Program for the International Assessment of Adult Competencies (PIAAC)

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Presentation Outline

1. What is PIAAC?

2. What is new in PIAAC Cycle II?

3. Adult Skills Tool: PIAAC Skills Map
   • Skills Map Demo
   • How can the Skills Map be used to inform your work?
   • Resources

4. Discussion on collaboration
What is PIAAC?
Program for the International Assessment of Adult Competencies

- The Program for the International Assessment of Adult Competencies (PIAAC) is a large-scale assessment that measures the basic cognitive and workplace skills—such as literacy and numeracy—needed for successful participation in an advanced economy.

- Administered in households* to a nationally representative sample of 16- to 65-year-olds*, residing in each country, irrespective of nationality, citizenship, or language status.

- Cycle I administered in 2011-2017 (38 countries or regions, including the U.S.)
  - 66-to-74-year-olds in 2014 and 2017 in U.S. only
  - Prison sample in 2014 in U.S. only
  - 12,000+ U.S. sample across 3 rounds of household data collection

* U.S. also administered the assessment to incarcerated adults in prisons and expanded the sample to 66-74-years-olds.
PIAAC Cycle I Main Components

- Background Questionnaire
- Direct assessment of key information-processing skills

Languages:
- English or Spanish
- English
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.

Digital Problem Solving involves using digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks.
PIAAC Performance Measures

- **Average Scores**: reported on a scale of 0-500 for all domains.
- **Proficiency Levels**: reported as the percentages of adults scoring:
  - at six performance levels (from below level 1 to level 5) in literacy and numeracy
  - at four performance levels in digital problem solving (from below level 1 to level 3)
Proficiency Levels: Literacy

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>Level 1 or below (Below 226 points*)</td>
<td>Adults at this level range from functionally illiterate to those who have difficulty using or comprehending basic written material.</td>
</tr>
<tr>
<td>Level 2 (226–275 points*)</td>
<td>Adults at this level are nearing proficiency but may still struggle to perform tasks using text-based information.</td>
</tr>
<tr>
<td>Level 3 or above (Above 275 points*)</td>
<td>Adults at these levels can work proficiently with information and ideas in texts.</td>
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</tbody>
</table>

*On a 0 to 500-point scale*
## Proficiency Levels: Numeracy

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Level 1 or below**  
(*Below 226 points*) | Adults at this level may range from functionally innumerate to those that have difficulty using and comprehending numeric information. |
| **Level 2**  
(*226–275 points*) | Adults at this level are nearing proficiency but may struggle to work with some numeric information.                                          |
| **Level 3 or above**  
(*Above 275 points*) | Adults at this level can work proficiently with mathematical information and ideas.                                                                |

* On a 0 to 500-point scale
PIAAC Cycle I Results and Products
Compared to 2012/14, **literacy** and **numeracy** scores for U.S. adults ages 16–65 in 2017:

**Increased for:**
- unemployed adults (literacy and numeracy)
- adults with fair or poor health (literacy and numeracy)
- non-native born adults (literacy)
- Hispanic adults (literacy)
- adults with less than a high school diploma (literacy)

**Decreased for:**
- adults with a high school diploma (literacy and numeracy)
- males (numeracy)

**No measurable difference for:**
- Adults overall (literacy and numeracy)
- Age (literacy and numeracy)
- sex (literacy)
- race/ethnicity (numeracy)
- nativity (numeracy)
Compared to 2012/14, **digital problem solving** scores for U.S. adults ages 16–65 in 2017:

**Increased for:**
- Adults ages 35-44, Hispanic adults, non-native born adults

**Decreased for:**
- Adults who are out of the labor force

**No measurable difference for:**
- Adults overall, and by sex, education, and health
U.S. adults scored higher in literacy than the PIAAC international average; however, they scored lower in both numeracy and digital problem solving.
What else did we learn about U.S. adults?

1. Literacy skills of U.S. adults
2. Numeracy skills of U.S. adults
3. State of skills of young adults in the U.S.
4. Significance of skills over education
5. Importance of numeracy
   • high correlations between numeracy and economic and social outcomes as well as furthering education
6. Skills of parents impact their children throughout of their children’s lives
7. Skill gap between young and old in the US
Number of adults with low skills in U.S.

