



FACING THE FUTURE – DISCOVERING THE BEAUTY

Loris Malaguzzi International Center, 10-11 March



Andreas Schleicher, Director for Education and Skills

Many disconnects

Infinite growth imperative

Financial economy

The wealthy

Gross domestic product

Technology

Governance

Finite resources of planet

Real economy

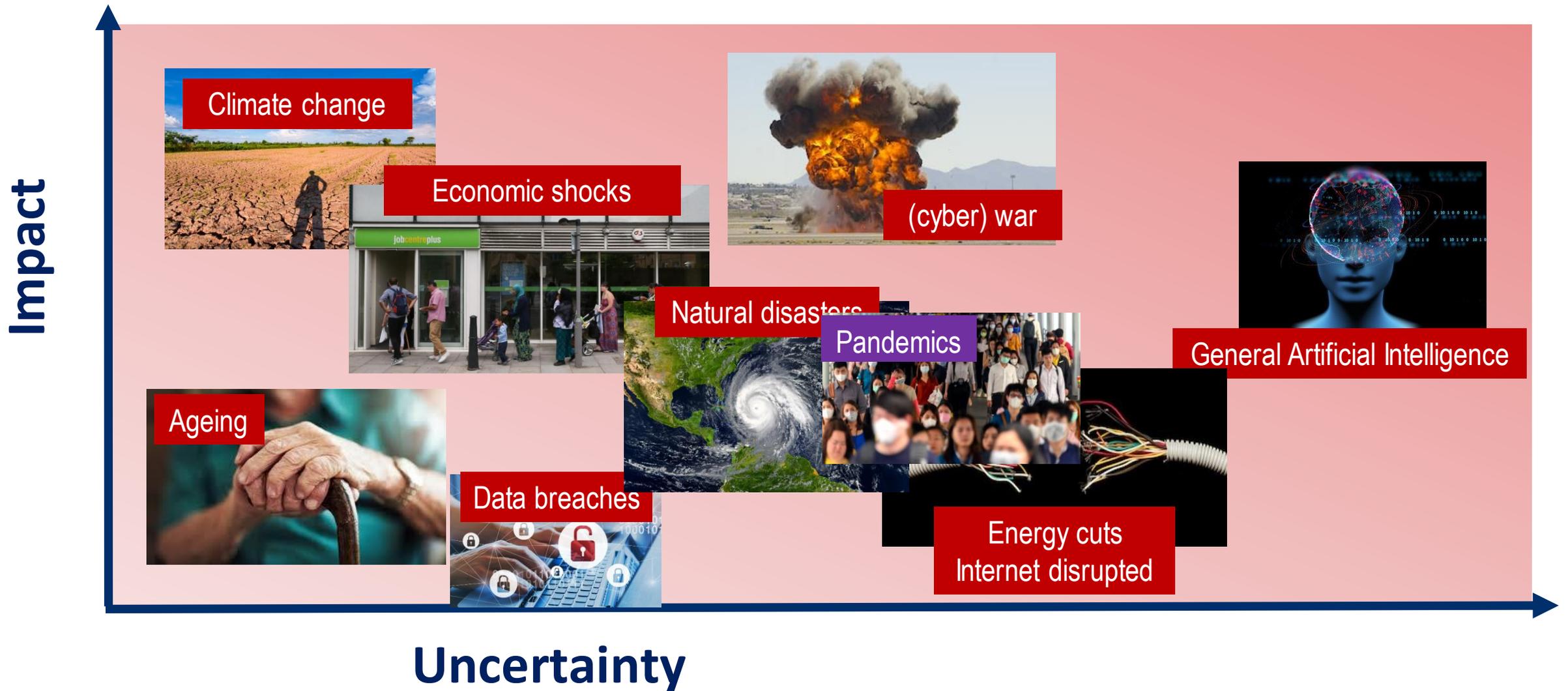
The poor

Well-being of people

Social needs

Voicelessness of people

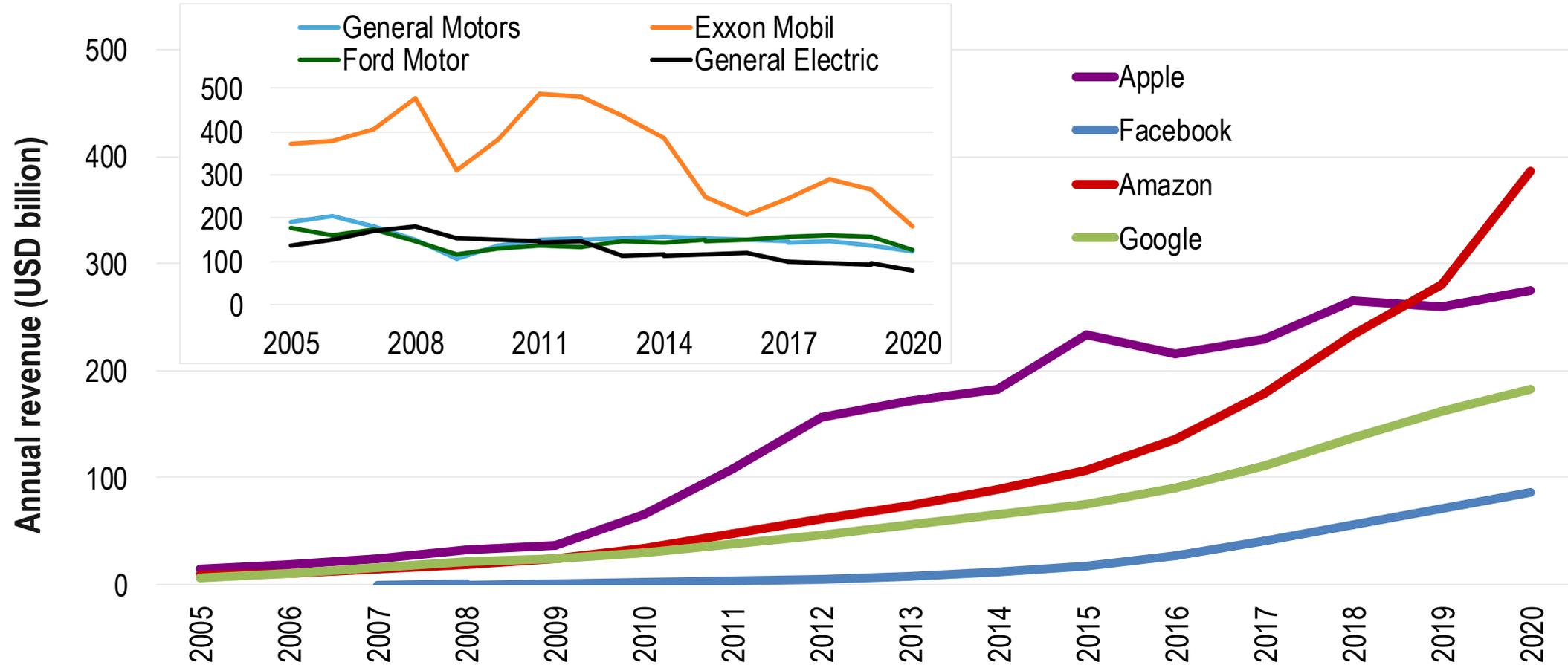
The future will always surprise us





The rise of Big Tech

Annual revenue of top four companies from the Fortune 500 in 1960 vs “Big Four” tech companies, 2005-2020

