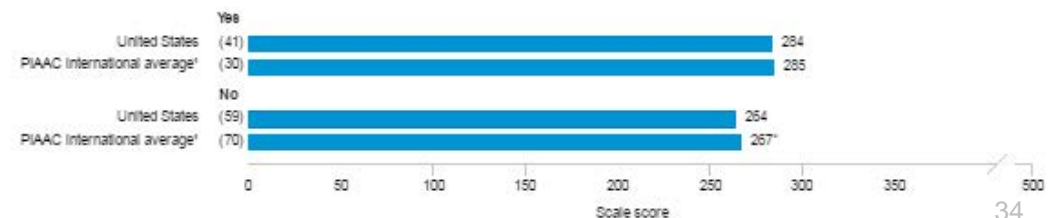
Education **Informal education - on job training** « Previous | Next »

Results

Average Score Proficiency Levels Include PIAAC Countries

LITERACY NUMERACY PROBLEM SOLVING

Average scores on the PIAAC literacy scale for adults age 16 to 65, by whether they participated in on-the-job training during the last year: 2012 and 2014



PIAAC
Results
Portal
(demo)

PIAAC Data Explorer

- Interactive online data tool that allows users to produce customized reports using PIAAC data
- Free to the public – does not require any advanced statistical knowledge or software
- Data displayed and exported in a variety of formats, including Tables, Charts, Maps
- Data Explorer Training Video available on the Gateway home page

Education & Skills Online (ESO) @

<http://www.oecd.org/skills/ESonlineassessment/>

An assessment tool designed to provide individual level results linked to PIAAC

Measures both cognitive and non-cognitive skills

Available in both English and Spanish in the U.S.

Can be downloaded 24/7 on demand over the internet

Education & Skills Online: Uses and Benefits

Appropriate for use in both educational and workplace settings.

Can be used for placement for individuals at any point along a career pathway.

Can be used to evaluate classes, programs or any group of respondents.

Organizations have flexibility to determine which skills to assess.

Database is owned by purchaser (individual/organization/state) and is available for further analyses/research purposes.

The PIAAC Outreach Toolkit

Everything you need to build awareness about PIAAC results and why they matter.



SHORT VIDEOS

For groups that aren't familiar with PIAAC, you may want to begin with one of these introductory videos.

POWERPOINT

We have developed slide modules that focus on the following areas:

- What is PIAAC?
- Results Overview
- Key U.S. Issues
 - Low-skilled Workers
 - Future Workforce
 - Health Status & Skills
 - Impact of Parent Education
- Sample PIAAC Tasks
- Gateway & Other Resources
- Education & Skills Online (ESO)

HANDOUTS

Choose from this selection of PIAAC documents:

- PIAAC Overview
- Key Results
- Infographics
- National Supplement
- Education & Skills Online (ESO)

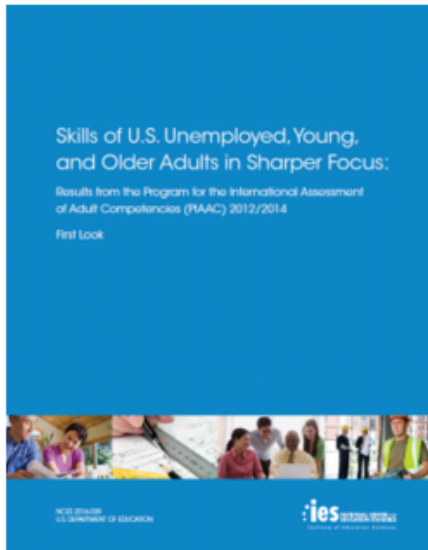
Visit the PIAAC Gateway at:

www.piaacgateway.com



[Home](#) / [About](#) / [News & Events](#) / [Outreach Tools](#) / [Data Tools](#) / [Publications](#) / [Resources](#)

Newly Released! U.S. PIAAC 2012/2014 First Look Report



Now Available...

