Overview of NCES and U.S. Role in International Assessments

*Presentation for “Thinking Beyond Borders: The Future of Student Assessment”*

Peggy G. Carr, Ph.D., Acting Commissioner, National Center for Education Statistics (NCES)
November 17, 2017
In the news: U.S. Headlines

The New York Times
What America Can Learn From Smart Schools in Other Countries

The Atlantic
American Schools vs. the World: Expensive, Unequal, Bad at Math

npr
America’s High School Graduates Look Like Other Countries’ High School Dropouts

The Wall Street Journal
U.S. Teenagers Lose Ground in International Math Exam, Raising Competitiveness Concerns

AP
Math a concern for US teens; science, reading flat on test

Forbes
When It Comes To Tech Skills, We're Not As Good As We Think

NCES.ED.GOV
International Tests Show Rising, But Mixed, Math and Science Performance

QUARTZ
Americans are spectacularly bad at answering even the most basic math questions
In the news: International Headlines

EL@MUNDO
España es el tercer país de la OCDE con más diferencia de rendimiento en Matemáticas entre chicos y chicas

Daily Mail
'Everything is just going down': US students are getting WORSE at math as science and reading skills stagnate

Le Monde
Enquête PISA : les élèves français dans la moyenne

BBC
How Canada became an education superpower

Žurnál Pravda
Slováci sú národom knižníc. Lenže akí sú čitatelia?

GLOBAL SCHOOL TABLES
BBC puts colleagues through PISA test

The Telegraph
In this post-truth world, PISA scores matter more than ever

NCES.ED.GOV
Australian schools continue to fall behind in maths and science
Five things we’ve learned
1. American students tend to struggle more in mathematics than in reading or science.
U.S. rankings less favorable in mathematics than other subjects

<table>
<thead>
<tr>
<th></th>
<th>Grade  (54)</th>
<th>Grade  (43)</th>
<th>Age 15  (73)</th>
<th>Adults (22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>6</td>
<td>—</td>
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<td>8</td>
</tr>
<tr>
<td>Science</td>
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* Rank is the number of education systems with significantly higher average scores than the United States +1. U.S. also performed not measurably different from countries (ranging from 1 to 14). Rankings based on most recent data from PIRLS (grade 4 reading), TIMSS (grades 4 & 8 math and science), PISA (age 15 reading, math, and science), and PIAAC (adults).
2. We see stronger performance from our youngest students.
U.S. rankings more favorable for younger students

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3. While other countries improve, the U.S. is losing ground.
U.S. 4th grade TIMSS mathematics scores have increased, but not to the same extent as some of our competitors.

**Average Score**

- **Singapore**: +58
- **Hong Kong-CHN**: +99
- **Korea, Republic of**: +21
- **Japan**:
- **Ireland**:
- **England-GBR**:
- **Portugal**:
- **UNITED STATES**:
- **Cyprus**:
- **Slovenia**:
- **Australia**:
- **Ontario-CAN**:
- **Norway (4)**:
- **New Zealand**:
- **Iran, Islamic Republic of**:

**NOTE**: Countries participating in TIMSS in 1995 and 2015 and with significant increase in average score shown.
U.S. 15-year-olds’ performance in mathematics declining over time

PISA 2015 Mathematics Results

U.S. Ranking

28 35
2012 2015

Average score lower than in 2012

7 that were now↑
2 that were now↓

*Rankings are based on the 60 education systems that participated in both PISA 2012 and PISA 2015 and are determined by calculating the highest possible rank (number of education systems performing higher plus one).
4. Our top performing states are among the best education systems in the world, but our lowest performing states struggle to be competitive globally.
Massachusetts among the top education systems in the world

In 2011, scores on grade 8 TIMSS ranged from 466 in Alabama to 561 in Massachusetts.