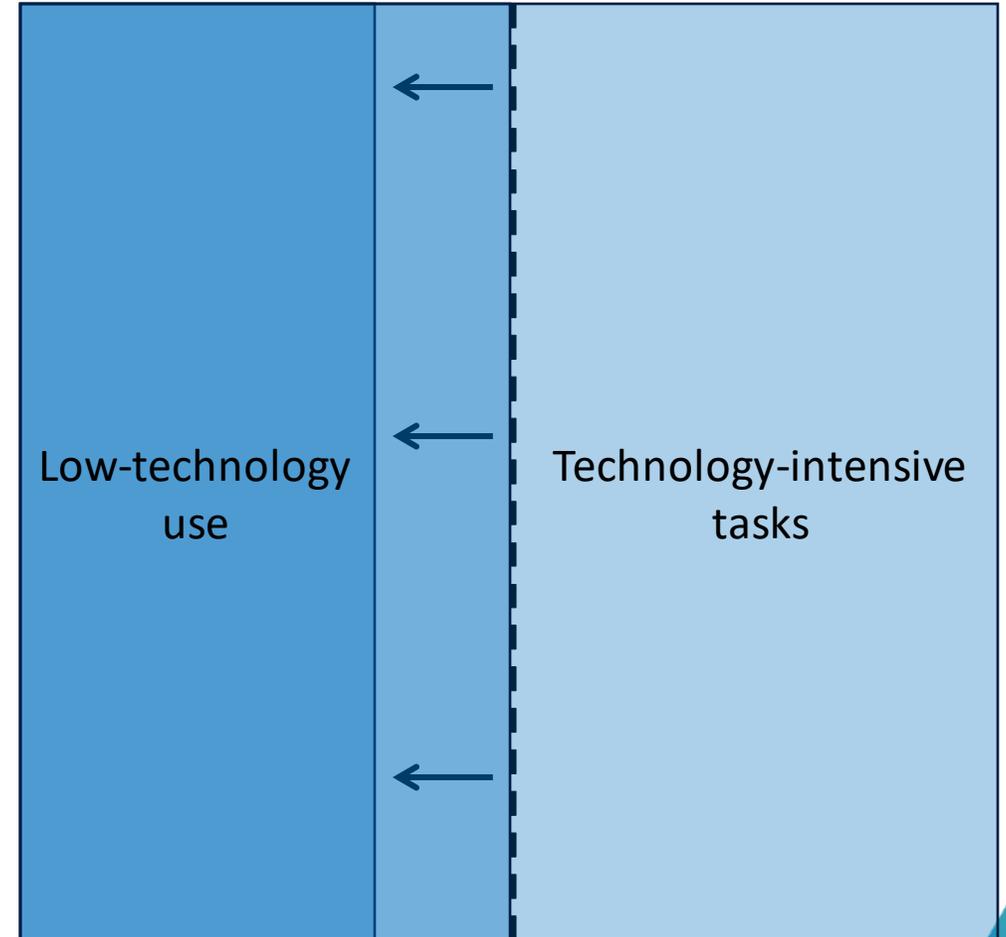
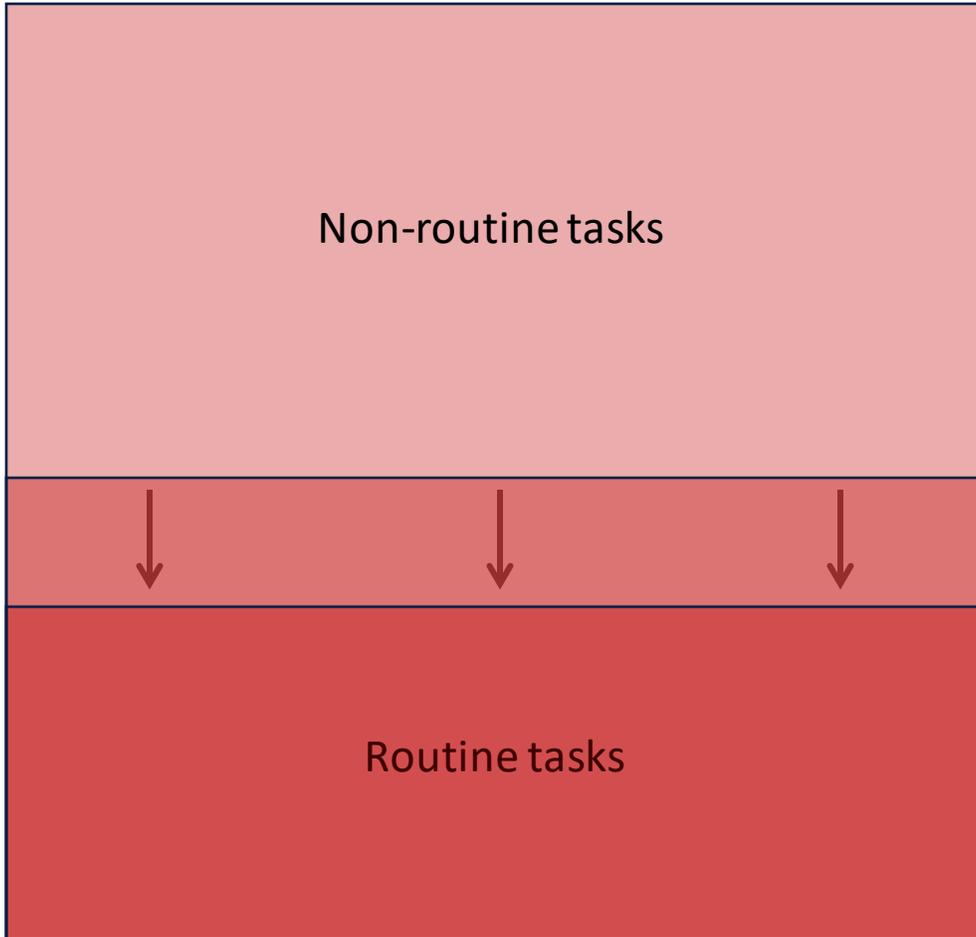


Source: OECD(2019), *An Introduction to Online Platforms and Their Role in the Digital Transformation*, <https://doi.org/10.1787/53e5f593-en>; companies' annual reports; and <https://macro trends.net>



The kinds of things that are easy to teach...

... have now become easy to digitise and automate





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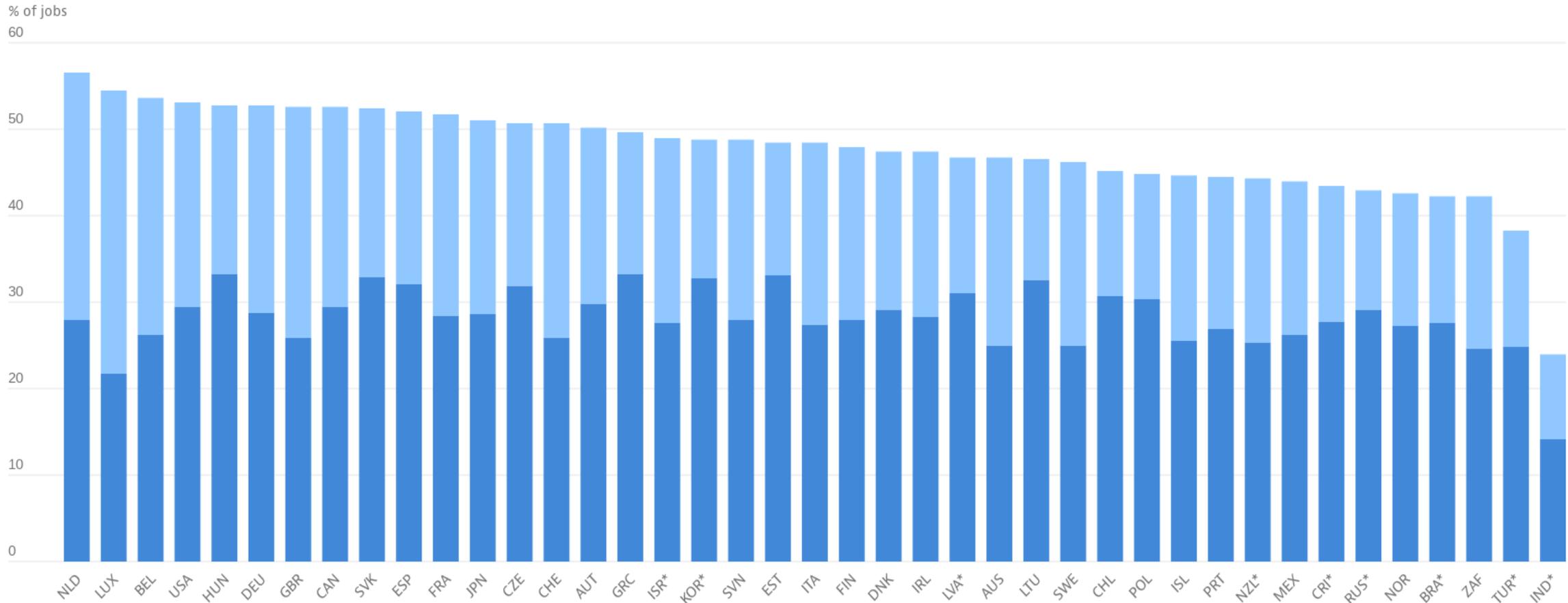
	Non-routine tasks Technology-intensive tasks
Routine tasks Low-technology use	