- U.S. PIAAC 2012/2014 First Look Report
- U.S. PIAAC 2012/2014 First Look Release Video
- NCES Statement on PIAAC 2012/2014 by Peggy Carr, Acting Commissioner of the National Center for Education Statistics, U.S. Department of Education
- NCES Blog entry on First Look Release
- PIAAC Interactive Data Portal
- Updated FAQ
- Updated Schedule and Plans
- Updated "Facts from PIAAC" Postcards
- Latest News on U.S. PIAAC
- NPR *All Things Considered* segment
- Trending tweets on #PIAAC

Search

Upcoming PIAAC Events

U.S. PIAAC 2012/2014 Data Release

3/10/16

CIES Conference

3/10/16

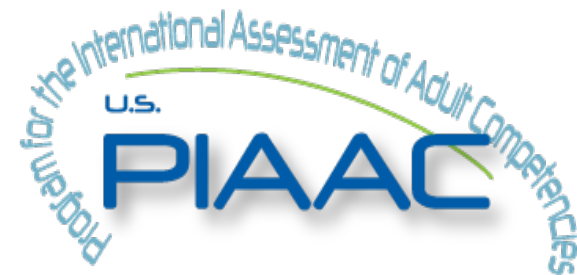
NAWB Conference

3/12/16

Upcoming Major Publications

- **Summer 2016 – Prison Report:** *Results from the U.S. PIAAC Survey of Incarcerated Adults Program for the International Assessment of Adult Competencies: 2014*
- **Summer/Fall 2016 – Young Adults Report:** *A Closer Look at U.S. Young Adults' Skills by Education and Employment Status: Results from PIAAC Surveys of 2012 and 2014*

Check out other PIAAC Sessions at COABE!



TODAY (4/11):

Exploring How Problem Solving in Technology-Rich Environments Can Be Used to Design Responsive Programming

Jill Castek

2:00pm-3:15pm

Majestic 4, Level 37

TOMORROW (4/12):

Literacy, Numeracy, and Health among Immigrants and U.S.-Born Adults: Evidence from the Program for the International Assessment of Adult Competencies (PIAAC)

Esther Prins and Shannon Monnat

9:30am-10:45am

Cityview 4, Level 4

Enhancing Reading Instruction for Adults Using the PIAAC Framework for Literacy

Amy Trawick

2:00pm – 3:15pm

Trinity 4, Level 3

Cancelled

Adult Non-Participation in Education: Detouring from the Pathway

Margaret Patterson

3:45pm-5:00pm

Trinity 3, Level 3

Wednesday (4/13):

