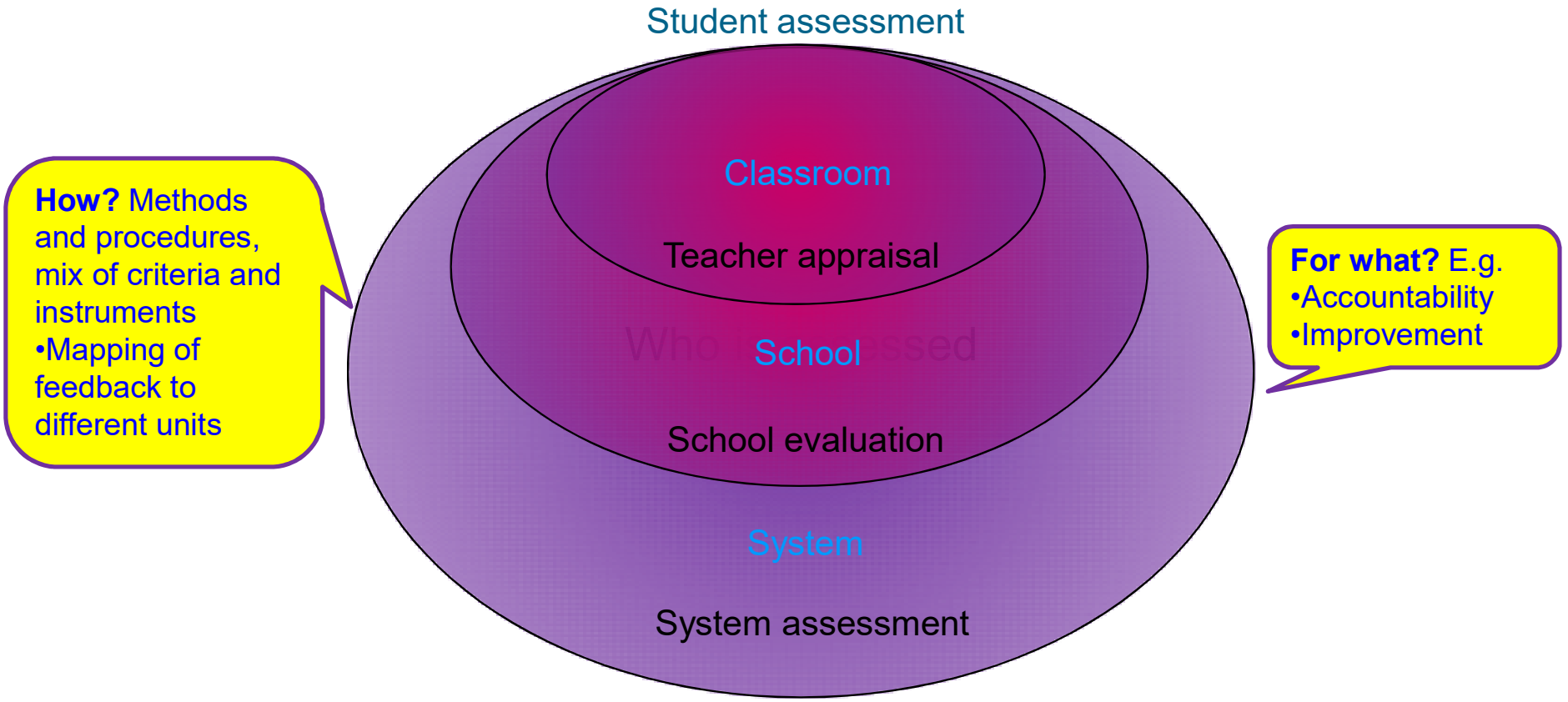
Trends in international assessents

Moscow
14 April 2017
Andreas Schleicher

OECD
BETTER POLICIES FOR BETTER LIVES

OECD instruments



The ‘big’ trends

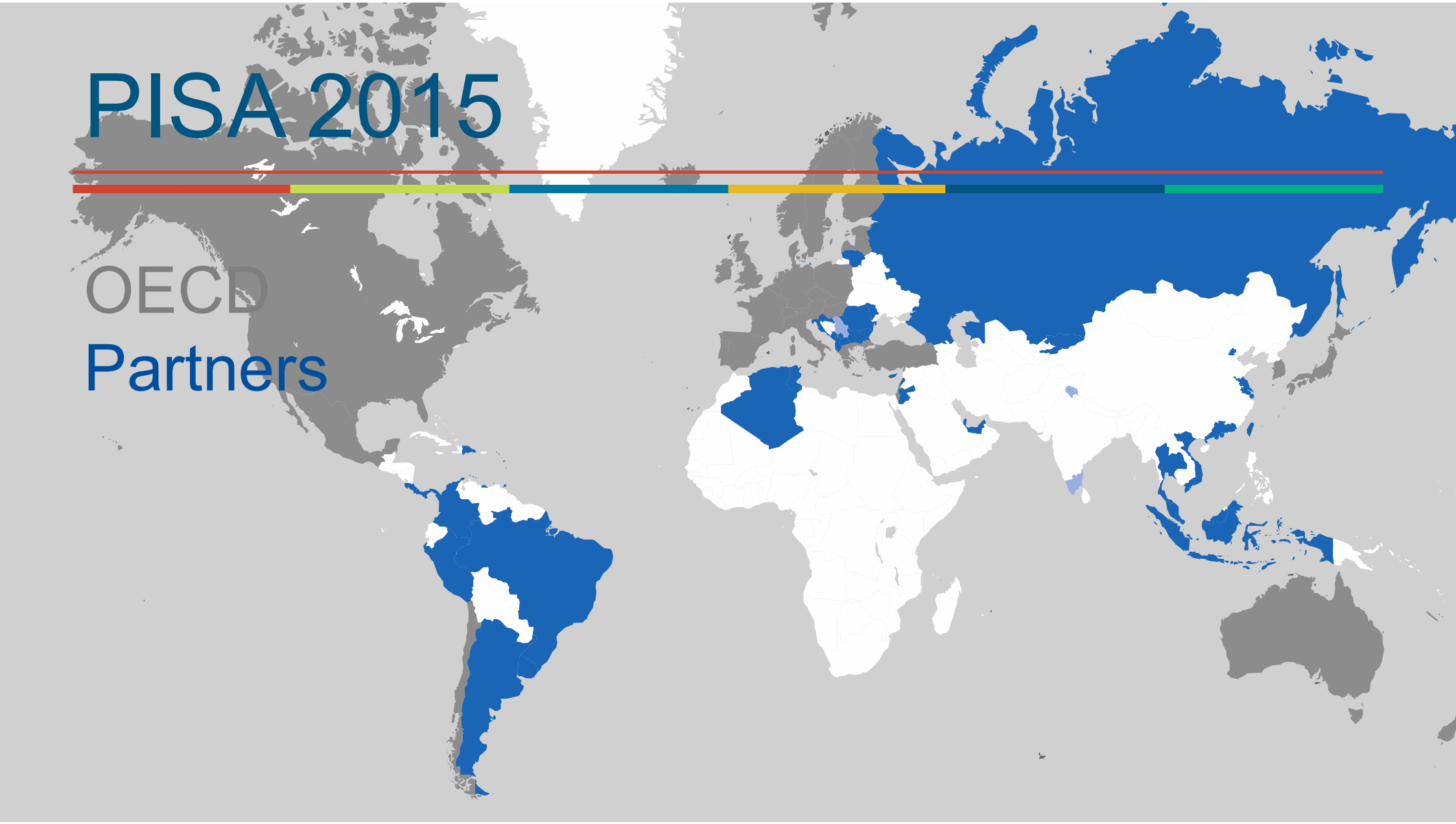
- **Multi-layered, coherent assessment systems from classrooms to schools to regional to national to international levels that…**
  - **Support improvement of learning at all levels of the education system**
  - **Are largely performance-based**
  - **Make students’ thinking visible and allow for divergent thinking**
    Are adaptable and responsive to new developments
  - **Add value for teaching and learning by providing information that can be acted on by students, teachers, and administrators Are part of a comprehensive and well-aligned continuum, communicate what is expected and hold relevant stakeholders accountable .**