Many jobs are digitally-intensive

Employment in digital-intensive sectors as a share of total employment (2016)

■ High digital-intensive industries ■ Medium-high digital-intensive industries

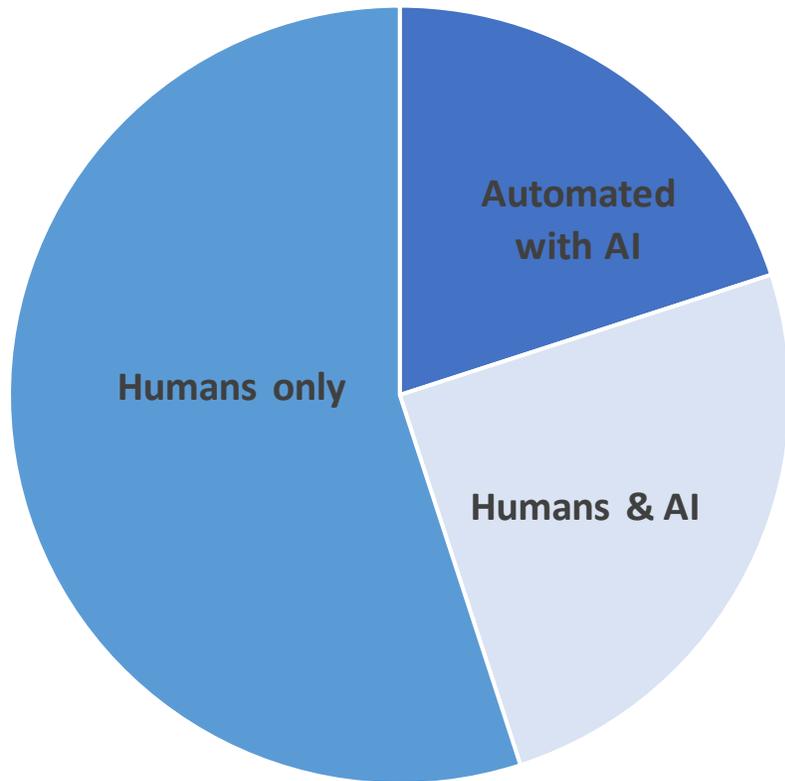




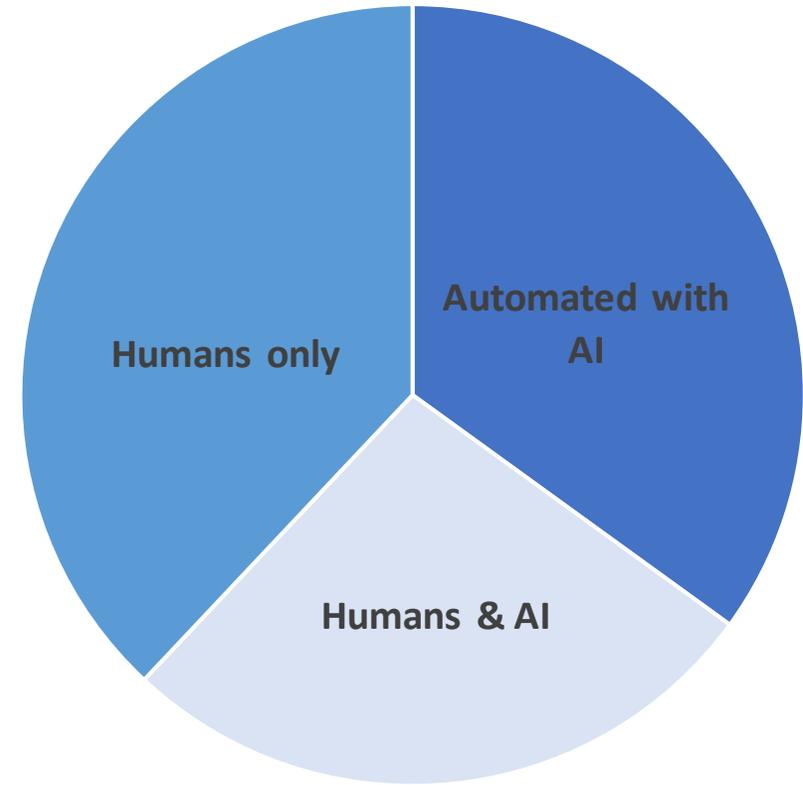
Human tasks are shifting

With many human tasks now automated with AI

Distribution of types of tasks

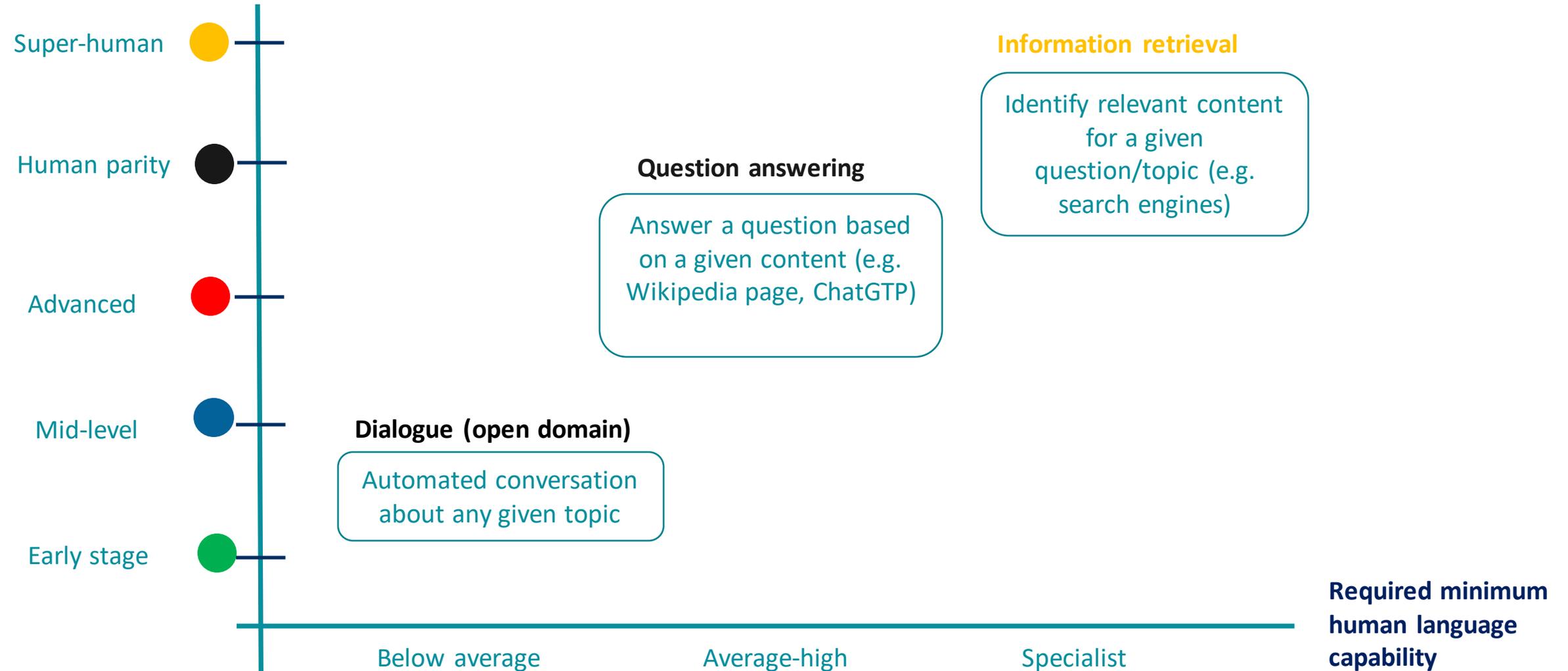