Alabama’s peers:
- Ukraine
- Dubai and the United Arab Emirates
- Norway
- Armenia
- Romania
- Turkey

Massachusetts’s peer:
- Japan

(MA only scored lower than Republic of Korea, Singapore, Chinese Taipei, and Hong Kong)
5. Millennials, the most highly educated generation in U.S. history, have generally low skills compared with international peers.
U.S. adults ages 16-65 average score on PIAAC 2012 Literacy not different from OECD
U.S. Millennials lower than international average in Literacy
U.S. adults ages 16-65 average score on PIAAC 2012 Problem Solving lower than international average

Adults’ (16-65) average score

OECD

283

277

Average Score

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U.S. Millennials rank near bottom on PIAAC 2012 Problem Solving
U.S. adults ages 16-65 average score lower than international average on PIAAC 2012 Numeracy

Adults’ (16-65) average score

NCES.ED.GOV
U.S. Millennials tied for the lowest average score on PIAAC Numeracy 2012

Average Score

Education System

- Finland
- Japan
- Flanders (Belgium)
- Netherlands
- Czech Republic
- Sweden
- Austria
- Estonia
- Republic of Korea
- Denmark
- Germany
- Norway
- Slovak Republic
- PIAAC International Average
- Australia
- Canada
- Poland
- France
- England & N Ireland (UK)
- Ireland
- Italy
- Spain
- United States

NCES.ED.GOV
NCES’s role in international assessments
International Assessments Process

1. Design
2. Assessments Administered
3. Data Analyzed and Validated
4. Data Reported
5. International Organizer (IEA/OECD)
6. Reps from participating countries (NCES)
7. Countries’ Statistical Agencies (NCES)
8. International Organizer (IEA/OECD)
NCES administered assessments

International Assessments

State Assessments

NCES.ED.GOV
The U.S. system of assessments
NAEP DNA in international assessments

• PISA, TIMSS, etc. based on “long test, short booklet” pioneered by NAEP in early 80s
  – Group, not individual, scores
  – NAEP was first large-scale application of IRT—now used in most large-scale assessments

• NAEP and international assessments share experts, best practices
Upcoming international assessment results
Upcoming international assessment results

- December 5, 2017
- 4th-grade reading assessment
- First ePIRLS administration
  - Online informational reading
  - Computer-based extension of PIRLS
Upcoming international assessment results
INSTITUTE OF EDUCATION SCIENCES
NATIONAL CENTER FOR EDUCATION STATISTICS
NCES Conducted Assessments Across the Lifespan

- **Early Childhood**
  - Literacy
  - Numeracy
  - Social Skills
  - Executive Function

- **Elementary**
  - Literacy
  - Mathematics
  - Science
  - Online Reading

- **Middle School**
  - Mathematics
  - Science
  - Teachers and teaching
  - Computer and information literacy

- **High School**
  - Reading
  - Mathematics
  - Science
  - Financial literacy
  - Collaborative problem solving
  - Advanced mathematics and physics

- **Adults**
  - Literacy
  - Numeracy
  - Problem Solving
  - Outcomes in employment, income, education, health

Assessments:
- IELS
- PIRLS, TIMSS, NAEP
- TIMSS, ICILS, NAEP
- PISA, TIMSS, NAEP
- PIAAC
International Assessments Process

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4. Data Reported

Reps from participating countries

NATIONAL CENTER FOR EDUCATION STATISTICS

NCES.ED.GOV
Five things we’ve learned
NCES’s role in international assessments
Upcoming international assessment results
NCES BACKGROUND

• Origins: 1867 and establishment of the first federal office of education
• NCES reports on the condition and progress of education in the United States
• International assessments are conducted in U.S. by NCES
NCES International Studies Across the Lifespan
## NCES International Studies Across the Lifespan

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- Outcomes in employment, income, education, health

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**IELS**  |  **PIRLS, TIMSS**  |  **TIMSS, ICILS**  |  **PISA, TIMSS**  |  **PIAAC**
---|---|---|---|---
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U.S. gaps by parental education, reported income, health, PIAAC
International partners

International Association for the Evaluation of Educational Achievement (IEA)
• Trends in International Mathematics and Science Study (TIMSS)
• Progress in International Reading Literacy Study (PIRLS)
• International Computer and Information Literacy Study (ICILS)

Organization for Economic Cooperation and Development (OECD)
• Program for International Student Assessment (PISA)
• Program for the International Assessment of Adult Competencies (PIAAC)
• Teacher and Learning International Study (TALIS)
• International Early Learning and Child Wellbeing Study (IELS)