The critical policy focus on learning

Seeing school systems through the prism of international comparisons

40th anniversary of CERI, 15 May 2008

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The critical focus on learning

1. From humble beginnings in INES...
   - Approximating learning as the output of schooling

2. ... through measuring learning outcomes in PISA...
   - Where countries stand in terms of quality and equity of literacy outcomes
   - What the best performing countries show can be achieved

3. ... towards understanding the policy levers that drive learning outcomes
   - (the next 40 years of CERI)
There is nowhere to hide
INES has shown relentless growth in the supply of qualifications
A world of change in baseline qualifications

Approximated by percentage of persons with high school or equivalent qualifications in the age groups 55-64, 45-55, 45-44 und 25-34 years

1. Excluding ISCED 3C short programmes
2. Year of reference 2004
3. Including some ISCED 3C short programmes
Moving targets
Future supply of high school graduates

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>12,000,000</td>
<td>14,000,000</td>
<td>16,000,000</td>
</tr>
<tr>
<td>EU</td>
<td>4,000,000</td>
<td>6,000,000</td>
<td>8,000,000</td>
</tr>
<tr>
<td>India</td>
<td>6,000,000</td>
<td>8,000,000</td>
<td>10,000,000</td>
</tr>
<tr>
<td>US</td>
<td>2,000,000</td>
<td>4,000,000</td>
<td>6,000,000</td>
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</tbody>
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PISA: from counting graduates to measuring quality
Where we are - and where we can be
How the demand for skills has changed
Economy-wide measures of routine and non-routine task input (US)

Mean task input as percentiles of the 1960 task distribution

(Levy and Murnane)
How the demand for skills has changed
Economy-wide measures of routine and non-routine task input (US)

To analyse, compare, contrast, and evaluate

**OECD concept of literacy**
Accessing, managing, integrating and evaluating written information in order to develop one's knowledge and potential, and to participate in, and contribute to, society

To apply knowledge in real-life situations

To think imaginatively

To communicate thoughts and ideas effectively
How the demand for skills has changed

To analyse, compare, contrast, and evaluate

To think imaginatively

Reading literacy

Using, interpreting and reflecting on written material

To apply knowledge in real-life situations

To communicate thoughts and ideas effectively
How the demand for skills has changed

To analyse, compare, contrast, and evaluate

To think imaginatively

 Mathematical literacy

Emphasis is on mathematical knowledge put into functional use in a multitude of different situations in varied, reflective and insight-based ways

To apply knowledge in real-life situations

To communicate thoughts and ideas effectively
How the demand for skills has changed

To analyse, compare, contrast, and evaluate

To think imaginatively

Scientific literacy

Using scientific knowledge, identifying scientific questions, and drawing evidence-based conclusions to understand and make decisions about the natural world

To apply knowledge in real-life situations

To communicate thoughts and ideas effectively
Deciding what to assess...

looking back at what students were expected to have learned

...or...

looking ahead to how well they can extrapolate from what they have learned and apply their knowledge and skills in novel settings.

For PISA, the OECD countries chose the latter.
PISA countries in 2009

Coverage of world economy 87%
Average performance of 15-year-olds in scientific literacy—extrapolate and apply (2006)

18 countries perform below this line
High average performance

Large socio-economic disparities

Strong socio-economic impact on student performance

Socially equitable distribution of learning opportunities

Low average performance

Large socio-economic disparities

Low science performance

High social equity
High average performance
Large socio-economic disparities

Low average performance
Large socio-economic disparities

High science performance
High social equity

Low science performance
School performance and socio-economic background

Germany

- Student performance and students' socio-economic background within schools
- School performance and schools' socio-economic background

Disadvantage  PISA Index of socio-economic background  Advantage

Student performance

Schools proportional to size
School performance and socio-economic background

United States

- Student performance and students’ socio-economic background within schools
- School performance and schools’ socio-economic background

PISA Index of socio-economic background

Disadvantage

 Advantage
School performance and socio-economic background

Finland

- Student performance and students' socio-economic background within schools
- School performance and schools' socio-economic background

![Graph showing student performance and socio-economic background in Finland](image-url)
Public and private schools

- Government schools
- Government dependent private
- Government independent private
- Observed performance difference
- Difference after accounting for socio-economic background of students and schools

% 0 20 40 60 80 -100 -100 -50 0 50 100
Luxembourg
Japan
Italy
Switzerland
Finland
Denmark
Czech Republic
Sweden
Hungary
Austria
Portugal
United States
Netherlands
Slovak Republic
Korea
Ireland
Spain
Canada
Mexico
New Zealand
Germany
OECD
United Kingdom

Private schools perform better
Public schools perform better

Score point difference

Observed performance difference

Difference after accounting for socio-economic background of students and schools

