What works?
How to improve educational outcomes based on the evidence from OECD studies such as PISA

The yardstick for success is no longer improvement by national standards alone but the best performing education systems

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PISA 2009 in brief

- Over half a million students...
  - representing 28 million 15-year-olds in 74* countries/economies
- took an internationally agreed 2-hour test...
  - Goes beyond testing whether students can reproduce what they were taught...
  - to assess students’ capacity to extrapolate from what they know and creatively apply their knowledge in novel situations
- and responded to questions on...
  - their personal background, their schools and their engagement with learning and school
- Parents, principals and system leaders provided data on...
  - school policies, practices, resources and institutional factors that help explain performance differences.

* Data for Costa Rica, Georgia, India, Malaysia, Malta, Mauritius, Venezuela and Vietnam will be published in December 2011
What works? A PISA perspective

High reading performance

- Shanghai-China
- Korea
- Finland
- Hong Kong-China
- Singapore
- New Zealand
- Japan
- Australia
- Belgium
- Poland, Switzerland
- United States
- Germany, Sweden
- France, Ireland
- Hungary, United Kingdom
- Macao-China
- Slovenia
- Slovak Republic, Czech Republic
- Luxembourg, Israel
- Austria
- Dubai (UAE)
- Russian Federation
- Chile

Average performance of 15-year-olds in reading - extrapolate and apply

Low reading performance

- Serbia
- China
countries perform below this line

Low reading performance

- Dubai (UAE)
- Russian Federation
- Chile
What works? A PISA perspective

Average performance of 15-year-olds in science – extrapolate and apply

Low average performance

Large socio-economic disparities

High average performance

Large socio-economic disparities

Strong socio-economic impact on student performance

Socially equitable distribution of learning opportunities

High reading performance

Low reading performance

High social equity

Low social equity
The diagram illustrates the performance of students in different countries in the 2000 PISA (Programme for International Student Assessment) study. The performance is categorized into high, low, and average, with some countries showing high social equity and others having large socio-economic disparities. The distribution of learning opportunities is also shown, with socially equitable distributions in some countries.
What works? A PISA perspective

Low average performance
Large socio-economic disparities
High average performance
Large socio-economic disparities

Low average performance
High social equity
High average performance
High social equity

Strong socio-economic impact on student performance
Socially equitable distribution of learning opportunities

Other rapid improvers in reading:
Peru, Indonesia, Latvia, Israel and Brazil

Rapid improvers in mathematics:
Mexico, Brazil, Turkey, Greece, Portugal, Italy and Germany
PISA OECD Programme for International Student Assessment

What works? A PISA perspective

Performance declined
Variation decreased

Performance improved
Variation increased

Change in variation and score point change in reading

Difference in PISA reading score, by score points, between 2000 and 2009

-5000 -4000 -3000 -2000 -1000 0 1000 2000 3000 4000
-40 -30 -20 -10 0 10 20 30 40 50

-4000 -3000 -2000 -1000 0 1000 2000 3000 4000

Change in variation in student performance between 2000 and 2009

Czech Republic

Sweden

Korea

Brazil

Latvia

Germany

Liechtenstein

Portugal

Poland

Chile

Indonesia

Hungary

Performance declined
Variation decreased

Performance improved
Variation increased
Trends in reading performance

Score

Poland

Profiency levels

Level 5 and above

Level 4

Level 3

Level 2

Level 1a

2000

2003

2006

2009

Level

Poland

Score

Proficiency levels
What does it all mean?
A commitment to education and the belief that competencies can be learned and therefore all children can achieve

- Universal educational standards and personalisation as the approach to heterogeneity in the student body...

... as opposed to a belief that students have different destinations to be met with different expectations, and selection/stratification as the approach to heterogeneity

- Clear articulation who is responsible for ensuring student success and to whom
What works? A PISA perspective

Low average performance
- Large socio-economic disparities
- High social equity
- Low reading performance
- High degree of stratification
- Early selection and institutional differentiation

High average performance
- Large socio-economic disparities
- High social equity
- High reading performance
- Low degree of stratification
- Strong socio-economic impact on student performance

Durchschnittliche Schülerleistungen im Bereich Mathematik
- Low average performance
- High social equity
- High reading performance

2009
- Shanghai-China
- Korea
- Finland
- Hong Kong-China
- Canada
- Netherlands
- Norway
- Estonia
- Liechtenstein
- Iceland
- Chinese Taipei
- Denmark
- Portugal
- Italy
- Latvia
- Greece
- Spain
- Croatia
- Lithuania
- Turkey
- Russian Federation
- Chile
- Serbia
Clear ambitious goals that are shared across the system and aligned with high stakes gateways and instructional systems

- Well established delivery chain through which curricular goals translate into instructional systems, instructional practices and student learning (intended, implemented and achieved)
- High level of metacognitive content of instruction
Capacity at the point of delivery

