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# Leadership in a digital age



# Citizens expect...

**Better anticipate the evolution of the demand for 21<sup>st</sup> century skills**

**Leverage the potential of all learners**

**...learning systems that...**

**Find more innovative solutions to what we learn, how we learn, when we learn and where we learn**

**Advance from an industrial towards a professional work organisation**

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INSIDE: A 14-PAGE SPECIAL REPORT ON TECH STARTUPS

The  
Economist

JANUARY 18TH-24TH 2014

Economist.com

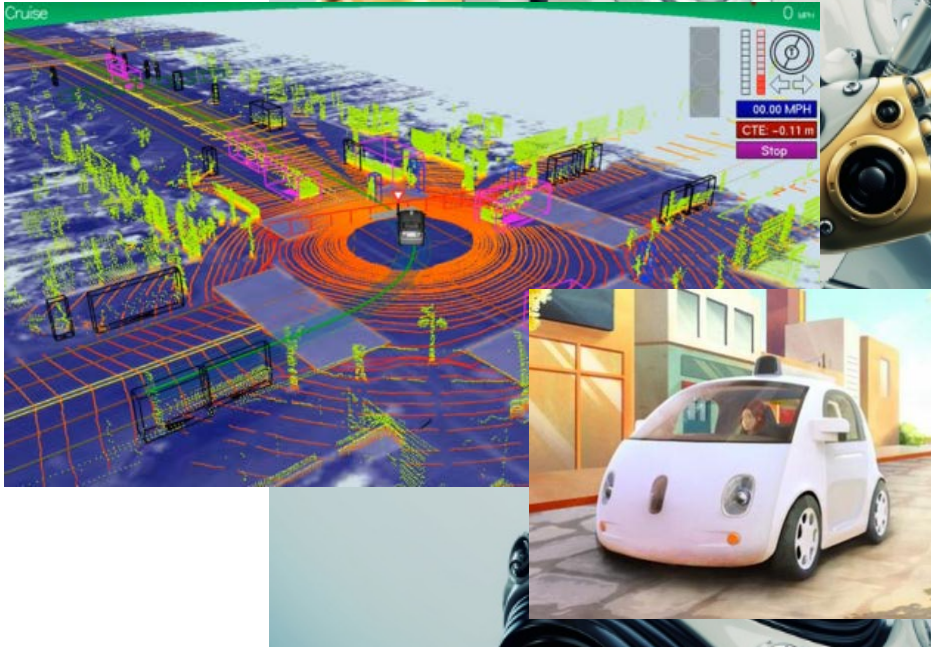
If the French ran America  
China cracks down on microblogs  
New opportunities for organised crime  
Regulators go soft on Europe's banks  
Google and the internet of things

**Coming to an office  
near you...**

What today's  
technology will do to  
tomorrow's jobs

**The kind of things that  
are easy to teach are  
now easy to automate,  
digitize or outsource**

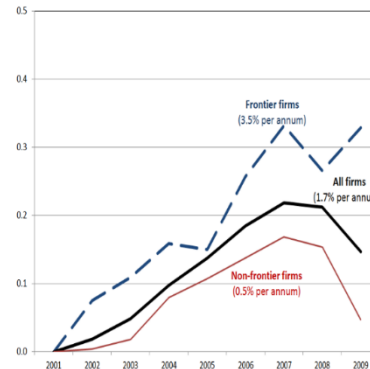
# The digital economy is **the** economy



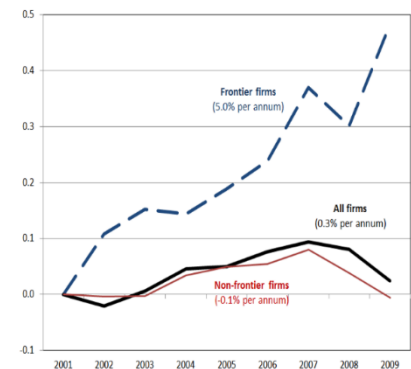
## Bifurcated productivity growth.

### Labour productivity growth (2001 = 100)

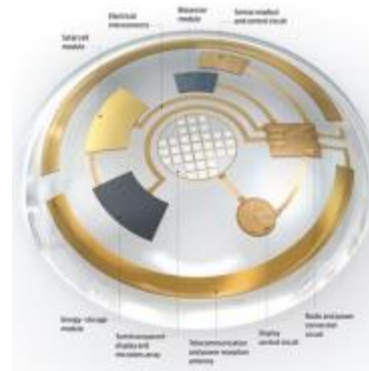
#### Manufacturing



#### Services

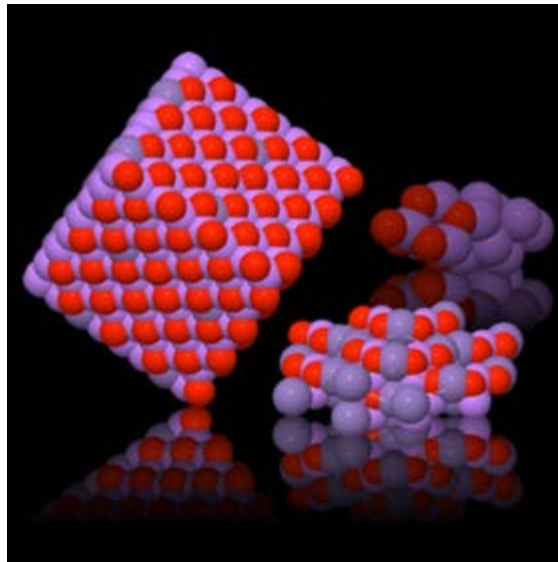
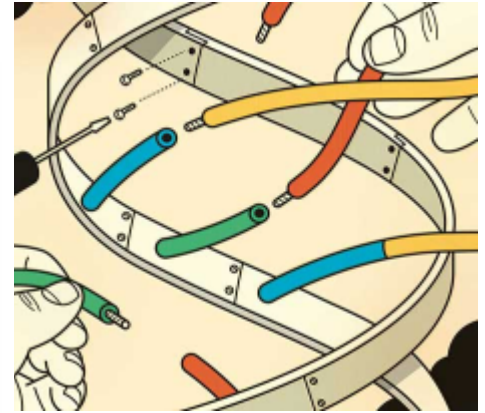