**Literacy**
- **52 million** or when looking at ages 16-74, including literacy-related nonrespondents

**Numeracy**
- **74 million** when looking at ages 16-74, including literacy-related nonrespondents
In both literacy and numeracy, US adults with less than high school education performed lower than other countries.
Older adults (55-74) with parents that attained higher levels of education had higher levels of education had higher scores on all PIAAC scales

*Significantly different (p<.05) from the comparison category, College or Graduate Degree

<table>
<thead>
<tr>
<th>Highest level of education attained by a parent or guardian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>------------------</td>
</tr>
<tr>
<td>Incomplete High School (33%)</td>
</tr>
<tr>
<td>High School Degree (45%)</td>
</tr>
<tr>
<td>College or Graduate Degree (22%)</td>
</tr>
<tr>
<td>Incomplete High School (33%)</td>
</tr>
<tr>
<td>High School Degree (45%)</td>
</tr>
<tr>
<td>College or Graduate Degree (22%)</td>
</tr>
</tbody>
</table>

*Significantly different (p<.05) from the comparison category, College or Graduate Degree
The employed had higher numeracy scores than the unemployed, but there were no score differences between employed and unemployed older adults (55-74) in literacy or problem solving.

*Significantly different (p<.05) from the comparison category, employed.*
Skills gap in U.S. between young adults and older adults is one of the smallest among participating countries.
PIAAC Cycle I Results and Products

Products

1. US produced large numbers of research papers
2. Webinars and presentations
3. Publications
4. Training and tutorials
5. Research conferences/papers
6. Gateway resources, including
   a) tool kits
   b) Infographics
   a) Database of research papers and access to many full papers
Education and Skills Online (ESO)

- An assessment tool designed to provide individual level results linked to PIAAC
  - Shorter version of background questionnaire
  - Additional Career Interest and Intentionality module that uses the O*NET
  - Full assessment of literacy, numeracy, digital problem solving

- Test codes are purchased by administering organization and provided to test-takers

- Used in the U.S. by 13 research and post-secondary institutions. Projects include:
  - Digital literacy and readiness study on a state level (Hawaii),
  - Workforce research,
  - Accreditation reporting,
  - Literacy interventions.
What is new in PIAAC Cycle II?
PIAAC Data Collections

ROUND 1
- 2011–2012 Household

ROUND 2
- 2014 Household Supplement
- 2017 Household

ROUND 3
- 2017 Prison

ROUND 1
- 2022–2023 Household
Cycle II PIAAC Data Collection Plans and Results

- PIAAC Cycle II will be conducted in 31 countries
- Data collection in the U.S. is being conducted between September 2022 – April 2023
- Cycle II PIAAC data and reports to be released in December 2024
PIAAC Cycle II Main Components

English or Spanish

Background Questionnaire

Direct assessment of key information-processing skills

English

Literacy

Numeracy

Adaptive Problem Solving
PIAAC Cycle II Background Questionnaire

**NEW ITEMS FOR CYCLE II**

**WORK**
Changes in role with current employer, reasons for leaving job

**SKILL USE**
Type of digital devices outside work

**EDUCATION AND TRAINING**
Education pathways, training activities

**INTERACTION AND SOCIAL SKILLS**
Organization type, teamwork, social support and knowledge sharing, participation

**U.S. ADDITIONS**
Financial literacy, health maintenance, race, language, household income
Literacy is accessing, understanding, evaluating and reflecting on written texts in order to achieve one’s goals, to develop one’s knowledge and potential and to participate in society.

Numeracy is accessing, using, and reasoning critically with mathematical content, information and ideas represented in multiple ways in order to engage in and manage the mathematical demands of a range of situations in adult life.

- **Numeracy Components**

  Adaptive Problem Solving involves the capacity to achieve one’s goals in a dynamic situation, in which a method for solution is not immediately available. It requires engaging in cognitive and metacognitive processes to define the problem, search for information, and apply a solution in a variety of information environments and contexts.
Adult Skills Tool: PIAAC Skills Map
State and County Indicators of Adult Literacy and Numeracy
State and County Workforce Skill Data

- PIAAC **Skills Map** provides
  - the most comprehensive picture on the literacy and numeracy skills of adults ages 16–74 in all 50 states, the District of Columbia, and for all 3,141 counties * for
    - overall population,
    - six age groups (16–24, 25–34, 35–44, 45–54, 55–64, and 65–74), and
    - four education groups (less than high school, high school diploma or GED, some college (no degree or attained associate’s degree), and bachelor’s degree or higher).

- The literacy and numeracy proficiency are reported as the percentage of adults with low, medium and high levels of proficiency and average score.

* Using the U.S. Census Bureau’s definition of “county” for statistical purposes.
Where Do the Data in the Skills Map Come From?
Small Area Estimates

- The data in the tool were developed using a statistical technique called small area estimation.