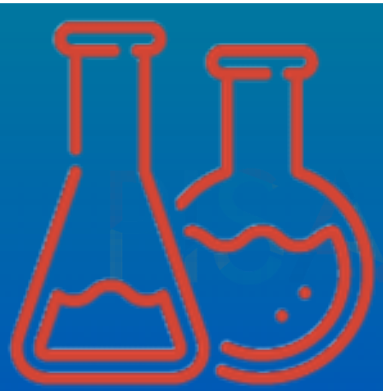
Some criteria

- **Coherence**
  - Built on a well-structured conceptual base—an expected learning progression—as the foundation both for large scale and classroom assessments
  - Consistency and complementarity across administrative levels of the system and across grades
- **Comprehensiveness**
  - Using a range of assessment methods to ensure adequate measurement of intended constructs and measures of different grain size to serve different decision-making needs
  - Provide productive feedback, at appropriate levels of detail, to fuel accountability and improvement decisions at multiple levels
- **Continuity**
  - A continuous stream of evidence that tracks progress .

Measuring learning outcomes at school

PISA


PISA 2015
OECD
Partners



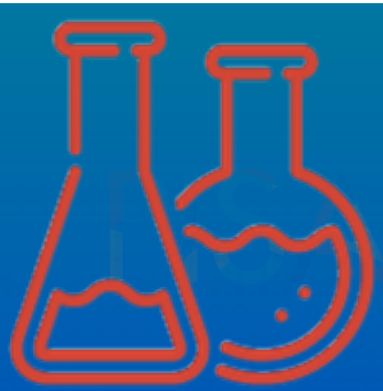
Competencies

- Explain phenomena scientifically
- Evaluate and design scientific enquiry
- Interpret data and evidence scientifically

Recognise, offer and evaluate explanations for a range of natural and technological phenomena.

Describe and appraise scientific investigations and propose ways of addressing questions scientifically.

Analyse and evaluate data, claims and arguments in a variety of representations and draw appropriate scientific conclusions.



Competencies

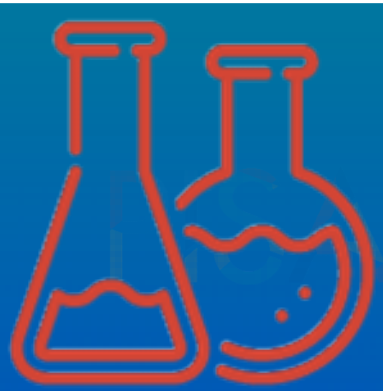
- Explain phenomena scientifically
- Evaluate and design scientific enquiry
- Interpret data and evidence scientifically

Knowledge

- Content knowledge
- Knowledge of methodological procedures used in science
- Knowledge of the epistemic reasons and ideas used by scientists to justify their claims

Each of the scientific competencies requires content knowledge (knowledge of theories, explanatory ideas, information and facts), but also an understanding of how such knowledge has been derived (procedural knowledge) and of the nature of that knowledge (epistemic knowledge)

"Epistemic knowledge" reflects students' capacity to think like a scientist and distinguish between observations, facts, hypotheses, models and theories



Competencies

- Explain phenomena scientifically
- Evaluate and design scientific enquiry
- Interpret data and evidence scientifically

Knowledge

- Content knowledge
- Knowledge of methodological procedures used in science
- Knowledge of the epistemic reasons and ideas used by scientists to justify their claims

Attitudes

- Attitudes to science
- Scientific attitudes

Peoples' attitudes and beliefs play a significant role in their interest, attention and response to science and technology.

PISA distinguishes between attitudes towards science (e.g. interest in different content areas of science) and scientific attitudes (e.g. whether students value scientific approaches to enquiry)

Context

- Personal, local, global
- Current and historical

Competencies

- Explain phenomena scientifically
- Evaluate and design scientific enquiry
- Interpret data and evidence scientifically

Knowledge

- Content knowledge
- Knowledge of methodological procedures used in science
- Knowledge of the epistemic reasons and ideas used by scientists to justify their claims