- Attracting, developing and retaining high quality teachers and school leaders and a work organisation in which they can use their potential
- Instructional leadership and human resource management in schools
- Keeping teaching an attractive profession
- System-wide career development
Incentives, accountability, knowledge management

- Aligned incentive structures

  For students
  - How gateways affect the strength, direction, clarity and nature of the incentives operating on students at each stage of their education
  - Degree to which students have incentives to take tough courses and study hard
  - Opportunity costs for staying in school and performing well

  For teachers
  - Make innovations in pedagogy and/or organisation
  - Improve their own performance and the performance of their colleagues
  - Pursue professional development opportunities that lead to stronger pedagogical practices

- A balance between vertical and lateral accountability

- Effective instruments to manage and share knowledge and spread innovation - communication within the system and with stakeholders around it

- A capable centre with authority and legitimacy to act
What works? A PISA perspective

Government schools
Government dependent private
Government independent private

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

Observed performance difference

Private schools perform better
Public schools perform better

Score point difference

Australia
Austria
Canada
Chile
Czech Republic
Denmark
Estonia
Finland
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Japan
Korea
Luxembourg
Mexico
Netherlands
New Zealand
Norway
Poland
Portugal
Slovak Republic
Slovenia
Spain
Sweden
Switzerland
Turkey
United Kingdom
United States
Argentina
Brazil
Hong Kong-China
Indonesia
Jordan
Russian Federation
Shanghai-China
Singapore
Variability in student performance between and within schools

Performance differences between schools
Performance variation of students within schools
Investing resources where they can make most of a difference

- Alignment of resources with key challenges (e.g. attracting the most talented teachers to the most challenging classrooms)
- Effective spending choices that prioritise high quality teachers over smaller classes
A learning system

- An outward orientation of the system to keep the system learning, international benchmarks as the 'eyes' and 'ears' of the system
- Recognising challenges and potential future threats to current success, learning from them, designing responses and implementing these
Coherence of policies and practices

- Alignment of policies across all aspects of the system
- Coherence of policies over sustained periods of time
- Consistency of implementation
- Fidelity of implementation (without excessive control)
School performance and socio-economic background
United Kingdom

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

- Private school
- Public school in rural area
- Public school in urban area

Student performance

School performance and students’ socio-economic background within schools

PISA Index of socio-economic background

Disadvantage

Advantage

Score

United Kingdom

Private school
Public school in rural area
Public school in urban area

700
School performance and socio-economic background

United Kingdom

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

Score

700

493

200

Student performance

Disadvantage

PISA Index of socio-economic background

Advantage

Private school
Public school in rural area
Public school in urban area
ICT and factors that make a difference
Gender Gap in Reading (PISA 2009, girls - boys)

Girls perform better
Differences between boys and girls compared with print reading

Girls have a larger advantage in print reading

Girls have a larger advantage in digital reading

Gender difference in print reading performance (girls - boys)

Gender difference in digital reading performance (girls - boys)
The role of digital resources

- Digital reading can be a lever to reduce the gender gap
  - The gender gap in digital reading is much smaller than in print reading, and relates to differences in navigation skills between boys and girls
  - Reading more and reading with enjoyment promotes better reading, and better reading fosters stronger engagement.
Digital Reading Performance and computer use at home

- Difference in digital reading scores (use - no use)
- Difference in digital reading scores, after accounting for socio-economic background of students (use - no use)
Digital Reading Performance and computer use at school

Difference in digital reading scores (use - no use)

Difference in digital reading scores, after accounting for socio-economic background of students and schools (use - no use)

Score points

Australia, Norway, Iceland, Sweden, Spain, Japan, New Zealand, Belgium, OECD average - 15, Austria, Macao-China, Denmark, Chile, Korea, Hong Kong-China, Poland, Ireland, Hungary
Computer use at home for leisure and digital reading performance - Japan

What works? A PISA perspective

Computer use at home for leisure and digital reading performance

Index of computer use at home for leisure

Students with disadvantaged socio-economic background

Students with advantaged socio-economic background
Computer use at home for leisure and digital reading performance - Chile

What works? A PISA perspective

Digital reading performance

Students with disadvantaged socio-economic background

Students with advantaged socio-economic background

Index of computer use at home for leisure
ICT use at school and digital reading performance

What works? A PISA perspective

ICT use at school and digital reading performance

- Chat on line
- Use e-mail
- Browse the Internet for schoolwork
- Download, upload or browse material from the school’s website
- Post your work on the school’s website
- Play simulations at school
- Computer use at school for practice and drilling
- Doing individual homework on a school computer
- Group work and communication with other students
The role of digital resources

- ICT use at home for leisure is – up to a point – positively related to performance, navigation skills and self-confidence in completing high-level ICT tasks

  - Parents and teachers need to encourage students to use computers so that they can improve their navigation skills but also provide guidance on balancing time spent using computers with time for other activities
Find out more about PISA at...

- OECD [www.pisa.oecd.org](http://www.pisa.oecd.org)
  - All national and international publications
  - The complete micro-level database

Thank you!

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