PIAAC's Implications For Policy And Practice

Heidi Silver-Pacuilla, Jill Castek, Margaret Patterson,

11:00am-12:15pm

Cityview 3, Level 4

Contact info

Jaleh Soroui

AIR PIAAC Director

jsoroui@air.org

202-403-6958

piaac@air.org

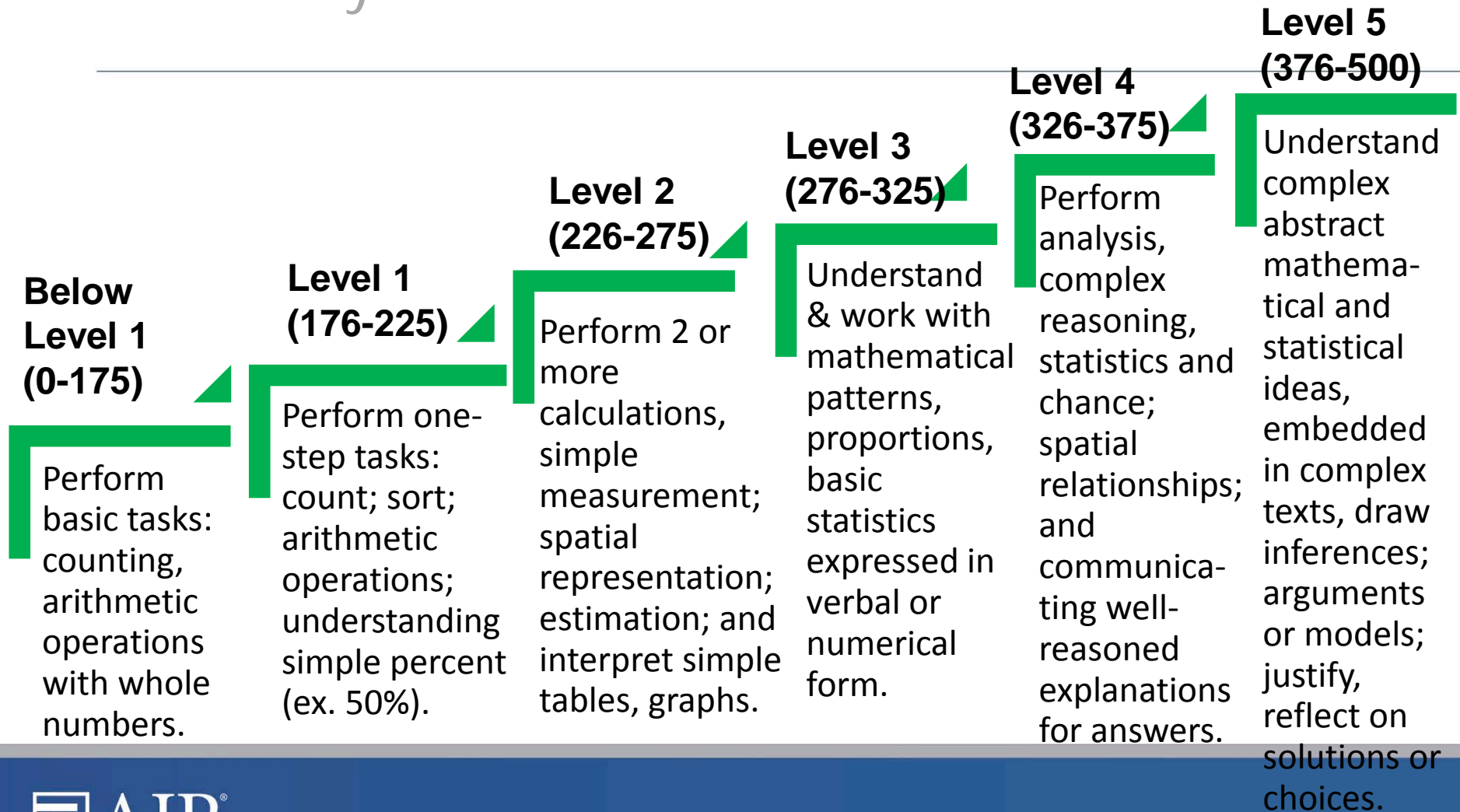
Katie Landeros

Research Associate

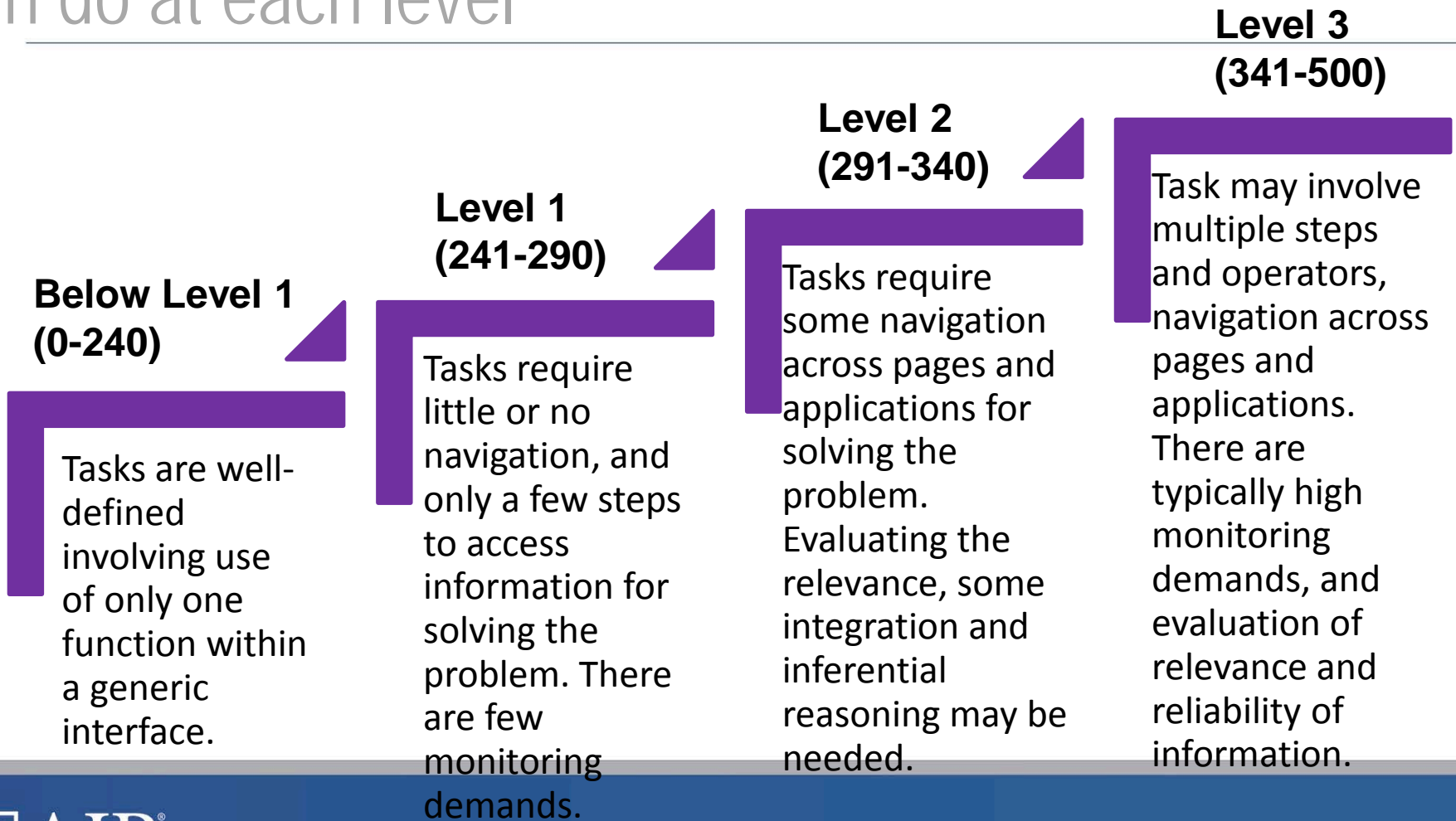
klanderos@air.org

212-419-0432

These descriptions of the PIAAC Proficiency Levels for Numeracy define what adults can do at each level



These descriptions of the PIAAC proficiency levels for digital problem solving define what adults can do at each level



Literacy example item: Below level 1

The test-taker is asked to compare the number of votes.

OECD PIAAC
Unit 1 - Question 1/3

Results of Union Election

Candidate	Votes
Candidate A	4,857
Candidate B	5,423
Candidate C	3,563

So which candidate received the fewest votes?

The test-taker is presented with a report on the results of a union election.

The test-taker needs to identify 3,563 as the lowest number of votes.

90% of U.S. test-takers got this item correct

Note: Not an actual replica of test item

Literacy example item: Level 4

The test-taker is asked to identify a book that meets specific criteria.

Unit 1 - Question 1/3

~~~~~  
~~~~~  
~~~~~  
~~~~~  
~~~~~  
~~~~~  
~~~~~  
~~~~~

Which book suggests that the claims made both for and against genetically modified foods are unreliable?

24% of U.S. test-takers got this item correct

Search Results

Sorted by *Relevance*

Book A *At vero eos et accusamus: et iusto odio dignissimos ducimus qui blanditiis praesentium voluptatum deleniti atque corrupti quos dolores et reprehenderit excepturi sint*

Book B *Nobis est eligendi optate tunc quaerat voluptatem. Ut enim ad minima veniam, quis nostrum molestiae pariatur sequatur? quis autem vero est facere possimus, omnis voluptas assumenda est, omnis molestiae*