Attitudes

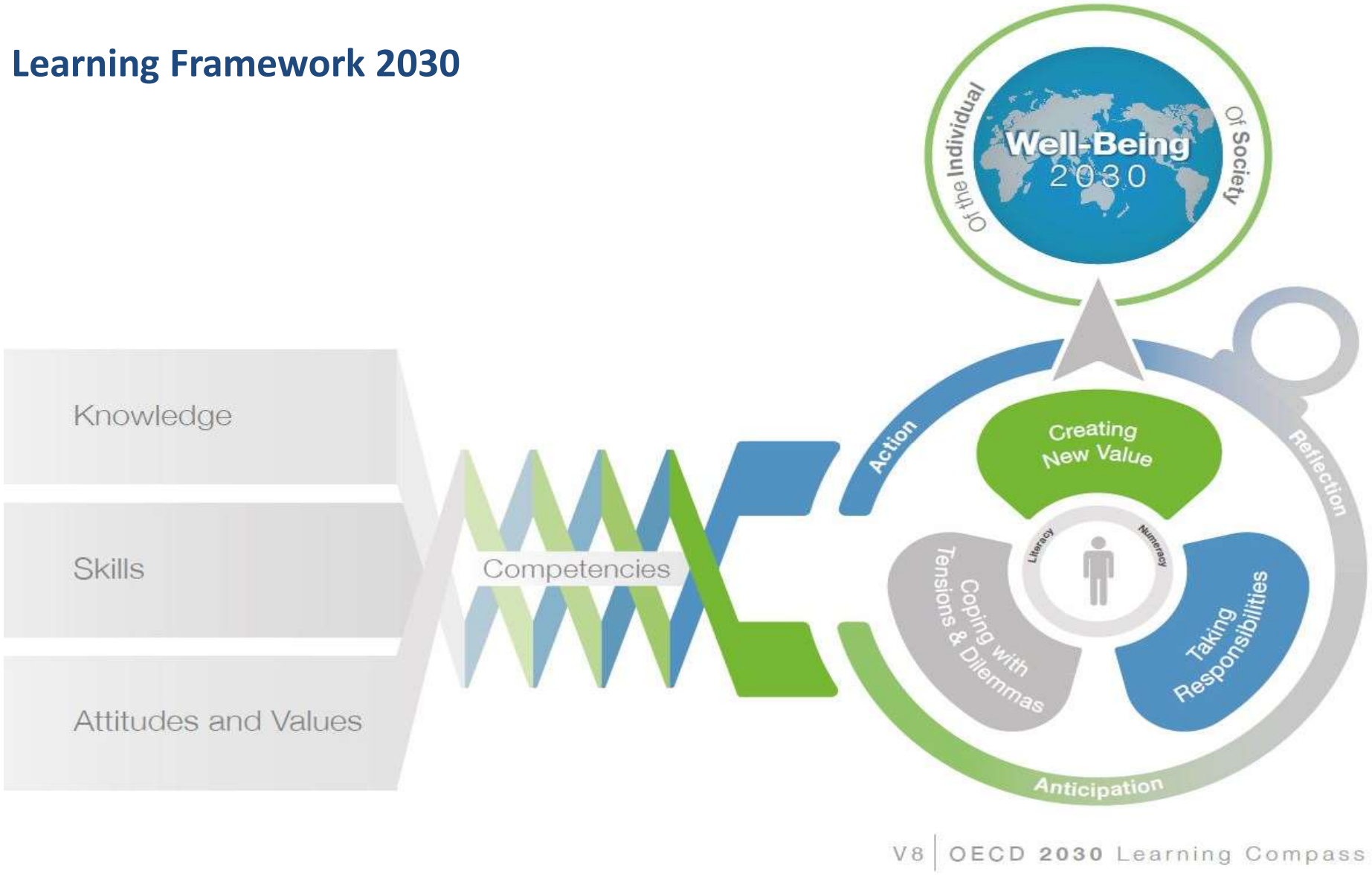
- Attitudes to science
- Scientific attitudes

Personal, local/national and global issues, both current and historical, which demand some understanding of science and technology