# Augmented Reality

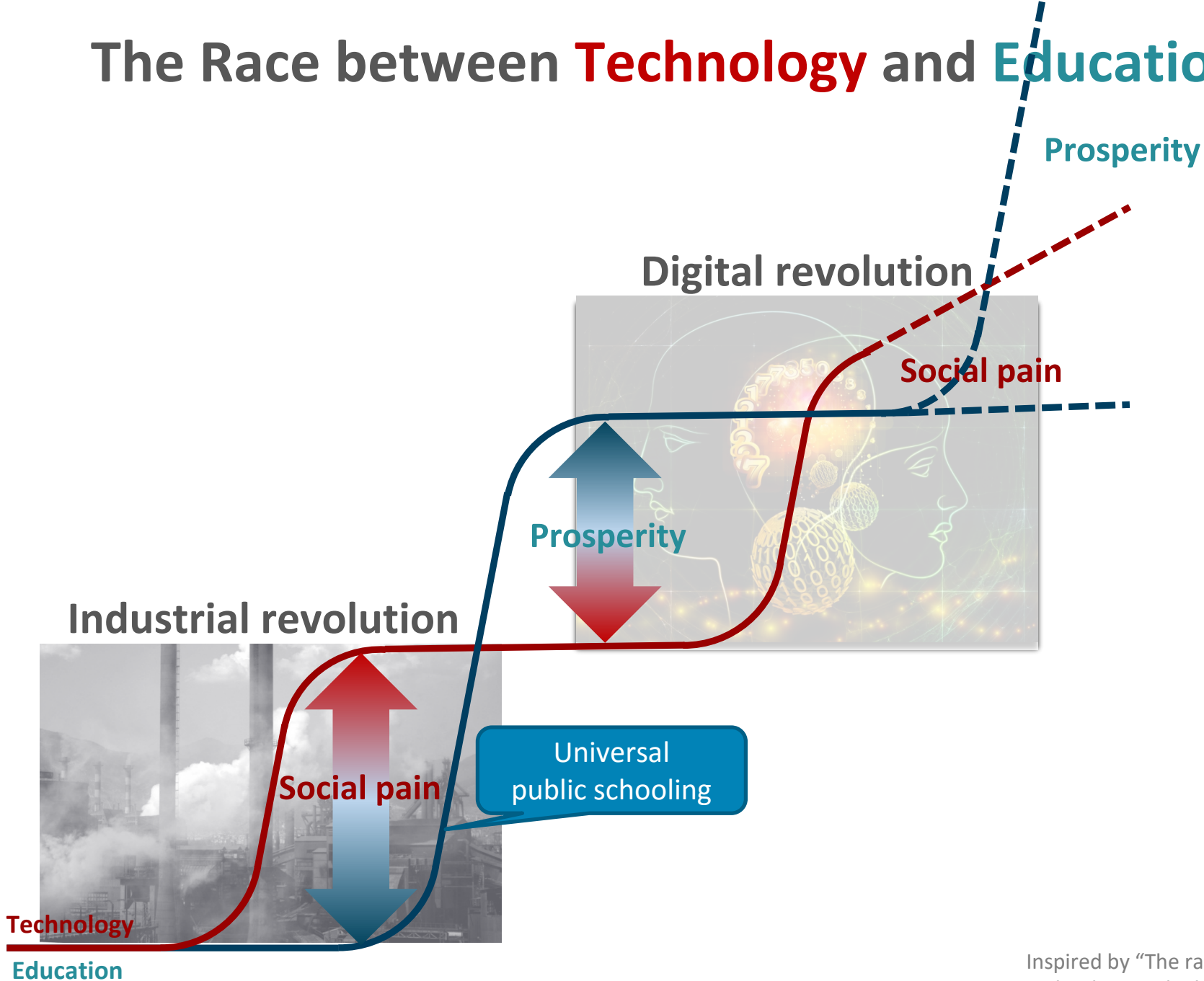


# A lot more to come

- 3D printing
- Synthetic biology
- Brain enhancements
- Nanomaterials
- Etc.



# The Race between **Technology** and **Education**



Inspired by "The race between technology and education"  
Pr. Goldin & Katz (Harvard)