Distribution of types of tasks
with new AI capabilities



AI versus humans – benchmarks

State of the art Natural Language Processing performance



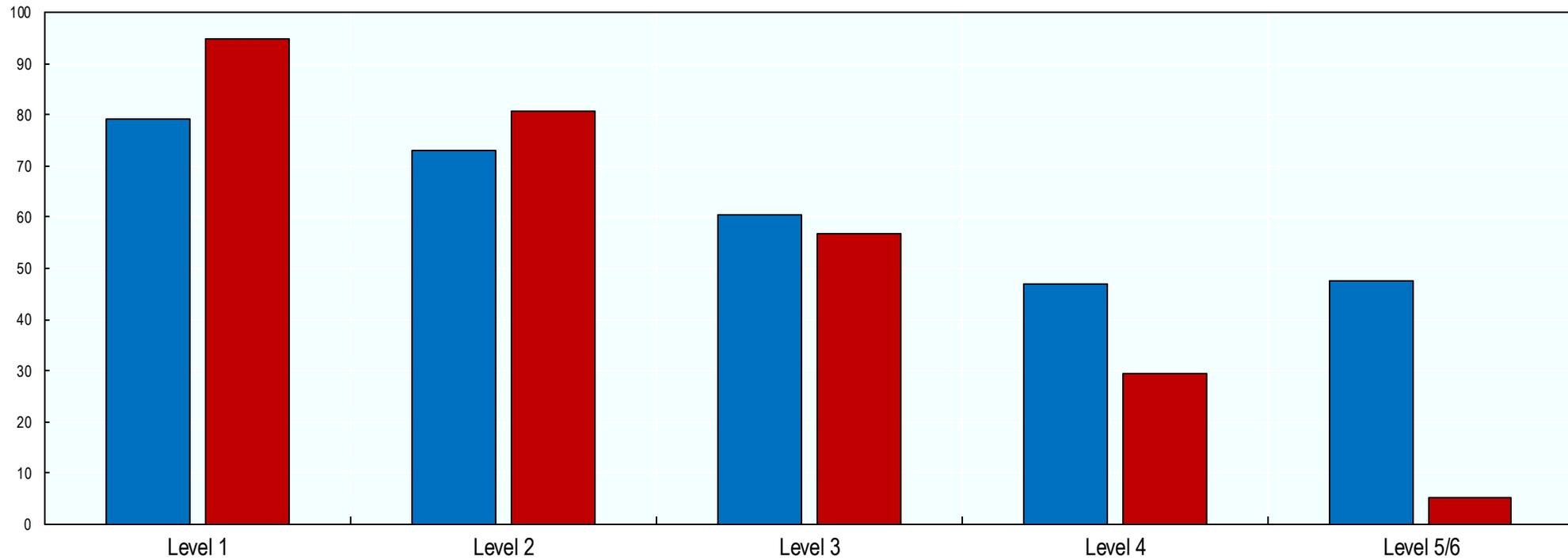


2022 AI on PISA science

■ AI

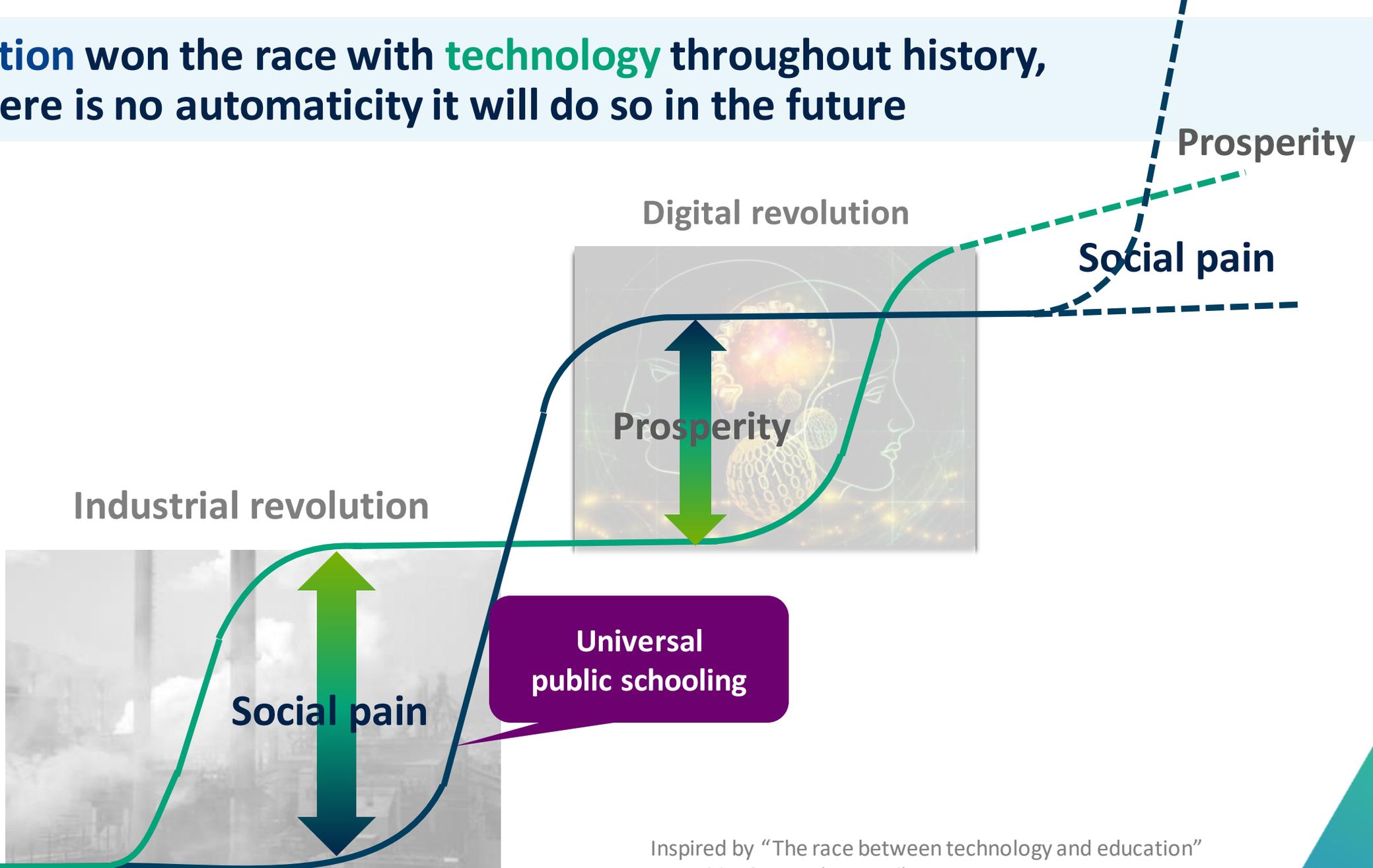
■ Average human (OECD)

PISA - Science



Education won the race with **technology** throughout history, but there is no automaticity it will do so in the future