Measuring learning outcomes at school

Broadening learning outcomes

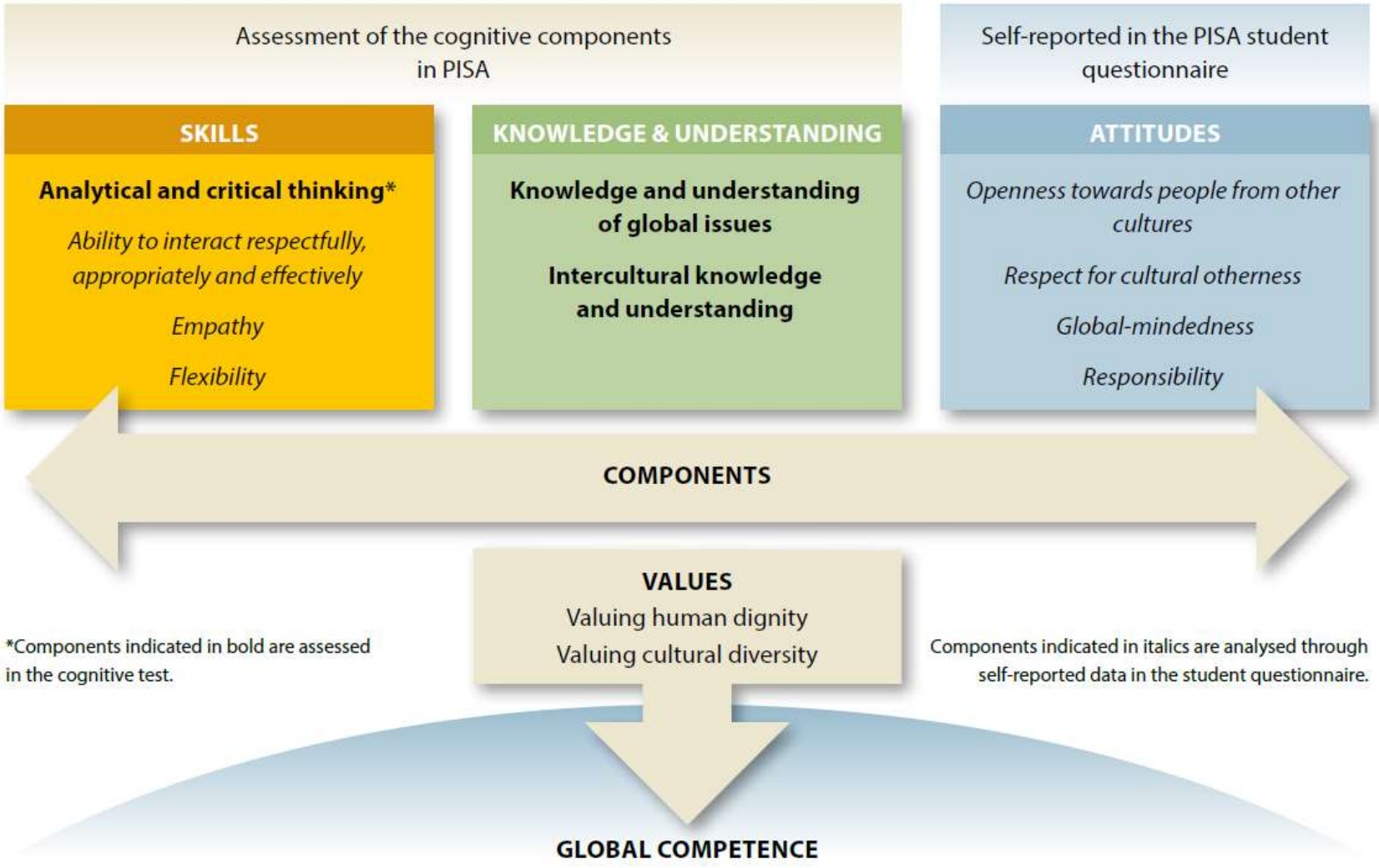
OECD Learning Framework 2030



PISA

- 2012: Financial literacy
- 2015: Social skills
  - Collaborative problem-solving
- 2018: Global competency
  - Skills, knowledge, understanding
- 2021: Creative thinking
- PISA for schools