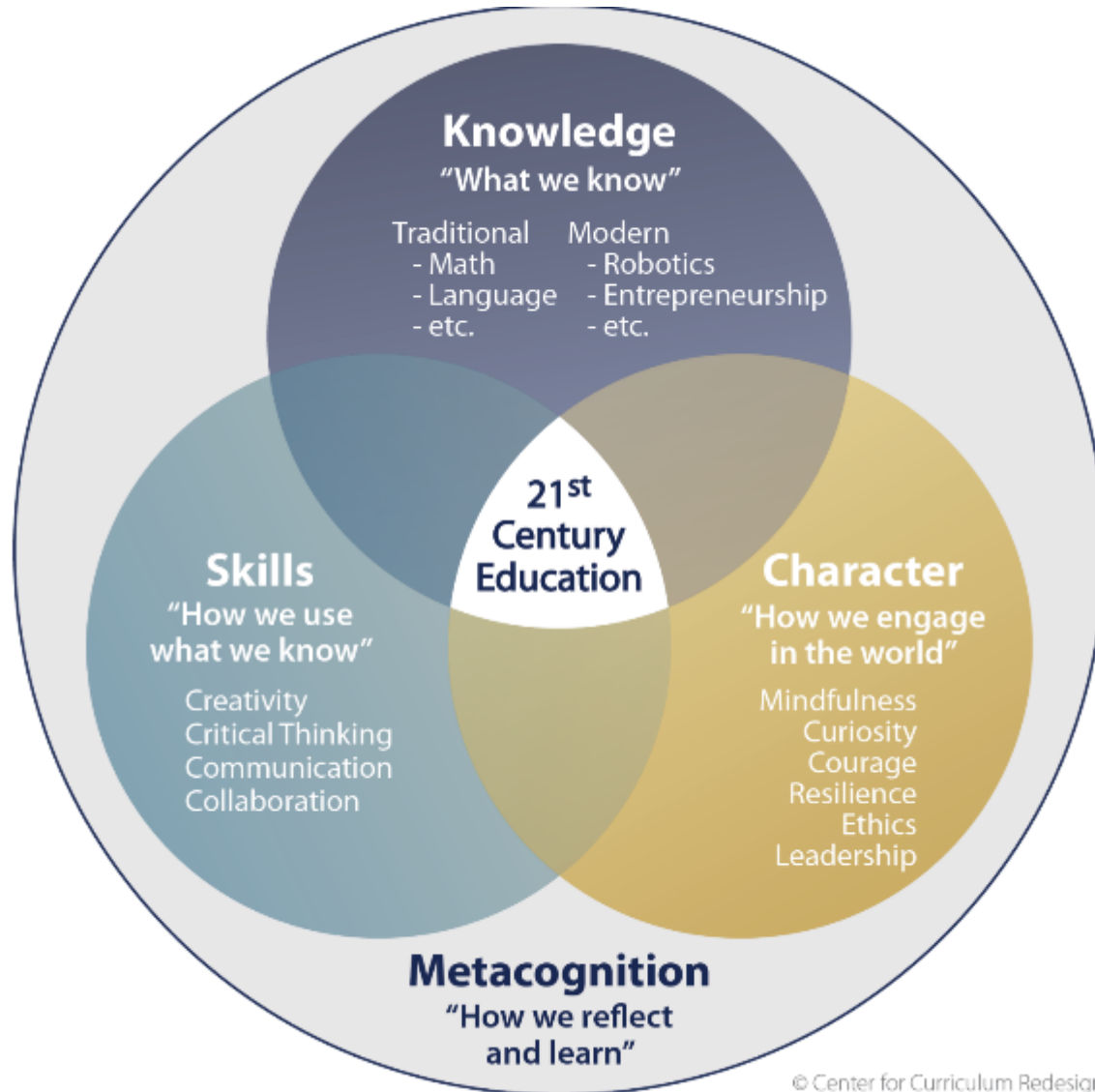


**Education in the past**



**Education now**

# 21<sup>st</sup> century education



Better anticipate the evolution of the demand for 21<sup>st</sup> century skills

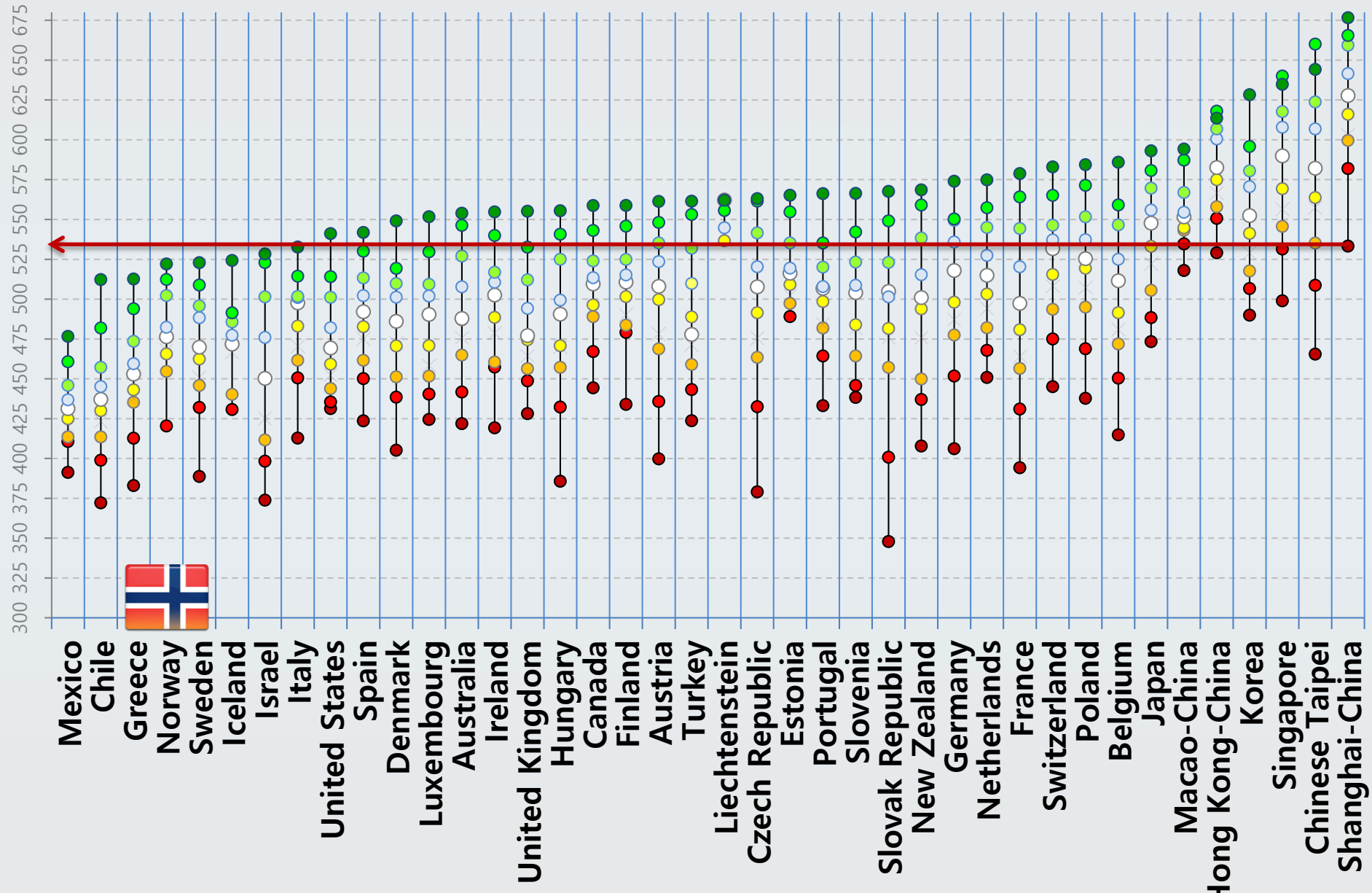
**Leverage the potential of all learners**

**...learning systems that...**

Find more innovative solutions to what we learn, how we learn, when we learn and where we learn

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# PISA mathematics performance by decile of social background



Better anticipate the evolution of the demand for 21<sup>st</sup> century skills and better integrate the world of work and learning

Leverage the potential of all learners

**...learning systems that...**

**Find more innovative solutions to what we learn, how we learn, when we learn and where we learn**

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# Technology can amplify innovative teaching

- Well beyond textbooks, in multiple formats, with little time and space constraint