Technology
Education



Digital revolution

Prosperity

Social pain

Prosperity

Industrial revolution

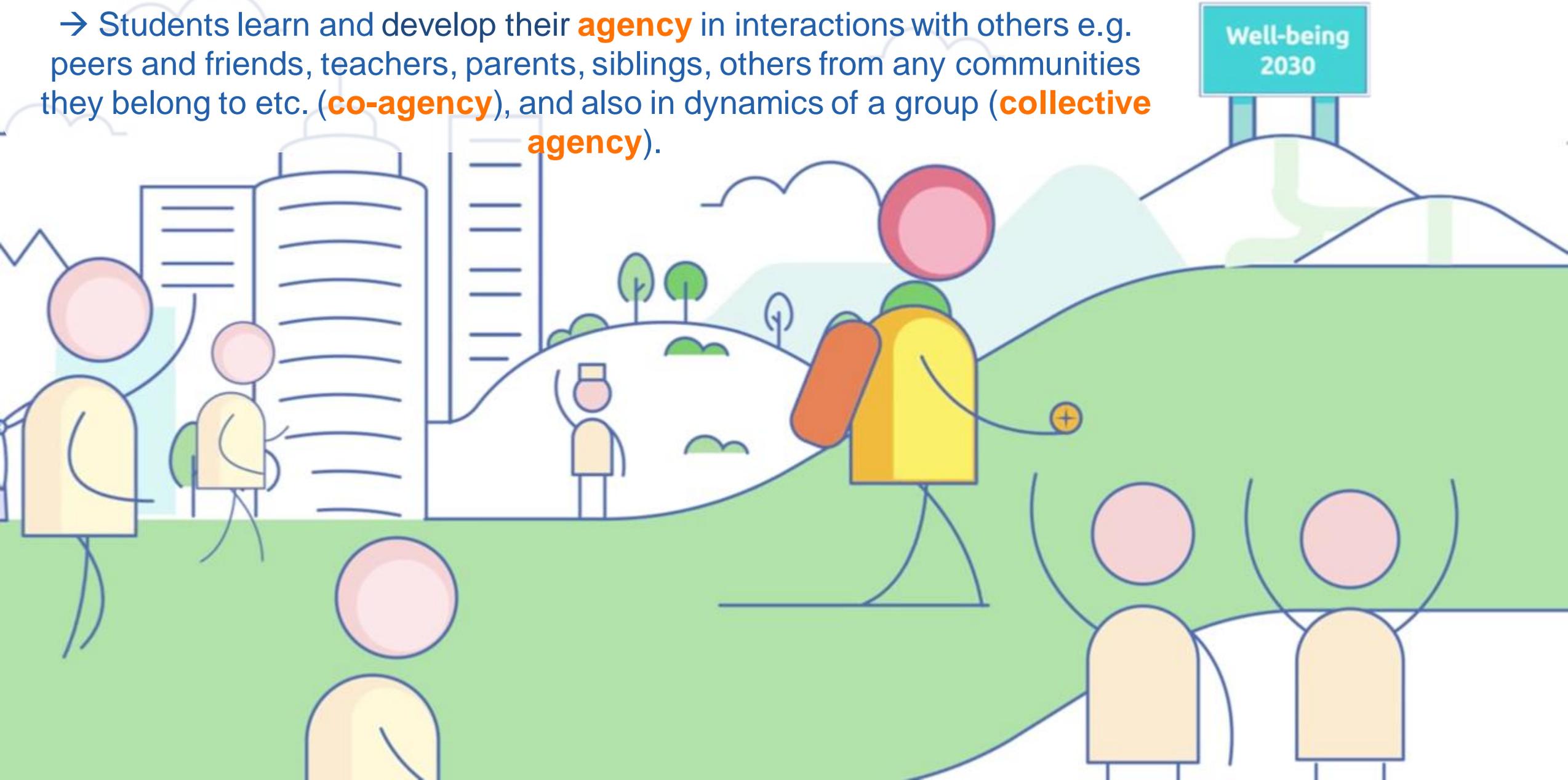
Social pain

Universal
public schooling

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

Agency as the core to competency

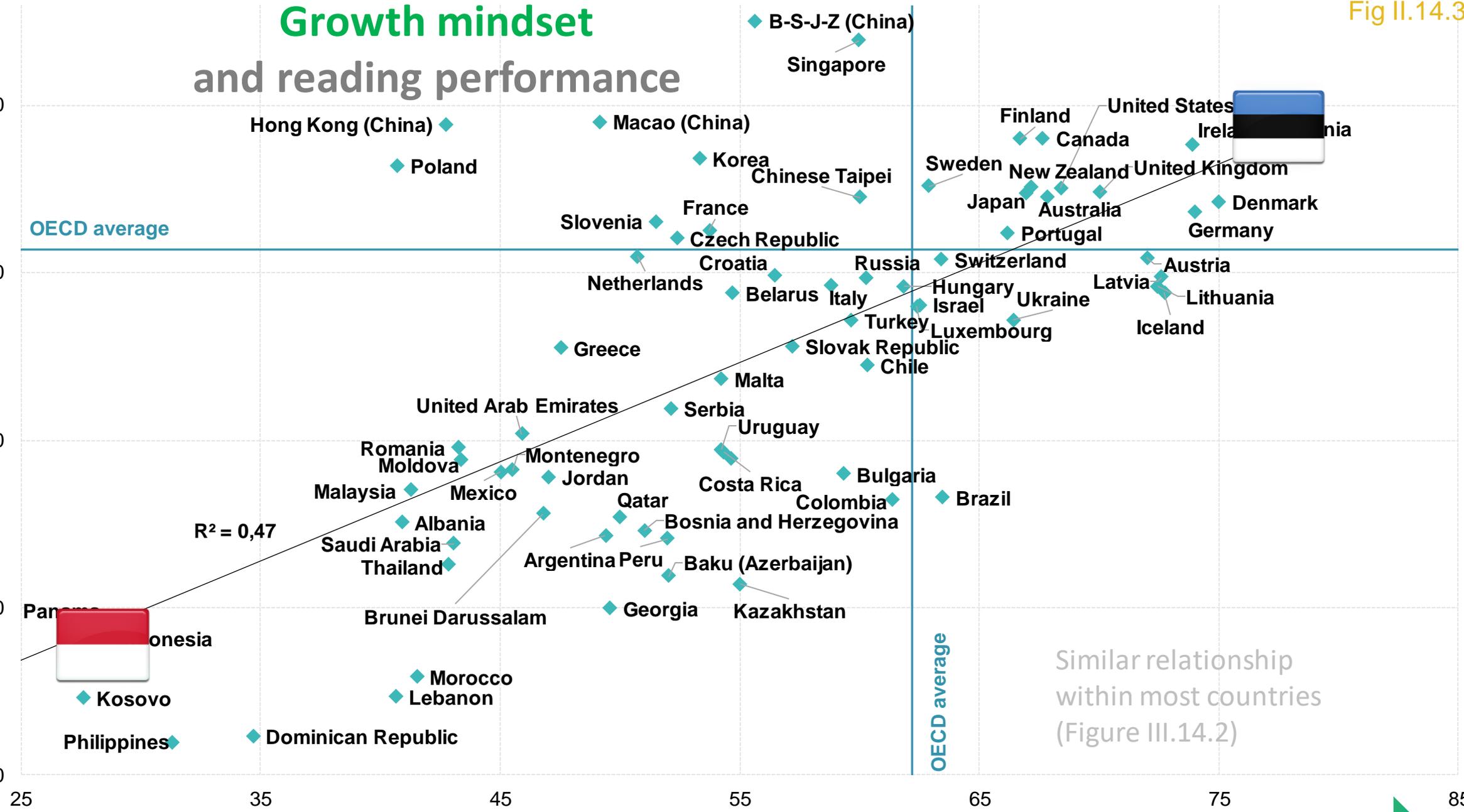
→ Students learn and develop their **agency** in interactions with others e.g. peers and friends, teachers, parents, siblings, others from any communities they belong to etc. (**co-agency**), and also in dynamics of a group (**collective agency**).