% Score point difference

-150 -100 -50 0 50 100
Variation in student performance

OECD (2007), *Learning for tomorrow’s world: First results from PISA 2006*, Table 4.1a
Variation in student performance

Variation of performance within schools

Variation of performance between schools

OECD (2004), Learning for tomorrow's world: First results from PISA 2003, Table 4.1a
Strengths and weaknesses of countries in science relative to their overall performance

France

Science competencies

- Identifying scientific issues
- Explaining phenomena scientifically
- Using scientific evidence
- Knowledge about science
  - Earth and space
  - Living systems
  - Physical systems

Science knowledge

OECD (2007), *PISA 2006 - Science Competencies for Tomorrow’s World*, Figure 2.13
Strengths and weaknesses of countries in science relative to their overall performance

Czech Republic

Scientific competencies

- Identifying scientific issues
- Explaining phenomena scientifically
- Using scientific evidence
- Knowledge about science

Scientific knowledge

- Earth and space
- Living systems
- Physical systems
Increased likelihood of postsec. particip. at age 19 associated with reading proficiency at age 15 (Canada) after accounting for school engagement, gender, mother tongue, place of residence, parental, education and family income (reference group Level 1)
Understanding the policy levers that drive learning outcomes

The next 40 years of CERI
Some myths

- No relationship between size of countries and average performance
- No relationship between proportion of immigrants and average performance
- Few difference in students’ reported test motivation
- Limited impact of national item preferences
 Providing insights for teachers and policy makers on how to improve quality, equity and efficiency

Extending the range of competencies through which quality is assessed

Distribution of core learning outcomes within and across countries and individual, institutional and systemic factors associated with these

Money pits

Low potential impact

High potential impact for teaching and policy

2015

2012


Low feasibility

High feasibility

Relative standing of schools and countries

Low-hanging fruits


2012

2015

PISA
OECD Programme for International Student Assessment

40th anniversary of CERI

Low potential impact

High potential impact

Distribution of core learning outcomes within and across countries and individual, institutional and systemic factors associated with these.
The 2009 PISA assessment will provide a first full trend analysis.

The 9 year period may also allow to examine the impact of policy changes (INES)
- Provisions for relating system-level information on policy changes with
  - data on the perception of their implementation at school levels, and
  - the results achieved.

Quality:
- Distribution of core learning outcomes within and across countries and individual, institutional and systemic factors associated with these.
- Extending the range of competencies through which quality is assessed.
- Providing insights for teachers and policy makers on how to improve quality, equity and efficiency.

Money pits:
- Low potential impact for teaching and policy
- Low feasibility

Low-hanging fruits:
- High potential impact for teaching and policy
- High feasibility

Relative standing of schools and countries:
- 2015
- 2012

Quality:
- Low potential impact
- Low feasibility

Low potential impact:
- High feasibility
Equity
A link between 15-year-olds and 9-year-olds could allow to assess to what extent socio-economic inequalities grow or are moderated.
A nine-year gap would allow for an analysis to what extent the distribution in learning outcomes and the impact of socio-economic background have changed.

Distribution of core learning outcomes within and across countries and individual institutional and systemic factors associated with these outcomes.

High potential impact for teaching and policy
Money pits
Low potential impact
High feasibility
Low feasibility
2015
2012
Low-hanging fruits
High potential impact for teaching and policy
A strategy

PISA Measuring student learning outcomes
- Are students well prepared for life?
- What can policy and practice do to improve quality, equity and efficiency in education systems?
- 15-year-olds
- 9/12-year-olds (discussed)
- Longitudinal follow-up

Surveyed: students, school principals, parents

TALIS Surveying teachers, teaching and learning
- What student learning conditions and teacher working conditions are conducive to high quality outcomes?
- Professional development
- Teacher feedback and appraisal
- Teaching practices, beliefs and attitudes

Surveyed: teachers and school principals

PIAAC Measuring adult competencies and their impact on social outcomes
- How is the demand of key competencies evolving?
- How effectively are societies generating and utilising key competencies?
- 15-64-year-old adult population

Surveyed: individuals

INES Institutional and systemic factors
- How do institutions and systems differ in structures, resources and policies?

Surveyed: systems and subsystems
- www.oecd.org; www.pisa.oecd.org
  - All national and international publications
  - The complete micro-level database

- email: pisa@oecd.org

- Andreas.Schleicher@OECD.org

... and remember:

Without data, you are just another person with an opinion

Thank you!
Backup slides
Effort expended by students in PISA 2003

(Butler and Adams, 2007)
Effort expended by students in PISA 2003, relative to an important school test

(Butler and Adams, 2007)
Ranks comparisons: Overall vs favourites

- Rank on favourites higher than overall rank
- Rank on favourites lower than overall rank

For all other countries, the ranks were not significantly different.