Expand  
access to  
content

- As tools for inquiry-based pedagogies with learners as active participants

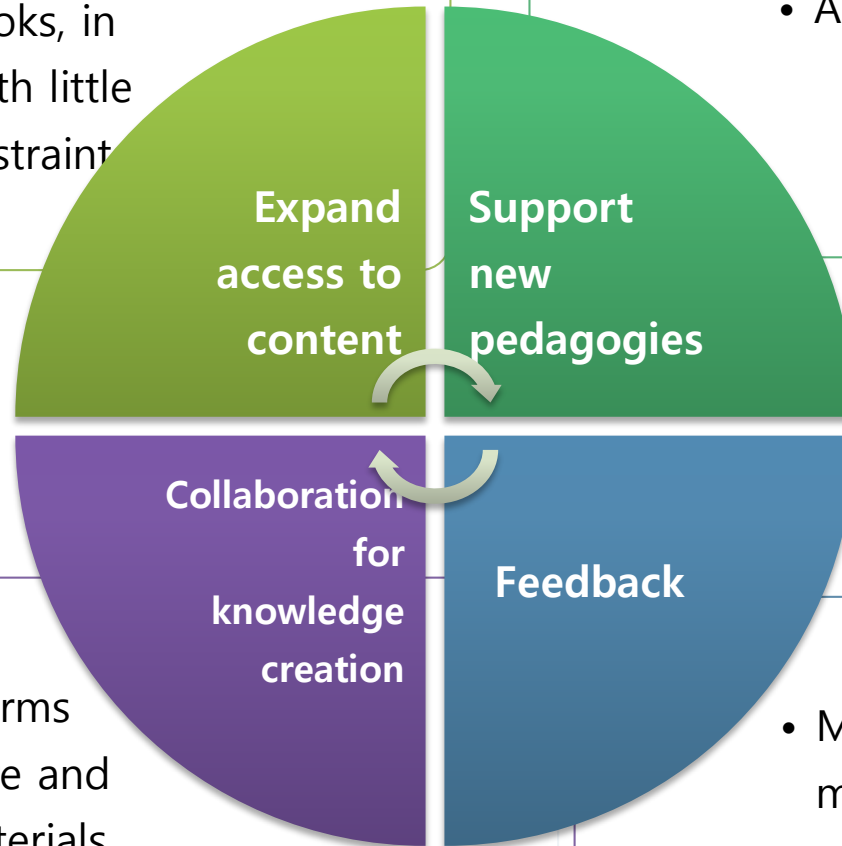
Support  
new  
pedagogies

- Collaborative platforms for teachers to share and enrich teaching materials

Collaboration  
for  
knowledge  
creation

- Make it faster and more granular

Feedback

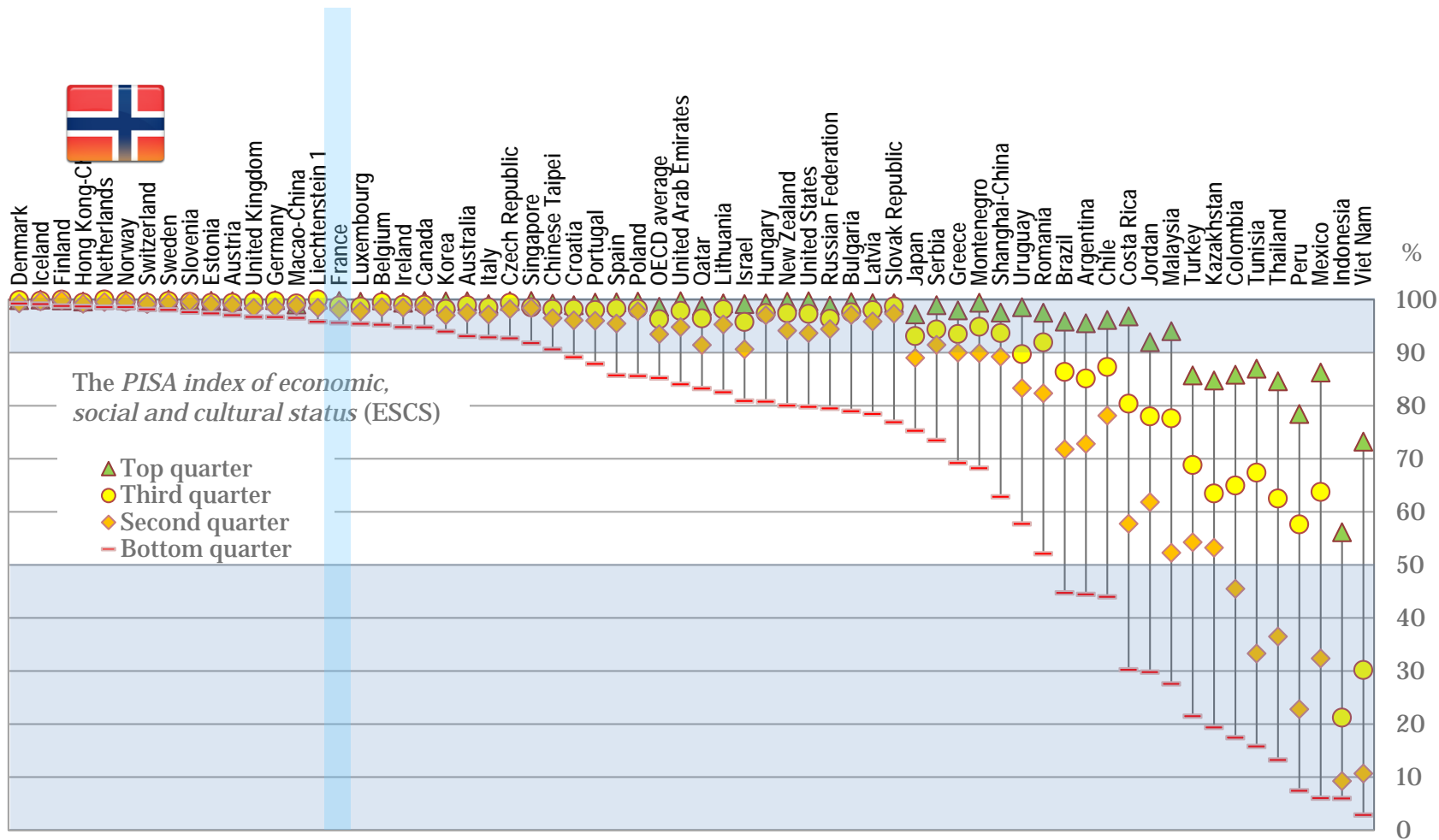


# Technology can amplify innovative teaching

- **Experiential learning**
  - E.g. remote and virtual labs, project-based and enquiry-based pedagogies
- **Hands-on pedagogies**
  - E.g. game development
- **Cooperative learning**
  - E.g. local and global collaboration
- **Interactive and metacognitive pedagogies**
  - E.g. real-time assessment



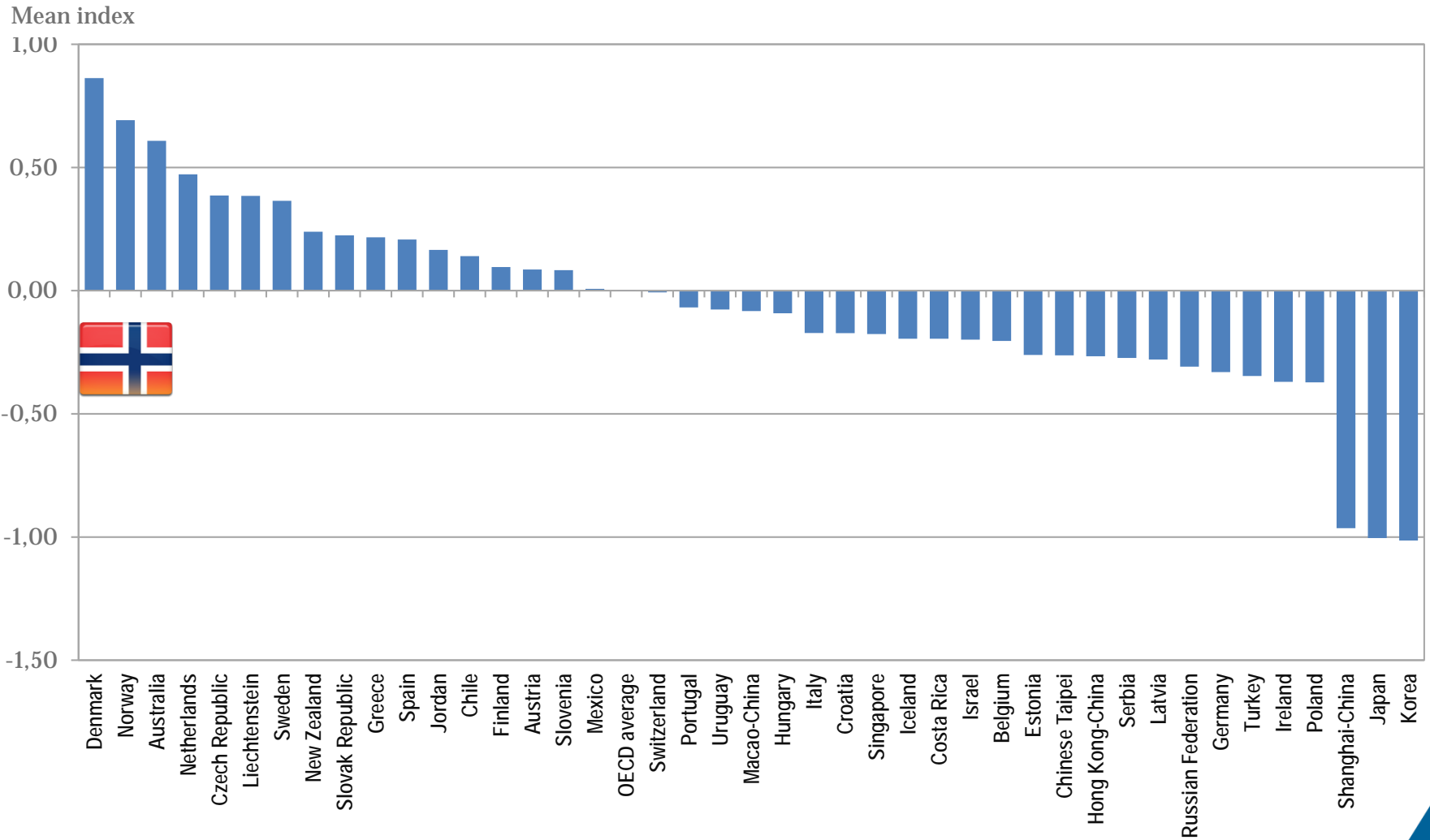
# Access to the Internet at home and students' socio-economic status