- To produce reliable estimates of adult literacy and numeracy skills in each state and county, NCES developed a statistical model relying on data from:
  - The PIAAC combined data from 2012, 2014, and 2017 data collections
  - The American Community Survey 5-year data (ACS 2013–17)
Highest- and Lowest-Performing States

Top 25%
(by average score for literacy and numeracy, combined)
- Alaska
- DC
- Iowa
- Maine
- Massachusetts
- Minnesota
- Montana

Bottom 25%
(by average score for literacy and numeracy, combined)
- Alabama
- Arkansas
- California
- Florida
- Georgia
- Louisiana
- Mississippi

Note: States are listed in alphabetical order
1 Literacy only
2 Numeracy only
U.S. PIAAC Skills Map
Live Demo
How Can the Skills Map Be Used to Inform Your Work?
Supports for parents with low skills:

Which counties in Texas are likely to have more parents with low literacy skills who may struggle to support their children’s remote learning?
Starr County, TX

Starr County, TX has a population (ages 16-74) of 41,690 according to the American Community Survey 2013-2017 five-year estimate. When compared to the state of Texas:

**Literacy:**
- Average scale score estimate is statistically lower
- Percentage at or below Level 1 is statistically higher
- Percentage at Level 2 has no notable difference
- Percentage at or above Level 3 is statistically lower

**Numeracy:**
- Average scale score estimate is statistically lower
- Percentage at or below Level 1 is statistically higher
- Percentage at Level 2 is statistically lower
- Percentage at or above Level 3 is statistically lower
Needs assessment for Adults Ages 45-54:

What is the need for basic adult education for adults ages 45-54 in South Dakota?
South Dakota (SD) has a population (ages 45-54) of 106,338 (17% of 16-74 population) according to the American Community Survey 2013-2017 five-year estimate. When compared to the nation:

**Literacy:**
- Average scale score estimate has no notable difference
- Percentage at or below Level 1 has no notable difference
- Percentage at Level 2 has no notable difference
- Percentage at or above Level 3 has no notable difference

**Numeracy:**
- Average scale score estimate has no notable difference
- Percentage at or below Level 1 has no notable difference
- Percentage at Level 2 has no notable difference
- Percentage at or above Level 3 has no notable difference
South Dakota (SD) has a population (ages 45-54) of 104,535, 17% of which is 16-74 years old. According to the American Community Survey 2013-2017 five-year estimate, when compared to the nation:

**Literacy:**
- Average scale score estimate has no notable difference
- Percentage at or below Level 1 has no notable difference
- Percentage at Level 2 has no notable difference
- Percentage at or above Level 3 has no notable difference

**Numeracy:**
- Average scale score estimate has no notable difference
- Percentage at or below Level 1 has no notable difference
- Percentage at Level 2 has no notable difference
- Percentage at or above Level 3 has no notable difference
Other Examples of Potential Use of PIAAC Skills Map

- **Research**
  - The PIAAC Skills Map data, downloadable through the online tool, allows analyses that combine the model-based skills estimates with data from other sources. This can be done by linking the PIAAC Skills Map data with external data using county or state Federal Information Processing Standards (FIPS) codes.

- **Education and Training Planning**
  - Community-based workforce development and job centers in-charge of recruiting; screening and preparing individuals for the world of work can use PIAAC Skills Map to assess scope of local needs and use tools such as Education and Skills Online (ESO) for measuring individual’s skills levels in order to provide recommendations for educational/vocational skills training.
How Skills Map Is Used – Shared Experiences
Using Skills Map

▪ Identifying regional need and planning
  • Used to support the required annual planning for California’s system of adult education 72 regional consortia
  • Used county-level PIAAC analysis in the workforce pipeline planning application. (Ex. Kentucky Career and Technical College System)

▪ Grant writing and resource development
  • Used as an accurate, current, comparable research to refer program administrators when they are applying for grants and reporting to local officials and partners on the need for their programs.

▪ Investment Purposes
  • Communicate about the skills data and investment needs among stakeholders of their programs (Ex. Literacy Coalition of the Permian Basin 2022 needs assessment in 22 counties in Texas and New Mexico)
PIAAC Resources
Skills Map and Other PIAAC resources

- International — [OECD Website](https://www.oecd.org)
- National — [NCES Website](https://nces.ed.gov)
  - PIAAC Skills Map
  - International Data Explorer
- National and International — [PIAAC Gateway](https://piiac.org)
Webinar on PIAAC Skills Map

Improving the Utility of PIAAC Data through Development of a Skills Map and Policy Reports

October 19, 2022 (Wednesday)
11:00 A.M. - 12:00 P.M. ET

Recording available soon
Questions and Answers
Discussion On Collaboration
Discussion On Collaboration

- How can PIAAC data be made more applicable for your work?
- How can PIAAC data be used by local programs and/or state agencies to support program improvement?
- How can PIAAC data be used to develop a strategic plan to guide and focus the work of the state office work and partnerships?
- How can PIAAC data be used to awareness about the low-literacy and numeracy of the population in my area
- What are points of collaboration in research or policy related to PIAAC?
Thank you!

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