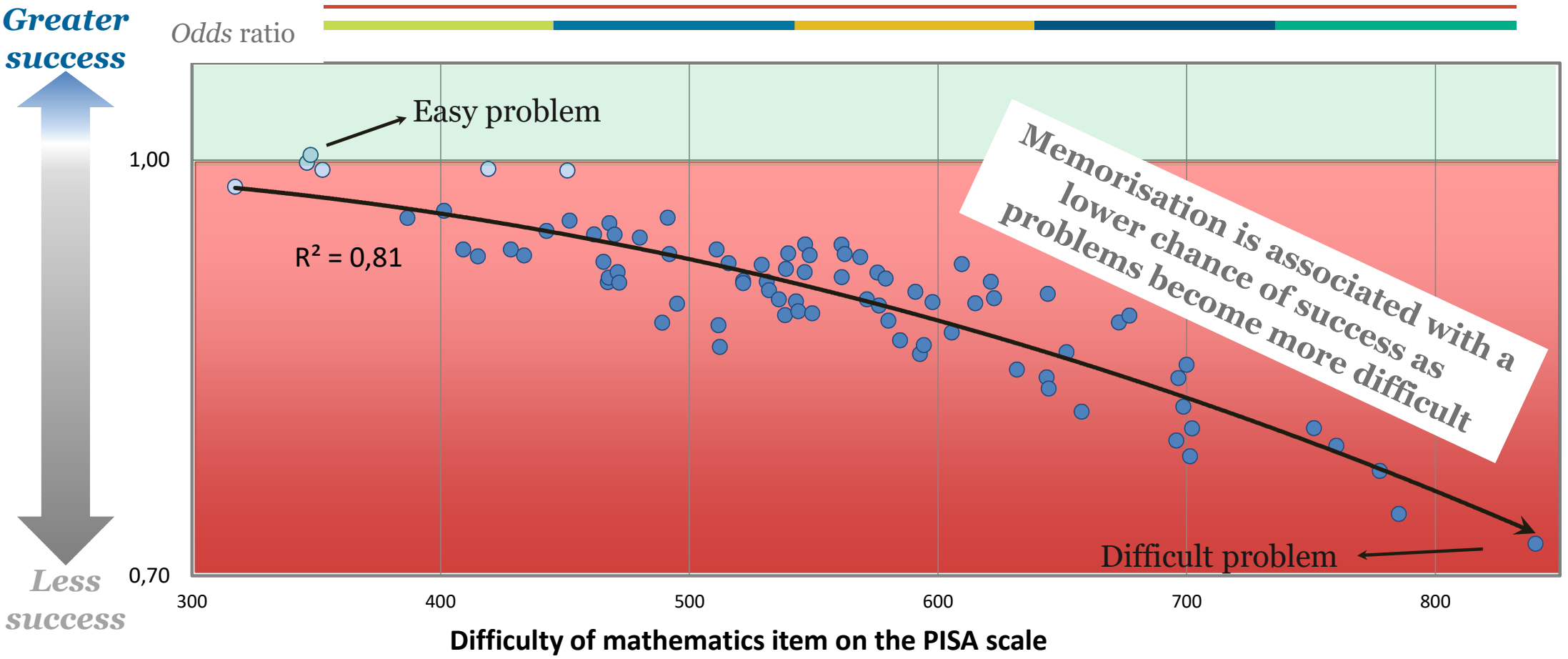
Global competency in PISA



Measuring learning outcomes at school

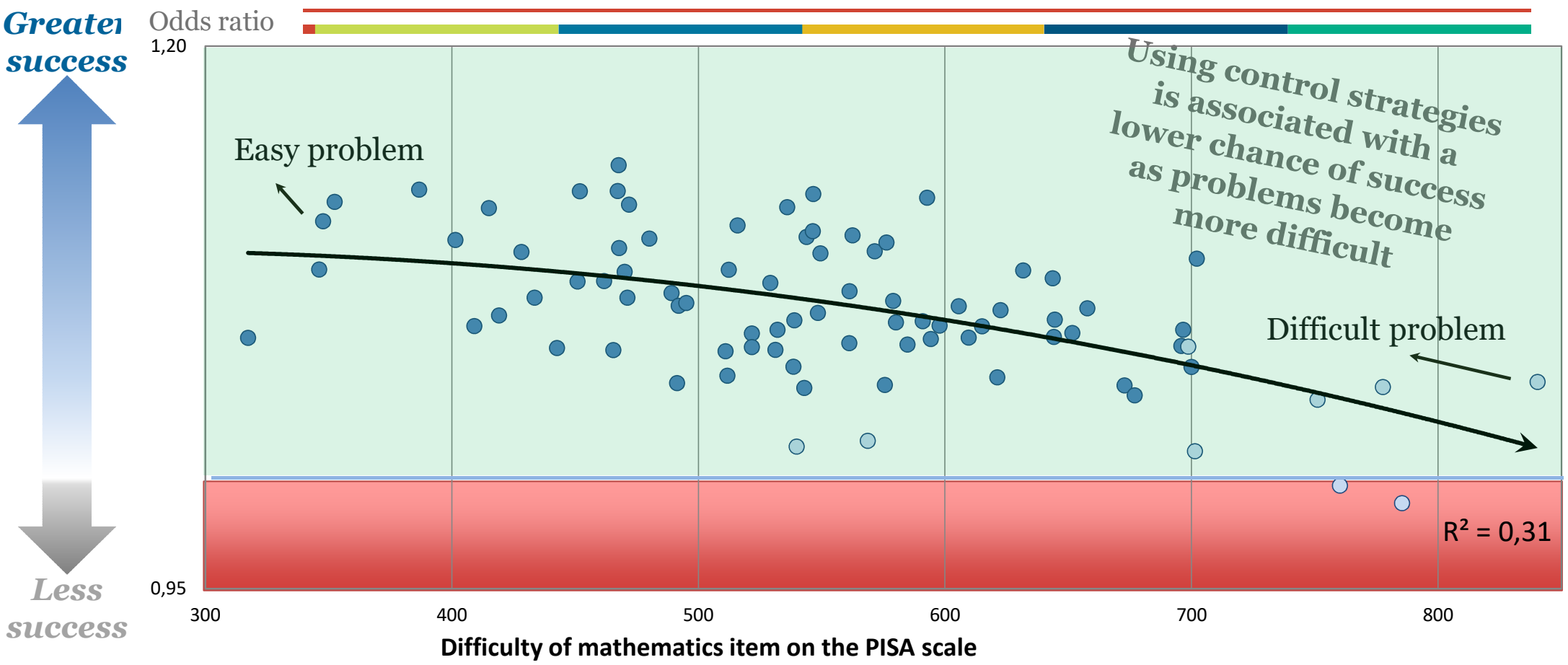
Understanding learning strategies

Memorisation is **less useful** as problems become **more difficult** *(OECD average)*



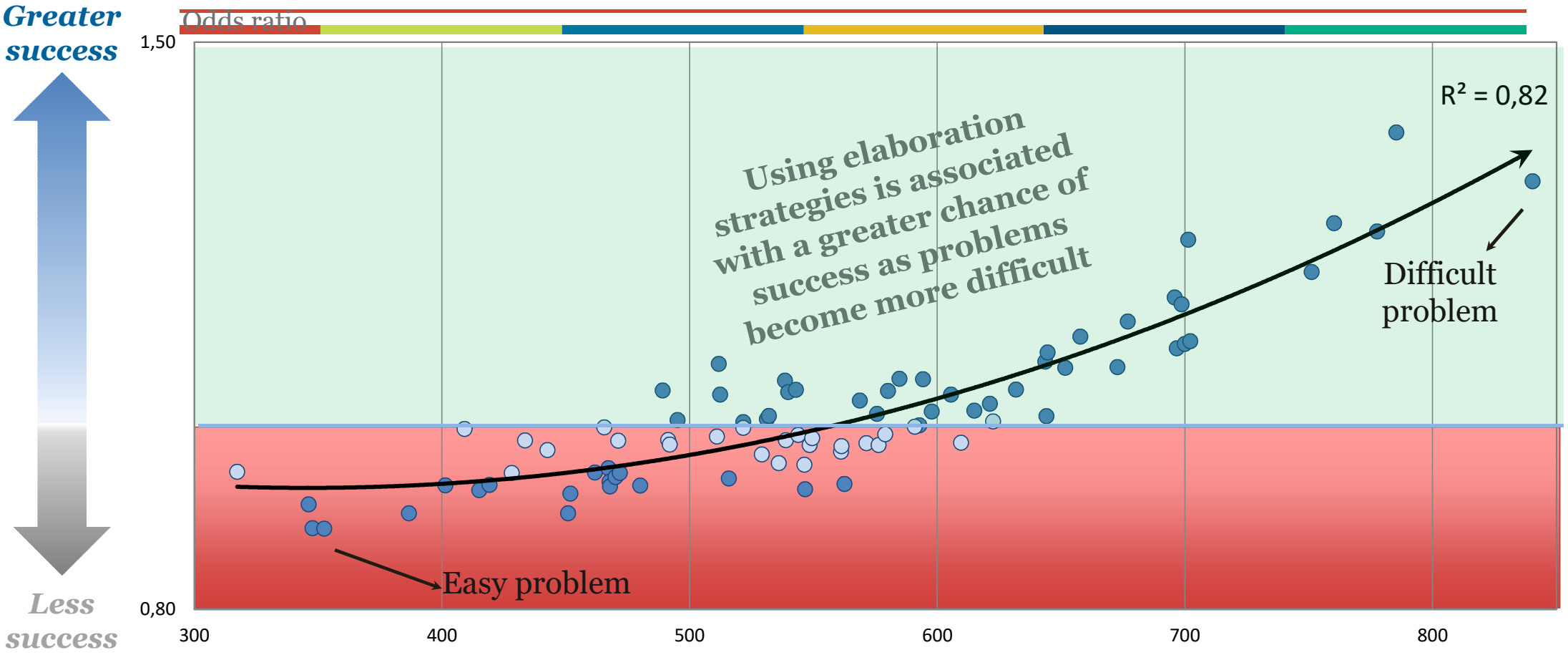
Source: Figure 4.3

Control strategies are **always helpful** but **less so** as problems become **more difficult** *(OECD average)*



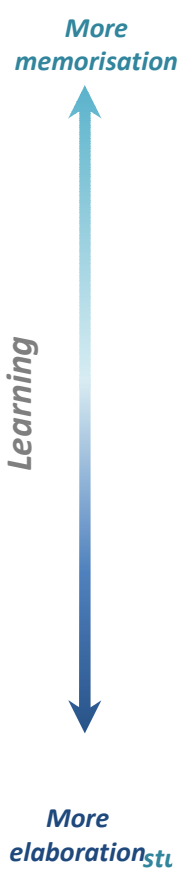
Source: Figure 5.2

Elaboration strategies are **more useful** as problems become **more difficult** *(OECD average)*