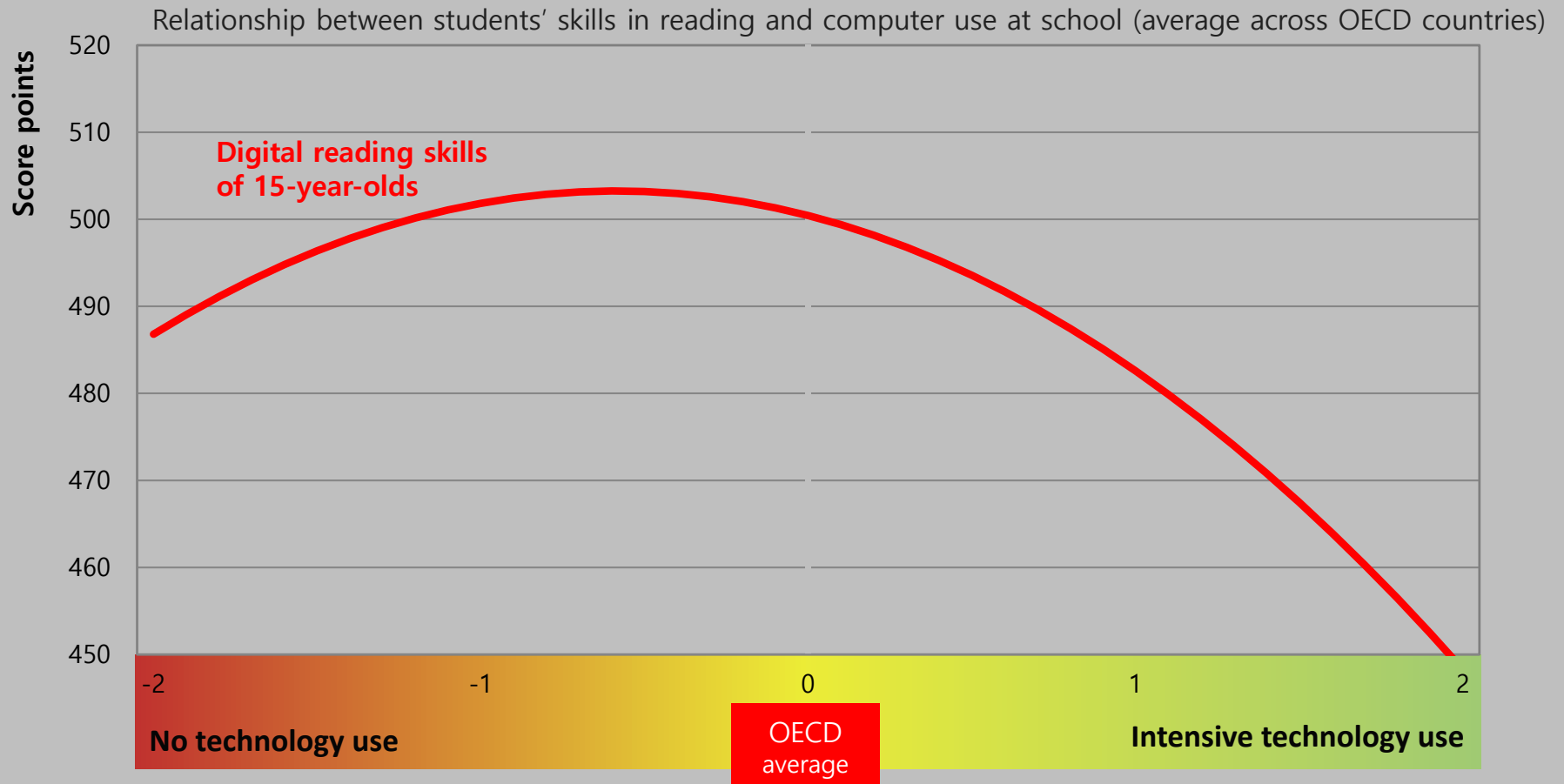
1. The difference between the top and the bottom quarter of ESCS is not statistically significant.