Book C *Temporibus autem et perferendis et in voluptate deleniti atque corrupti quos dolores et reprehenderit*

Book D *Hic occaecati cupiditate non provident, similique sunt in culpa, qui officina deserunt expedita distinctio. Nam libero tempore, cum soluta*

Quibusdam et autem ut et voluptates repudiandae sint et molestiae non recusandae. Itaque earum rerum hic tenetur a sapiente

The test-taker is presented with the results of a bibliographic search from a simulated library website.

The answer must be inferred from the search result that says **book D** “describes how both sides in this hotly contested debate have manufactured propaganda...”

Numeracy example item: Level 3

OECD PIAAC

Unit 1 - Question 1/3

~~~~~

~~~~~

~~~~~

~~~~~

How much would you pay if you bought both pairs on sale?

\$ 48.95

The test-taker is presented with information about a shoe sale.

Running Shoes

SALE! Buy one pair – get the second (of equal or lesser value) for half price!



\$29.50



\$34.20

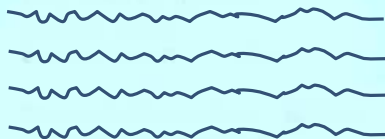
The test-taker is asked to calculate total amount one would need to pay for both shoes during the sale.

The test-taker needs to calculate and enter the correct dollar amount for the two pairs of shoes on sale.

Numeracy example item: Below Level 1



Unit 1 - Question 1/3



Which product was packed first?

The test-taker is asked to determine which grocery item was packed first.

86% of U.S. test-takers got this item correct

The test-taker is presented with four labels from common grocery items.

PEANUT BUTTER
\$3.36
Weight: 28 oz
Packaged on:
3/24/12

ORANGE JUICE
\$2.99
Weight: 64 oz
Packaged on:
11/8/12

TOMATO SOUP
\$1.15
Weight: 3.5 oz
Packaged on:

5/17/12
BEEF JERKY
\$6.29
Weight: 16 oz
Packaged on:
2/14/12

The test-taker needs to compare the date on each label to determine the earliest date.

Note: Not an actual replica of test item