Growth mindset and reading performance



Average reading score



$R^2 = 0,47$

OECD average

Similar relationship within most countries (Figure III.14.2)



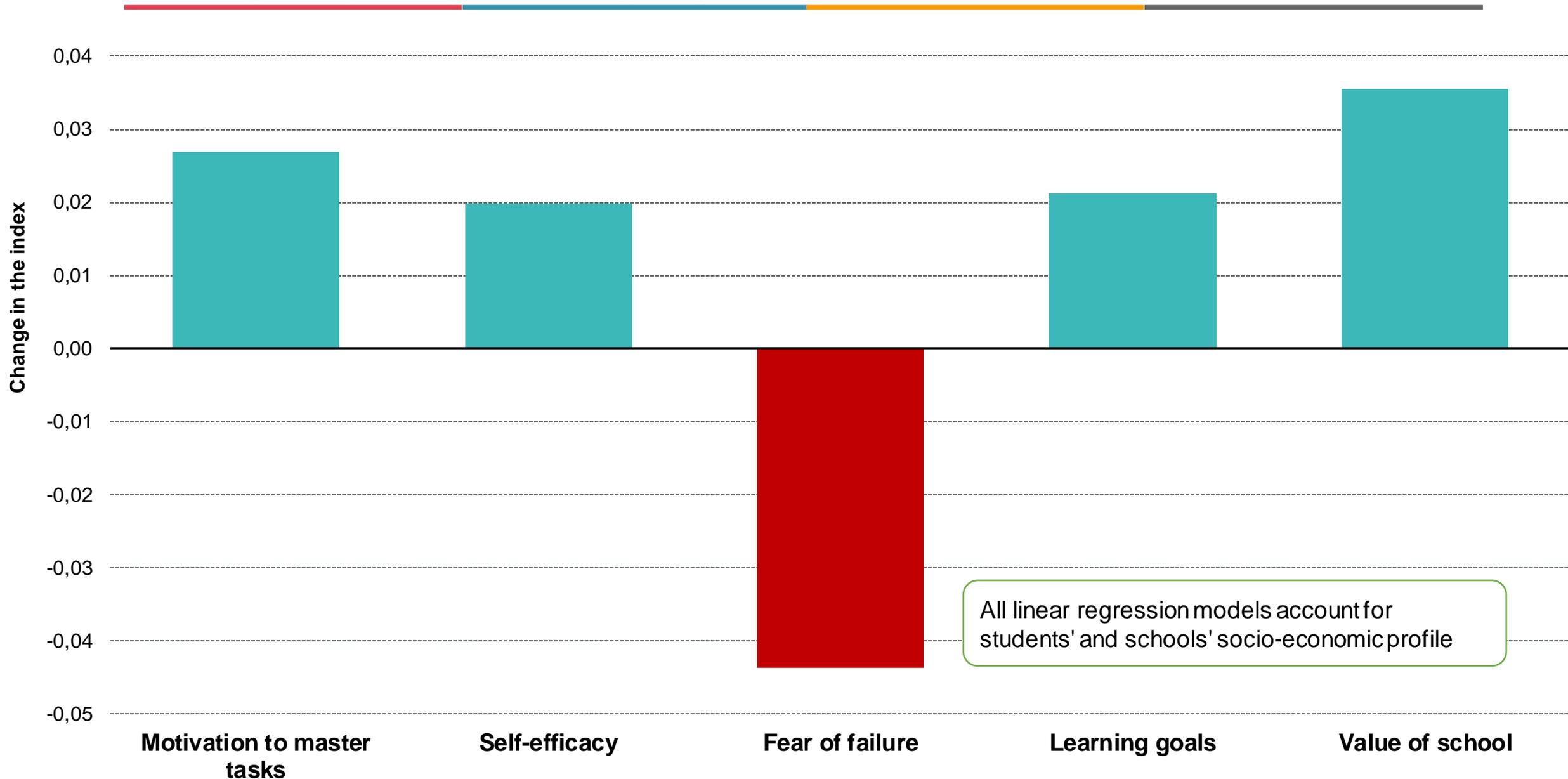
Percentage of students who disagreed or strongly disagreed that their intelligence cannot change very much (%)

More students holding a growth mindset

Growth mindset and student attitudes

Change in the following indices when students disagreed or strongly disagreed that "your intelligence is something about you that you can't change very much":

Fig III.14.5





15-year-olds report **lower** creativity than 10-year-olds

Age gaps in creativity

mean scale difference (students and parents)

mean scale difference (teachers)