Source: Figure 5.2

# Index of ICT use at school



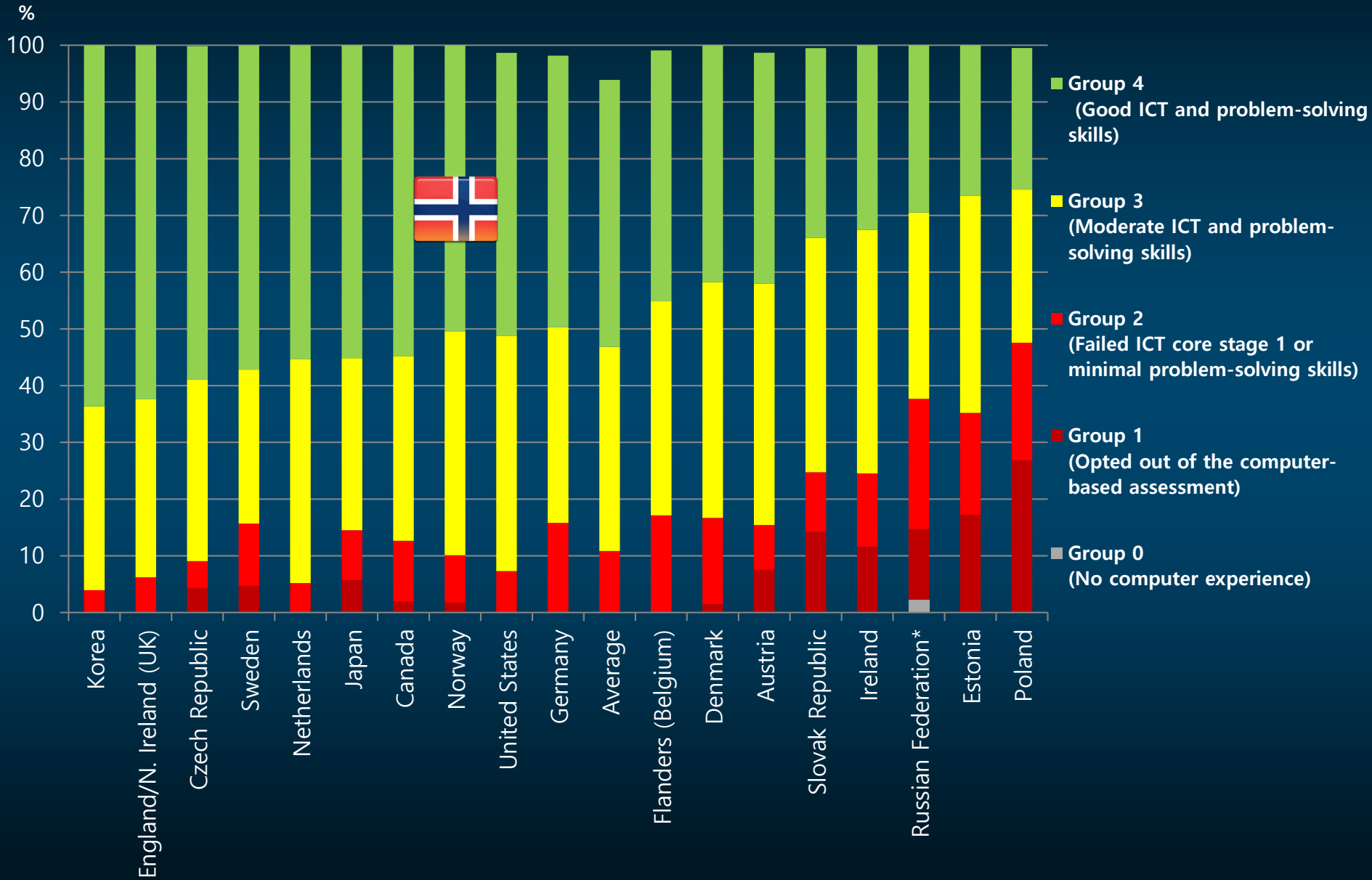
# Technology in schools and digital skills still don't square



Source: Figure 6.5

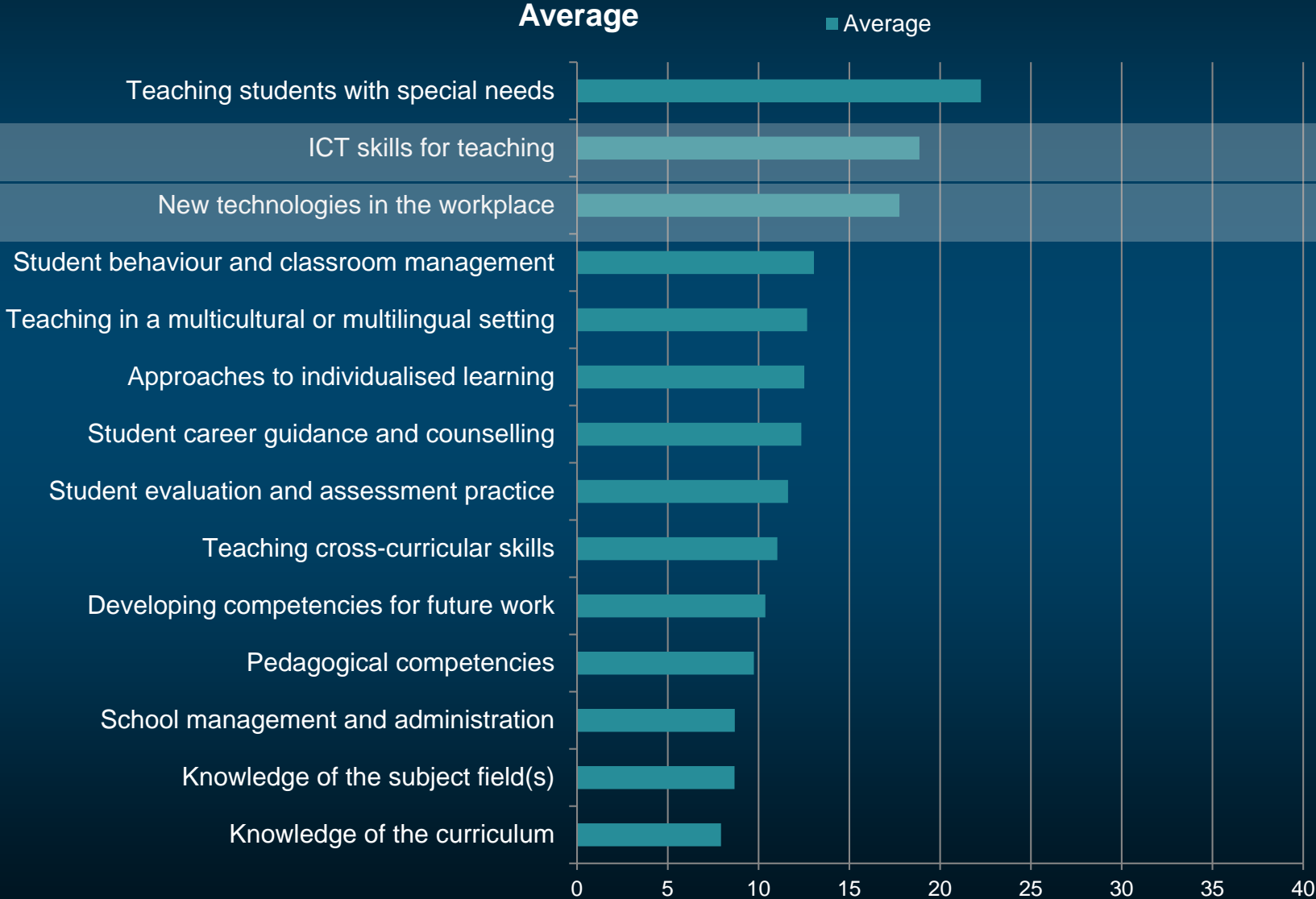
# Teachers' skills and readiness to use information and communication technologies (ICT) for problem solving (2012)