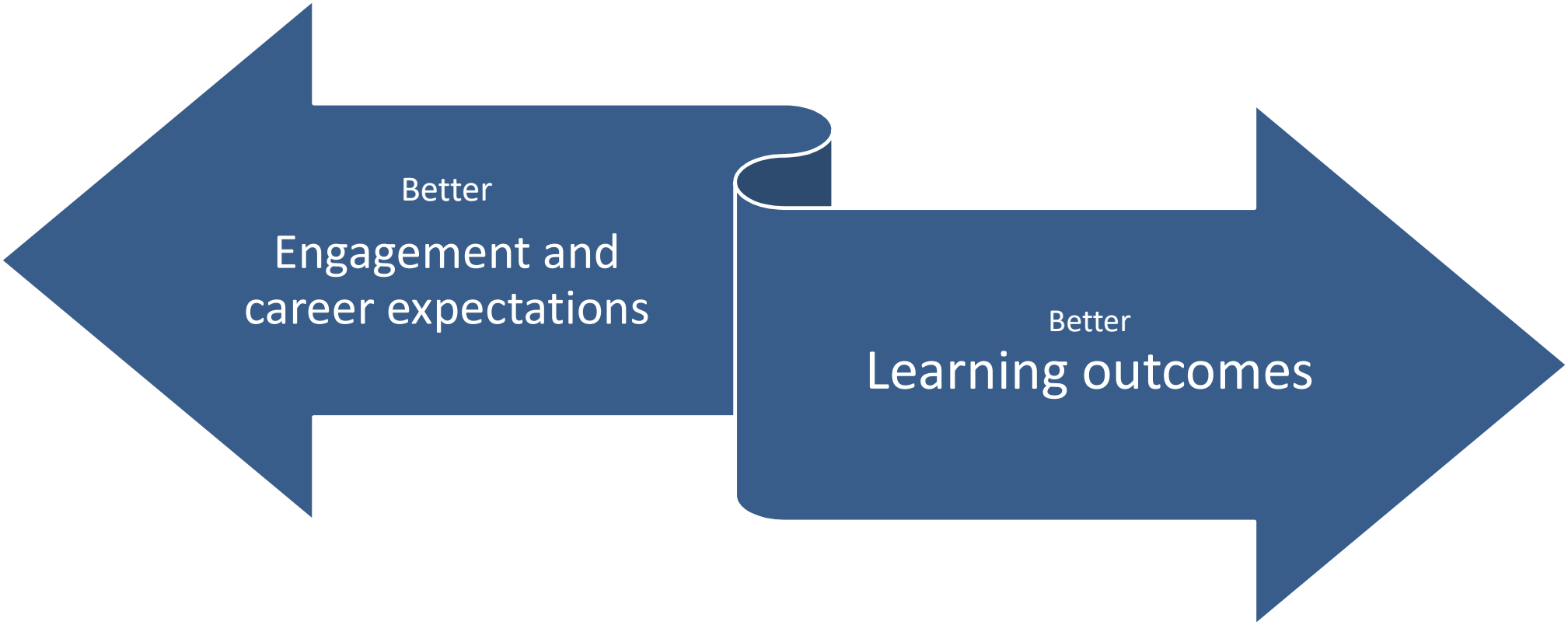


Source: Figure 6.2

Teaching and **learning strategies** in **mathematics**

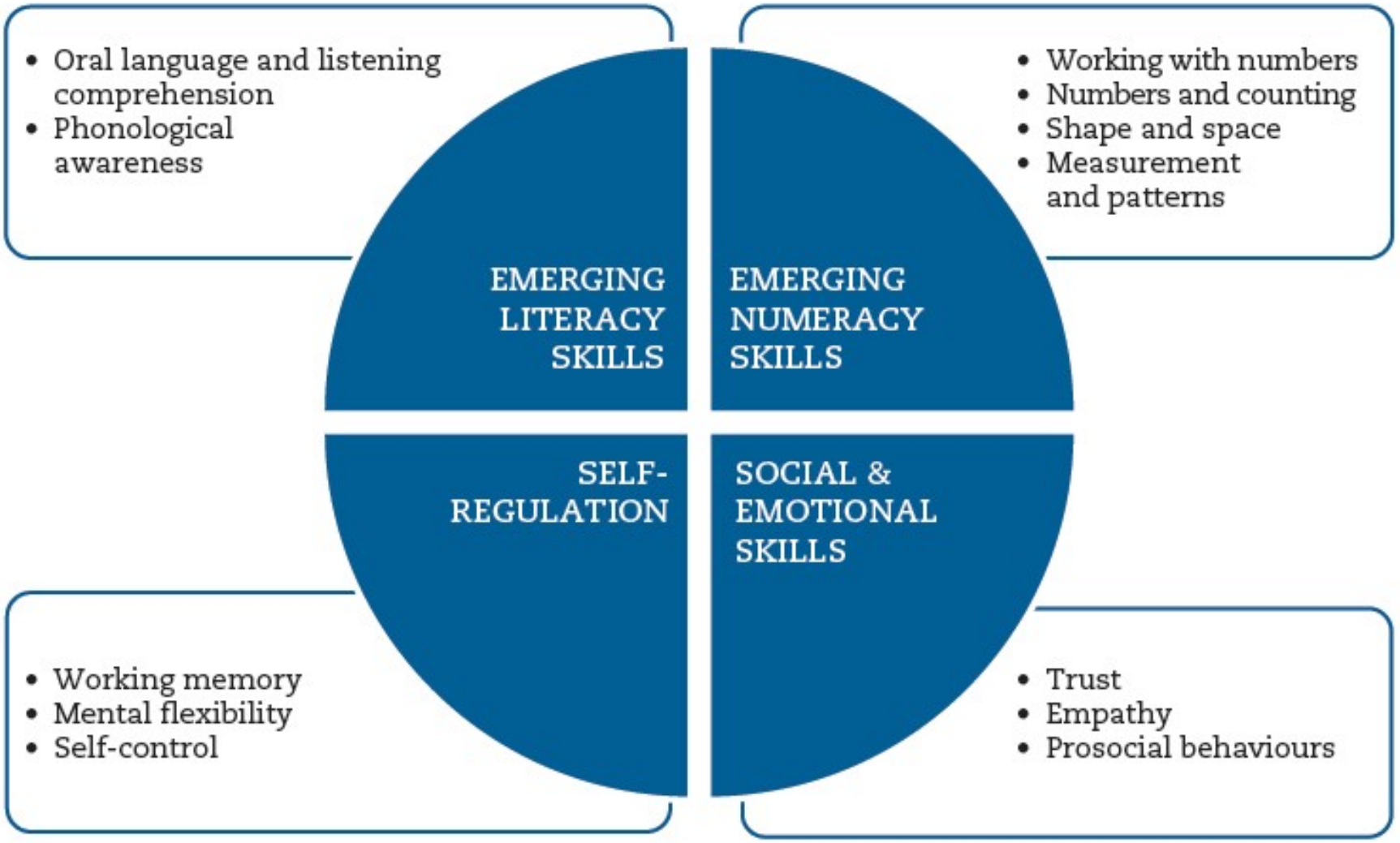


Approaches to teaching



Measuring early learning

International Early Learning and Child Well-being Study

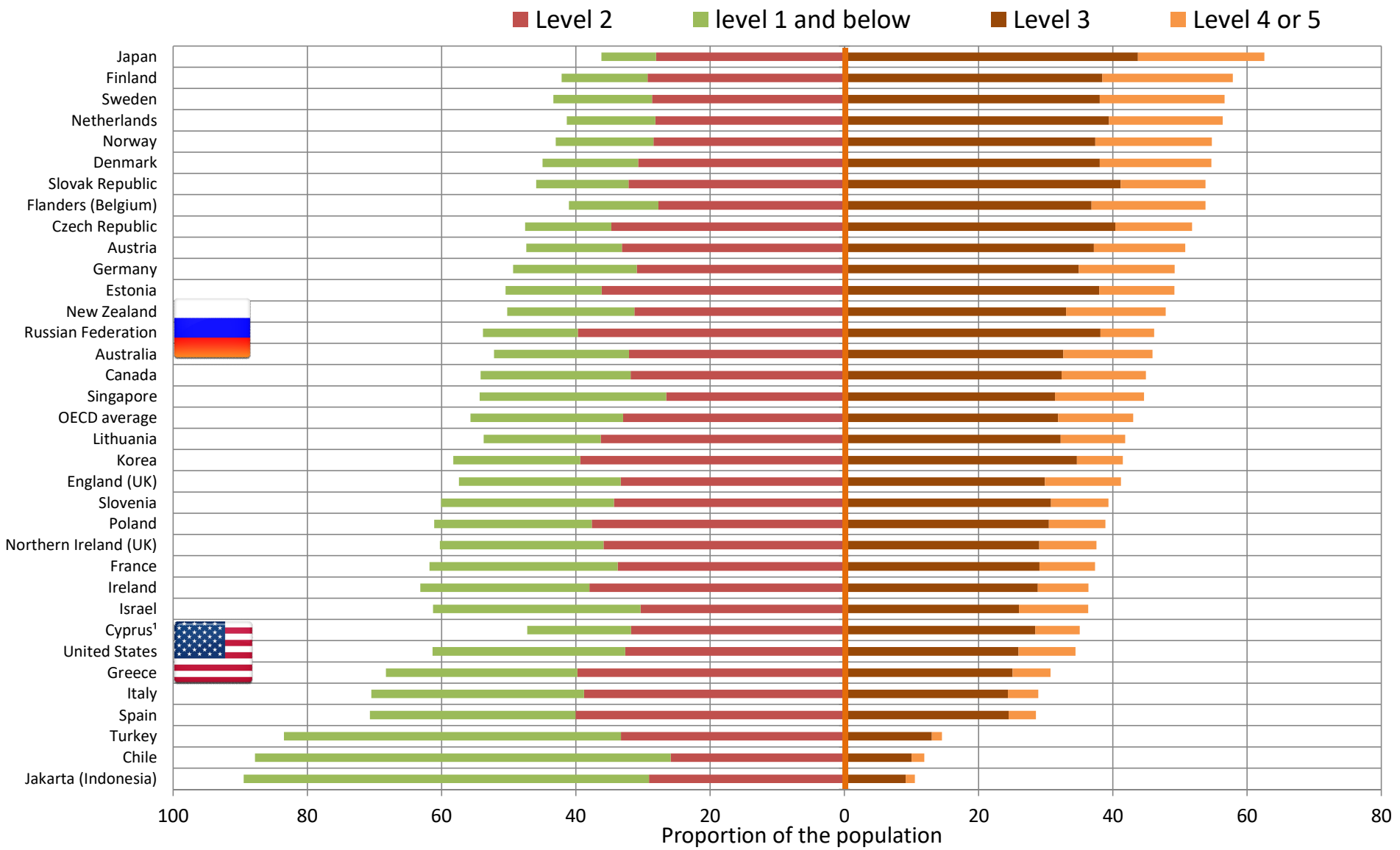


International Early Learning and Child Well-being Study

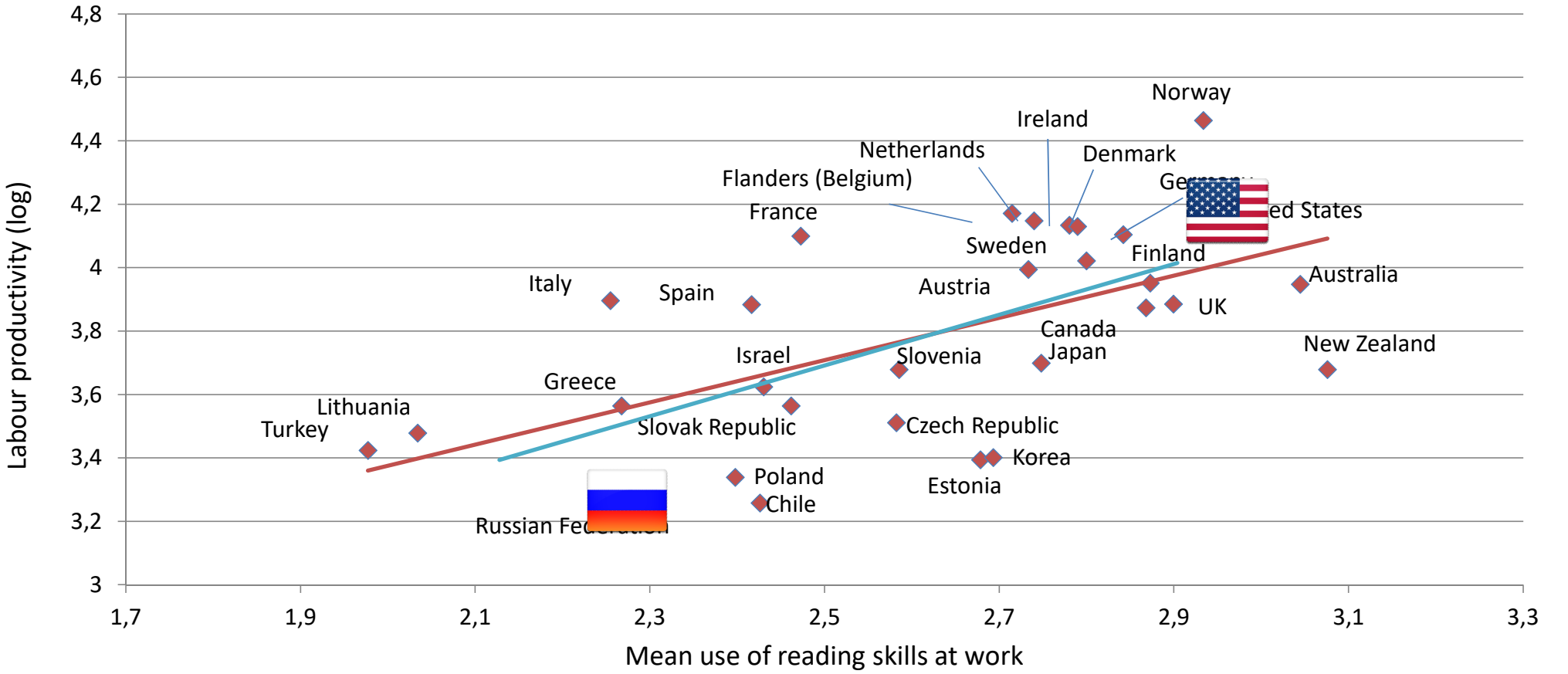
Learning Context

Measuring adult skills

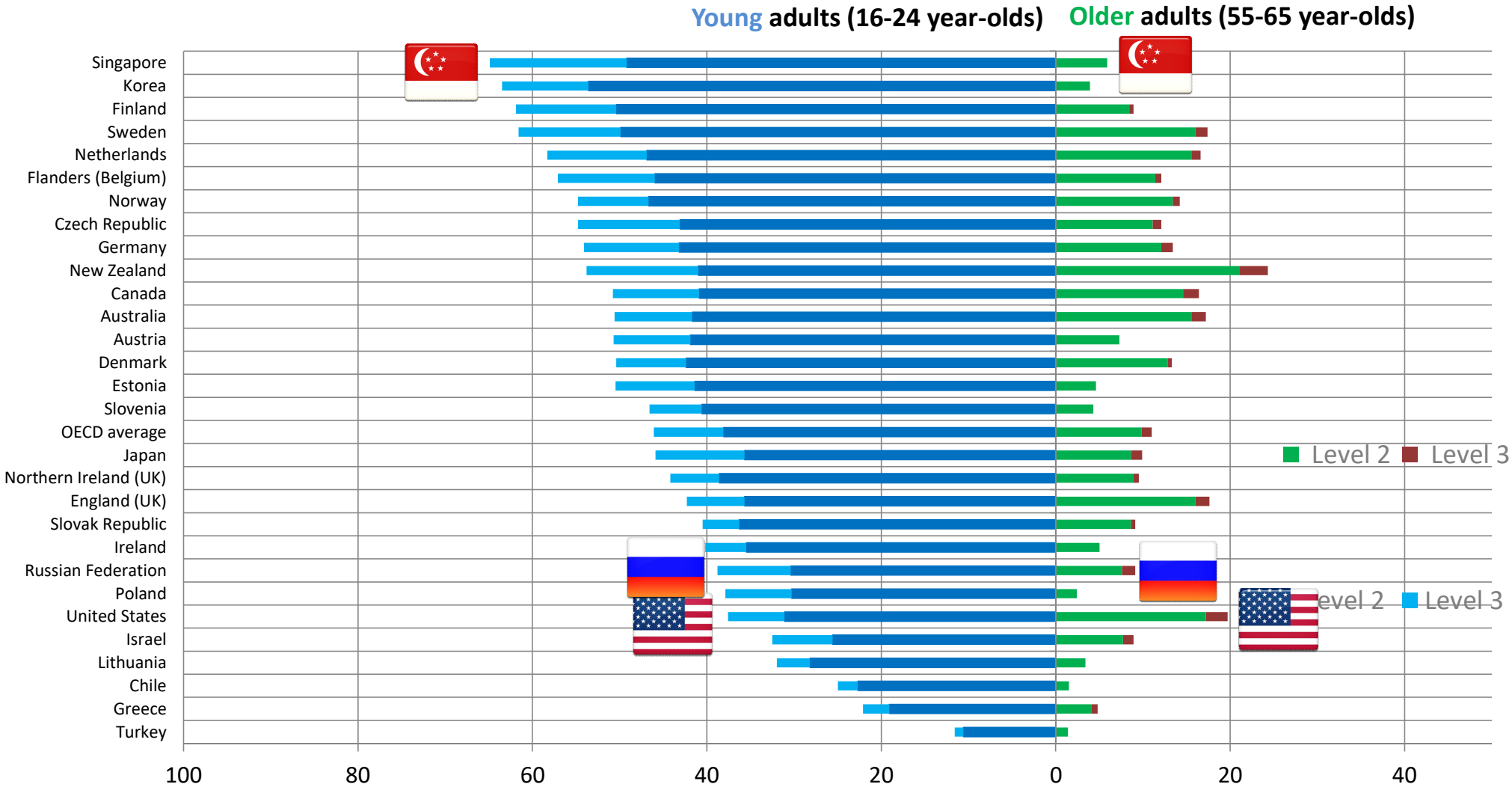
Numeracy proficiency levels



Labour productivity and the use of reading skills at work



Digital problem-solving skills (PIAAC)



Some methodological challenges

- Can we sufficiently distinguish the role of context from that of the underlying cognitive construct ?
- Do new types of items that are enabled by computers and networks change the constructs that are being measured ?
- Can we drink from the firehose of increasing data streams that arise from new assessment modes ?
- Can we utilise new technologies and new ways of thinking of assessments to gain more information from the classroom without overwhelming the classroom with more assessments ?
- What is the right mix of crowd wisdom and traditional validity information ?
- How can we create assessments that are activators of students' own learning ?

Thank you

Find out more about our work at www.oecd.org/pisa

- **All publications**
- **The complete micro-level database**

Email: **Andreas.Schleicher@OECD.org**

Twitter: **SchleicherOECD**

Wechat: **AndreasSchleicher**