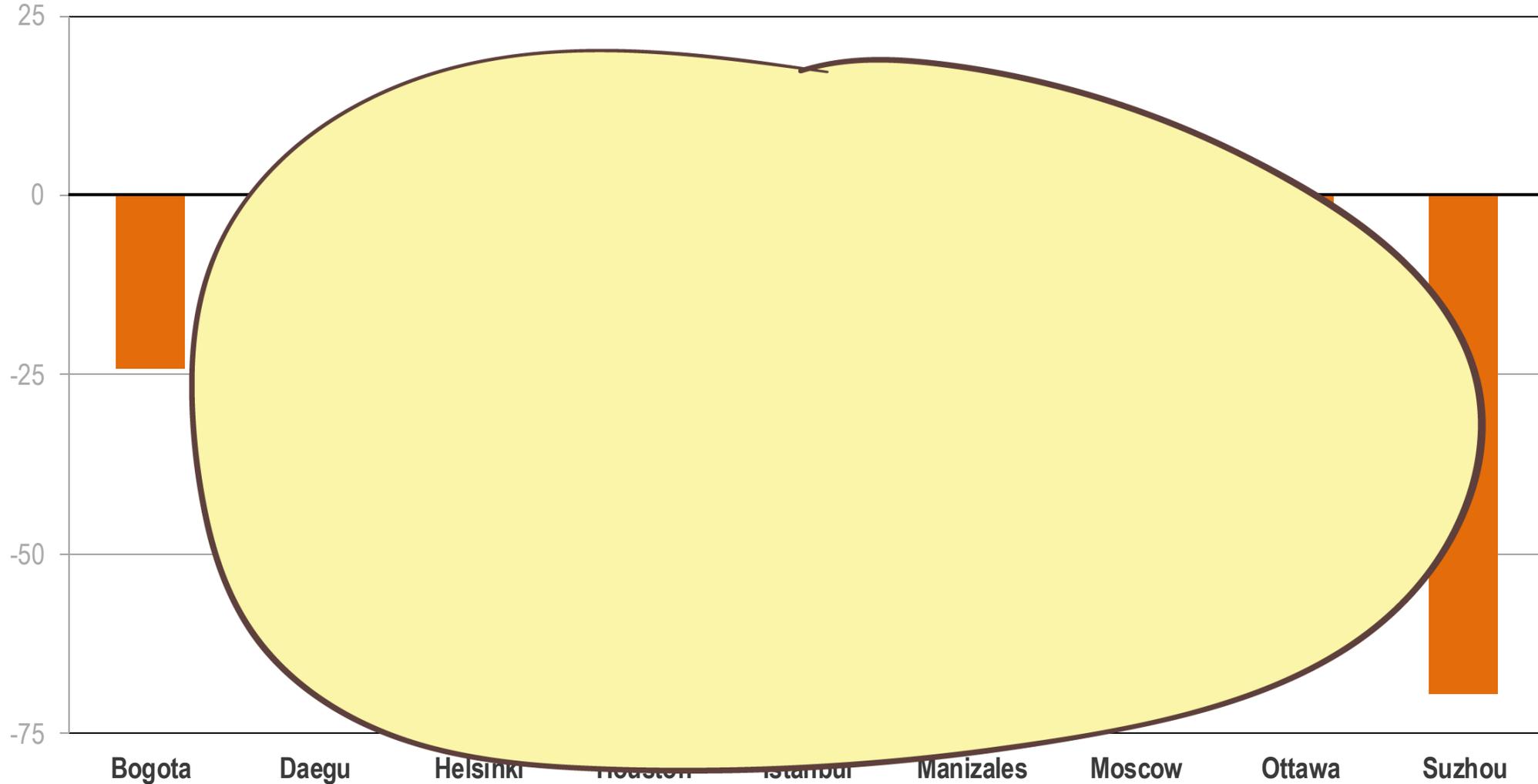
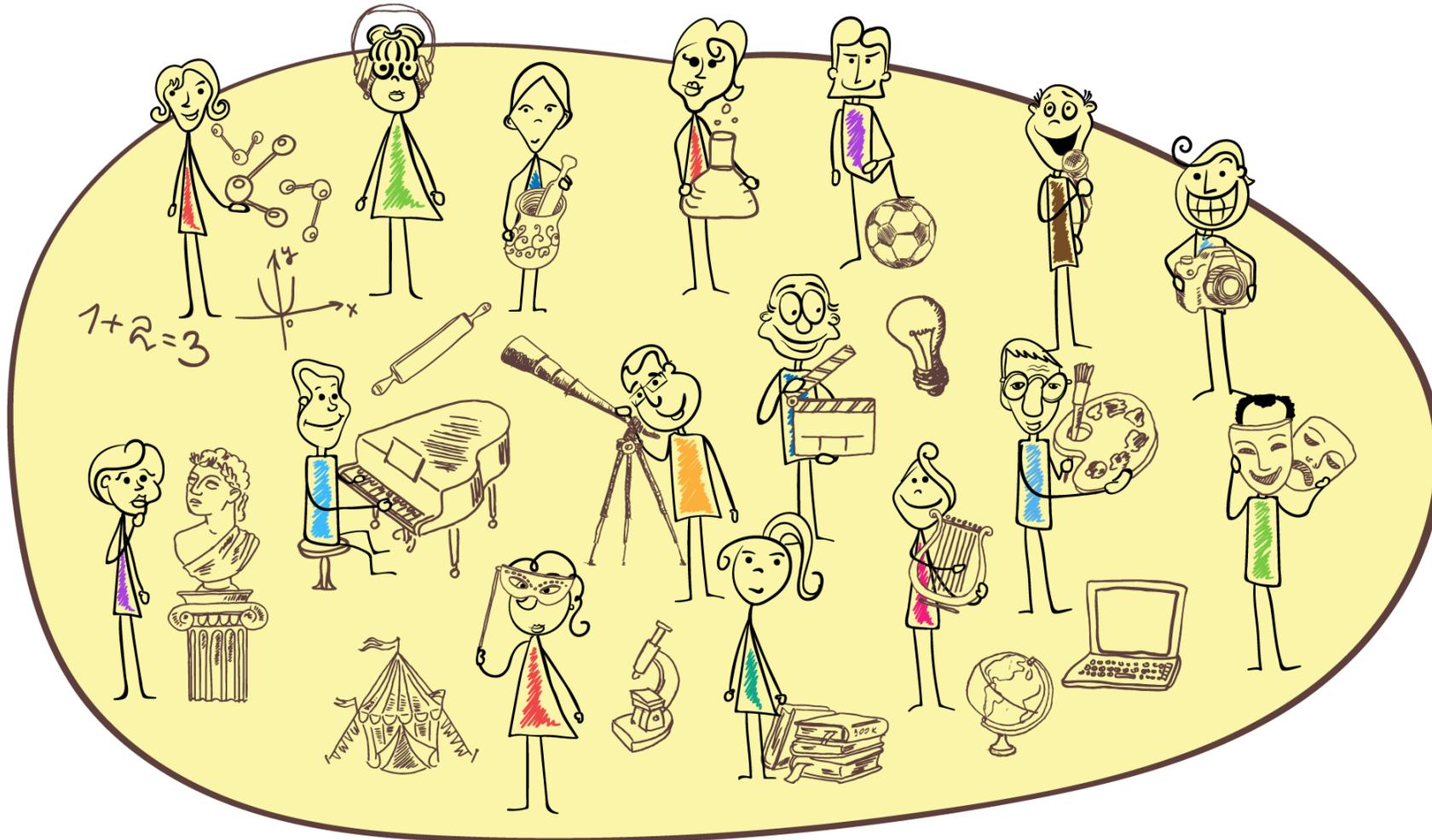