Chart D5.4



# Teachers' needs for professional development

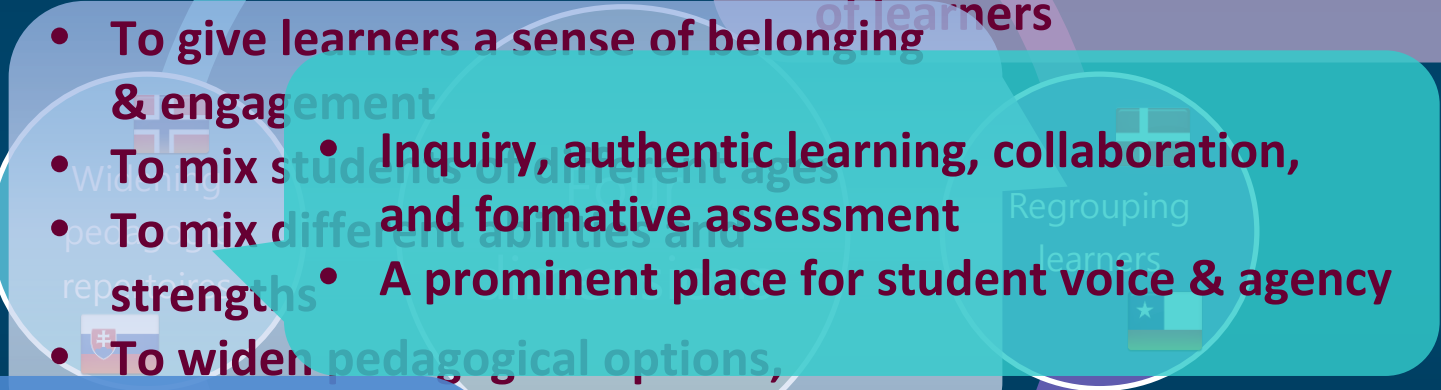
Percentage of lower secondary teachers indicating they have a high level of need for professional development in the following areas



# Innovating to create 21st-century learning environments



- To gain the benefits of collaborative planning, work, and shared professional development strategies
- To open up pedagogical options
- To give extra attention to groups of learners



- To allow for deeper learning
- To create flexibility for more individual choices
- To accelerate learning
- To use out-of-school learning in effective & innovative ways



# Excellence in school leadership

The standard for principals : The role in action

← Leadership requirements →

Professional practices



Vision and Values

Knowledge and understanding

Personal qualities, social and interpersonal skills

Leading teaching and learning

Developing self and others

Leading improvement, innovation and change

Leading the management of the school

Engaging and working with the community

High quality learning, teaching and schooling

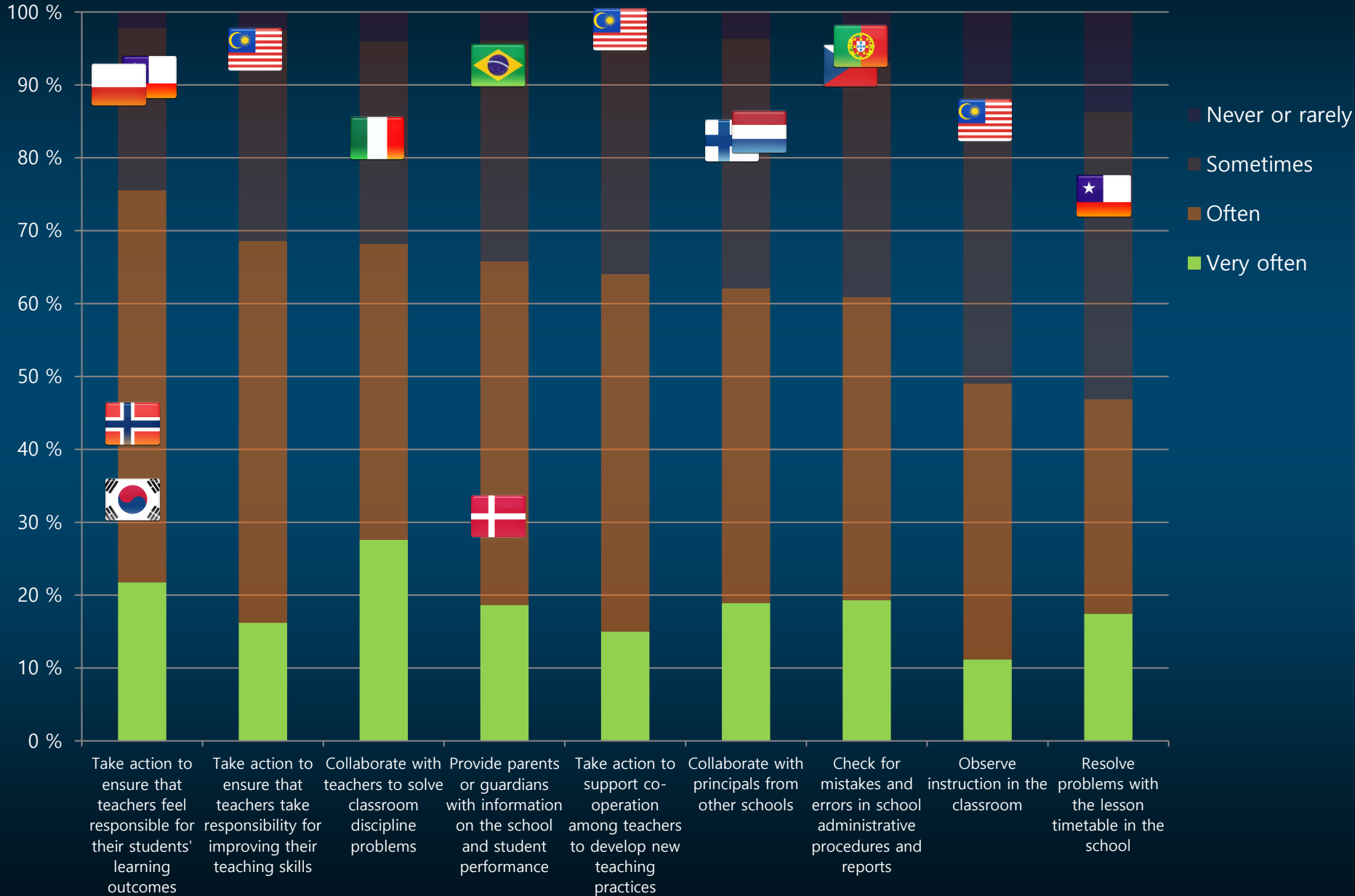


Successful learners, confident creative individuals and active informed citizens

**Context:** School, sector, community: socio-economic, geographic: and education systems at local, regional, national and global levels

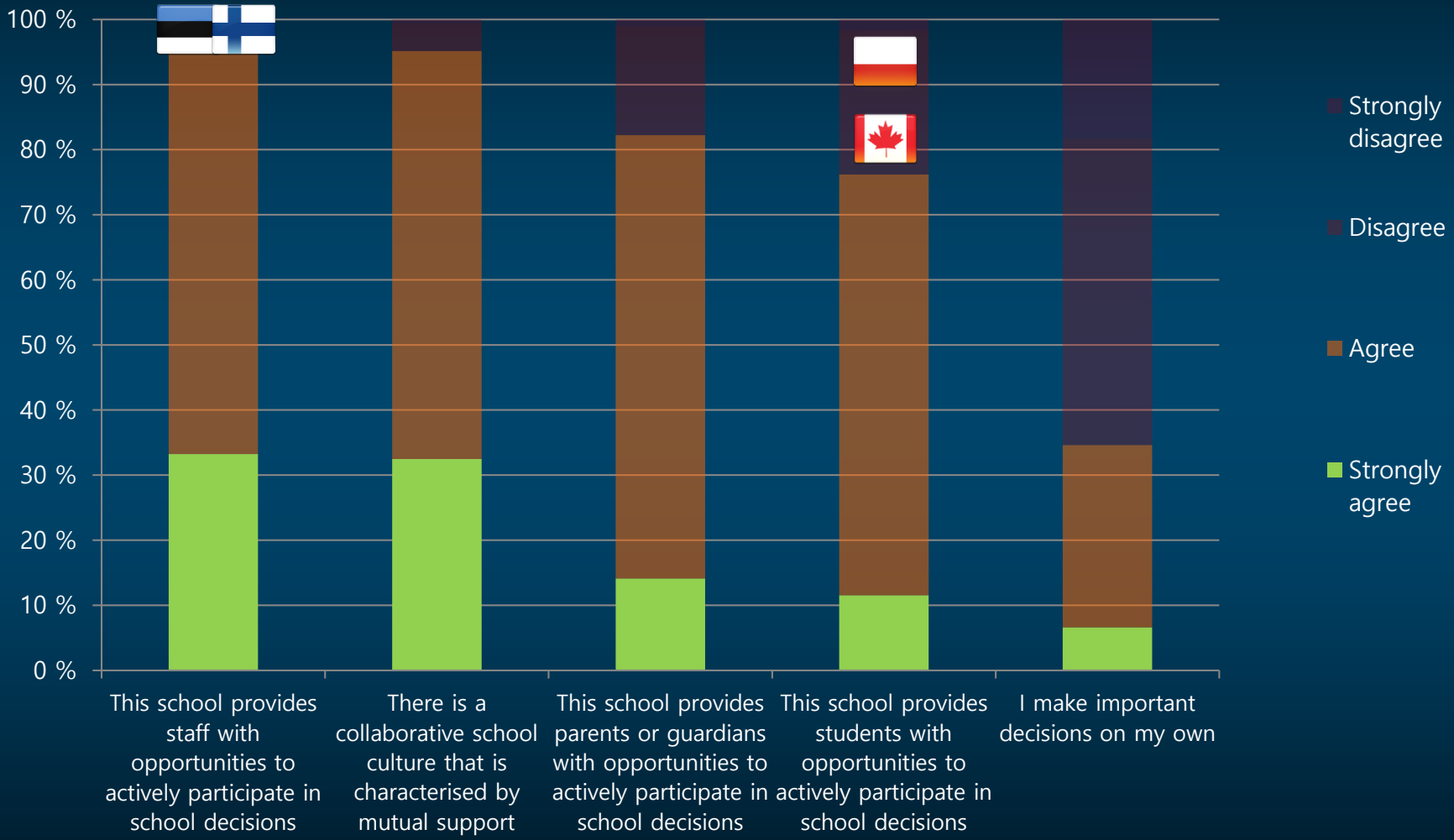
Australia's National Standards for Principals

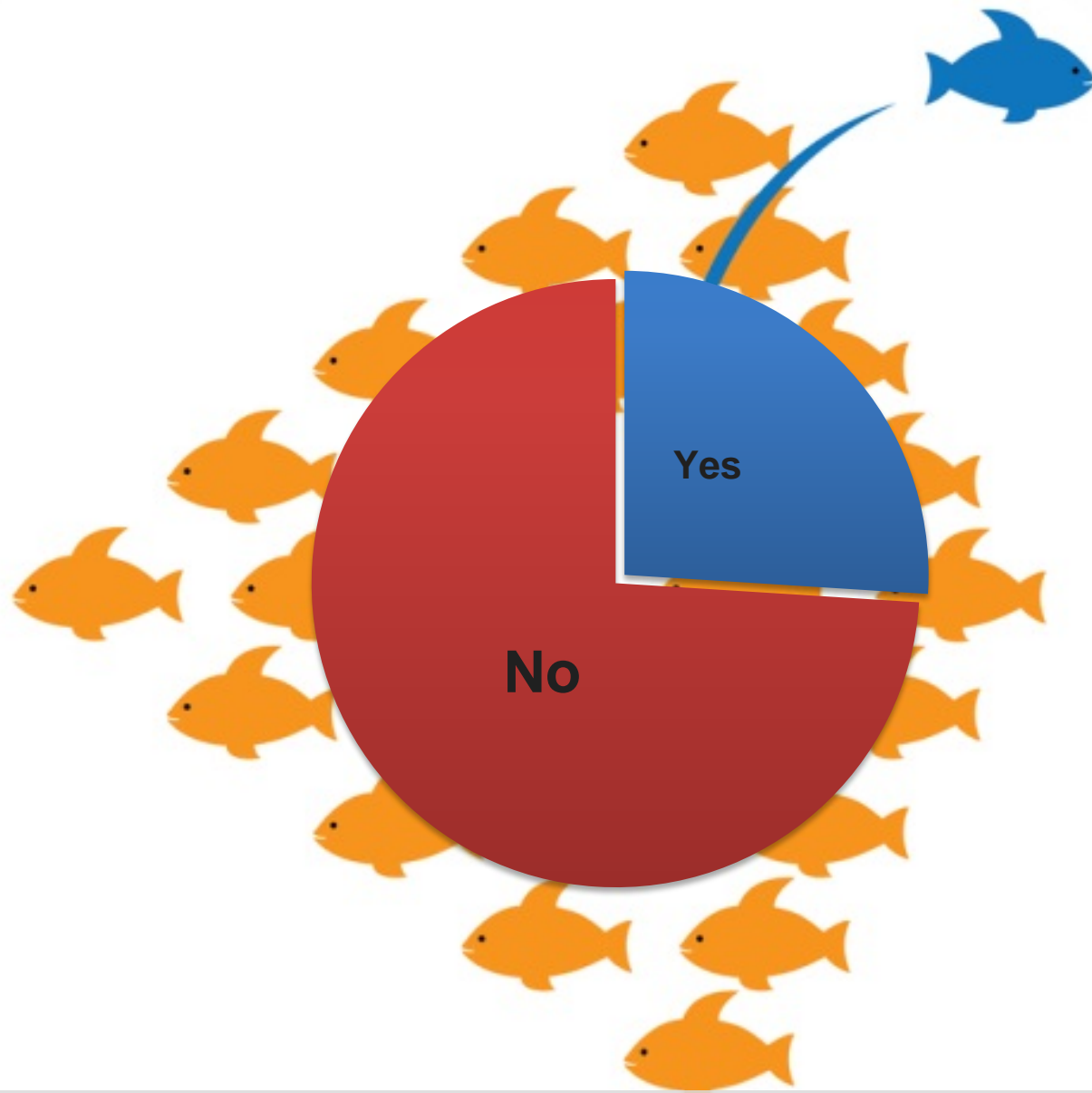
# Principals' Leadership





# School decisions and collaborative school culture





**If I am more innovative in my teaching  
I will be rewarded (country average)**

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– All publications 所有的出版物

– The complete micro-level database 完整的微观数据库

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Twitter: [SchleicherEDU](https://twitter.com/SchleicherEDU)

and remember: 记住:

Without data, you are just another person with an opinion

没有数据，你也只不过是一个有想法的普通人。