Figure 4.3

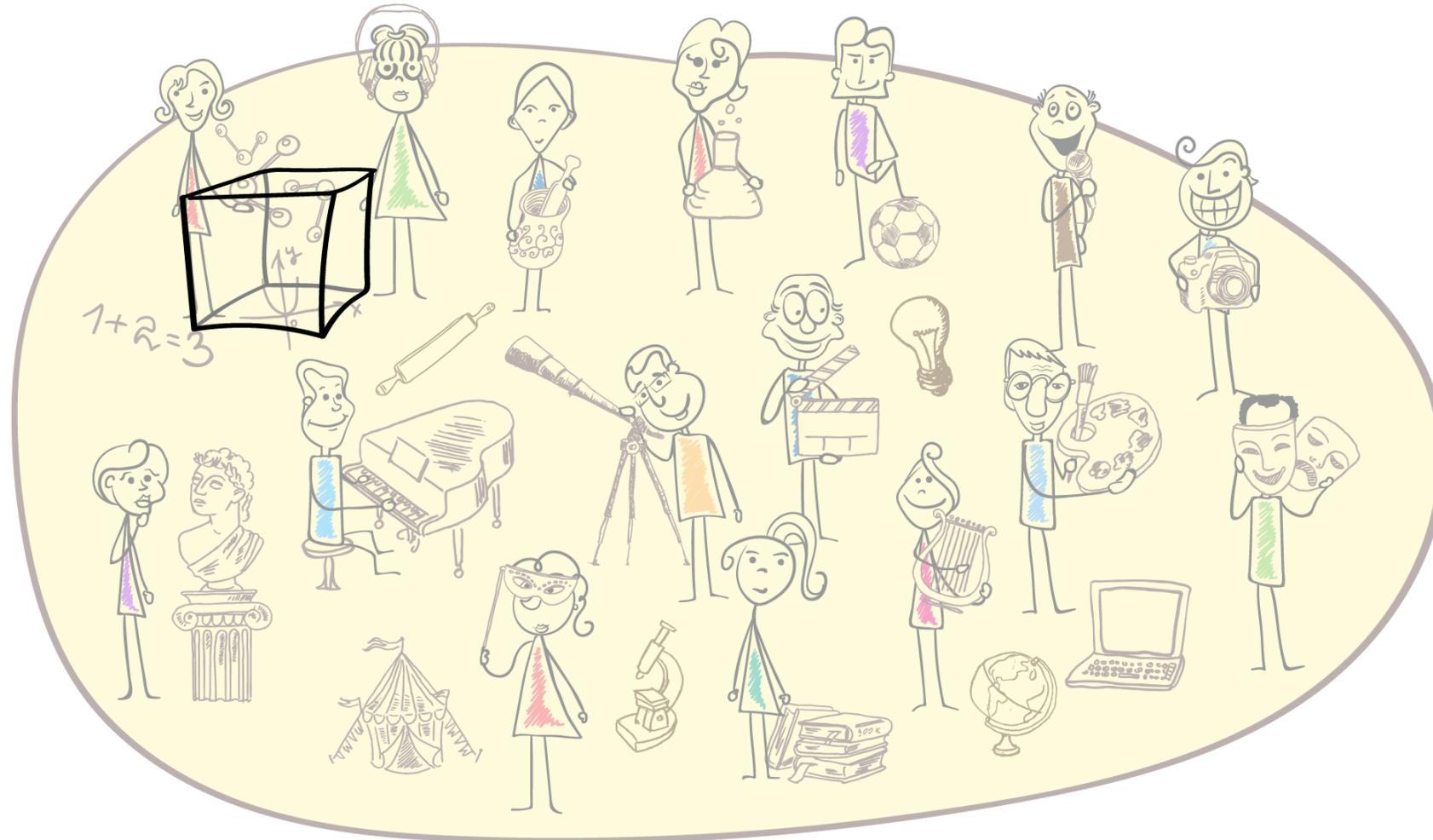
The multi-faceted world of knowledge



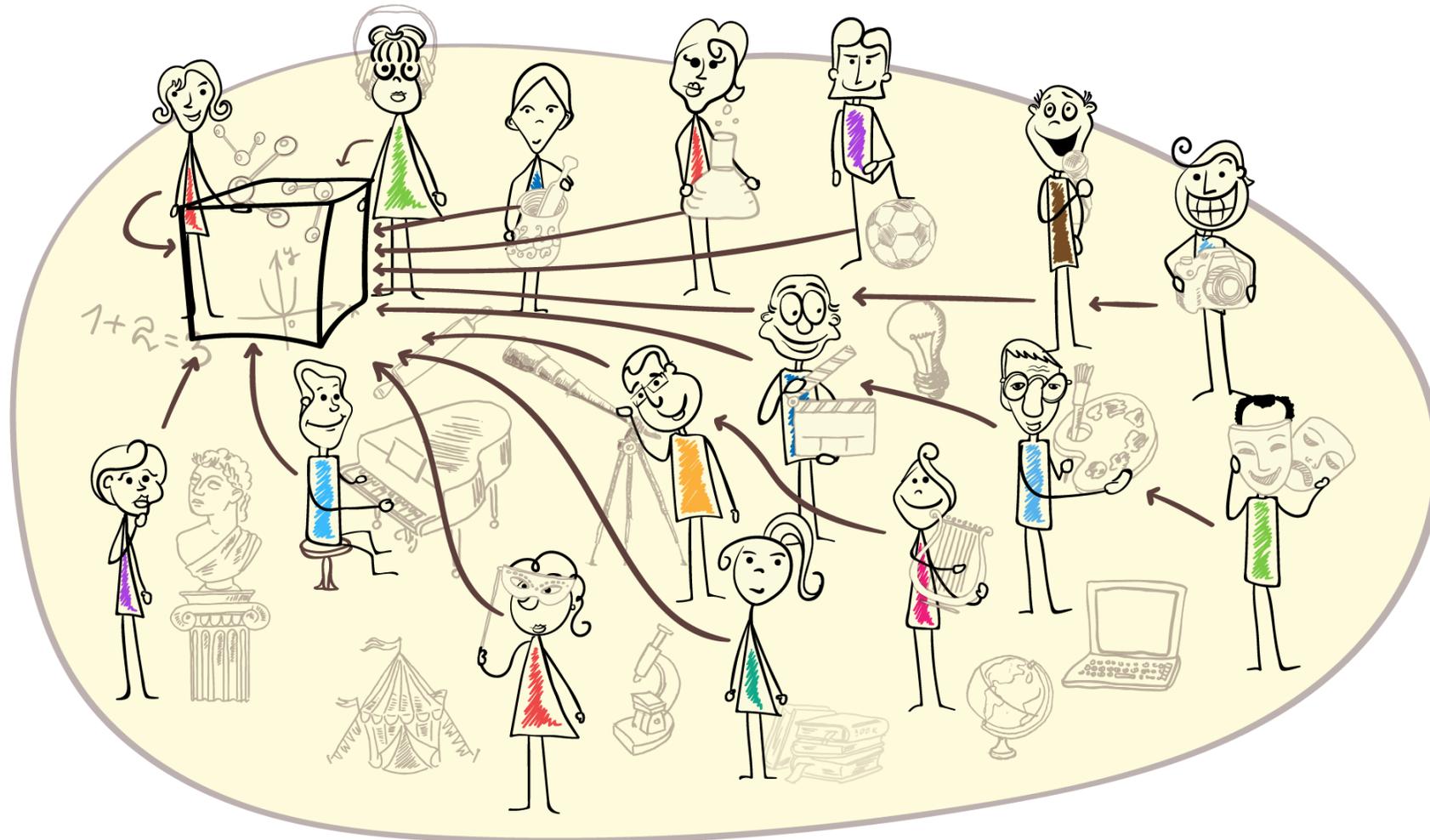
The **human** world of knowledge



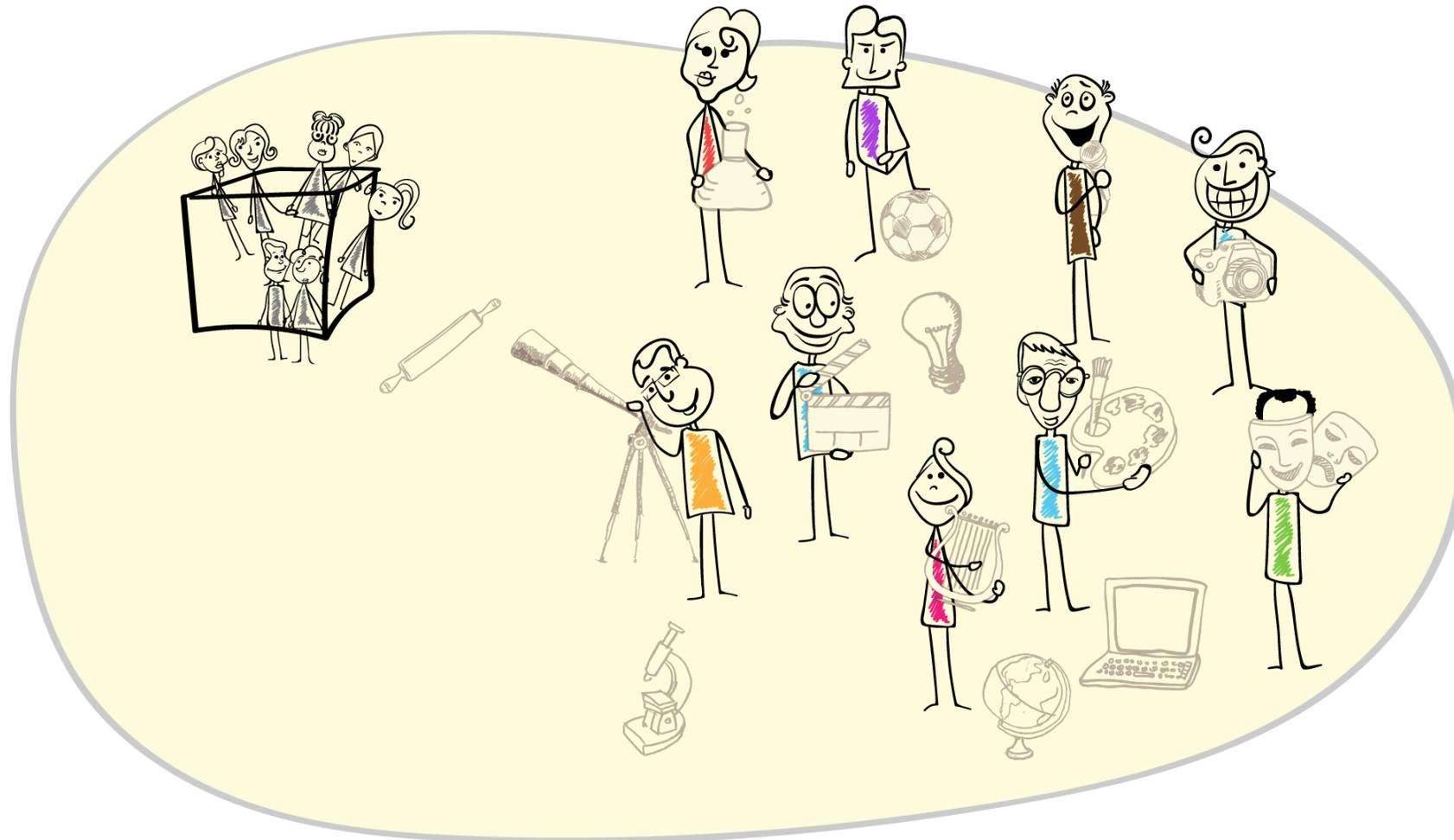
The small world of the curriculum



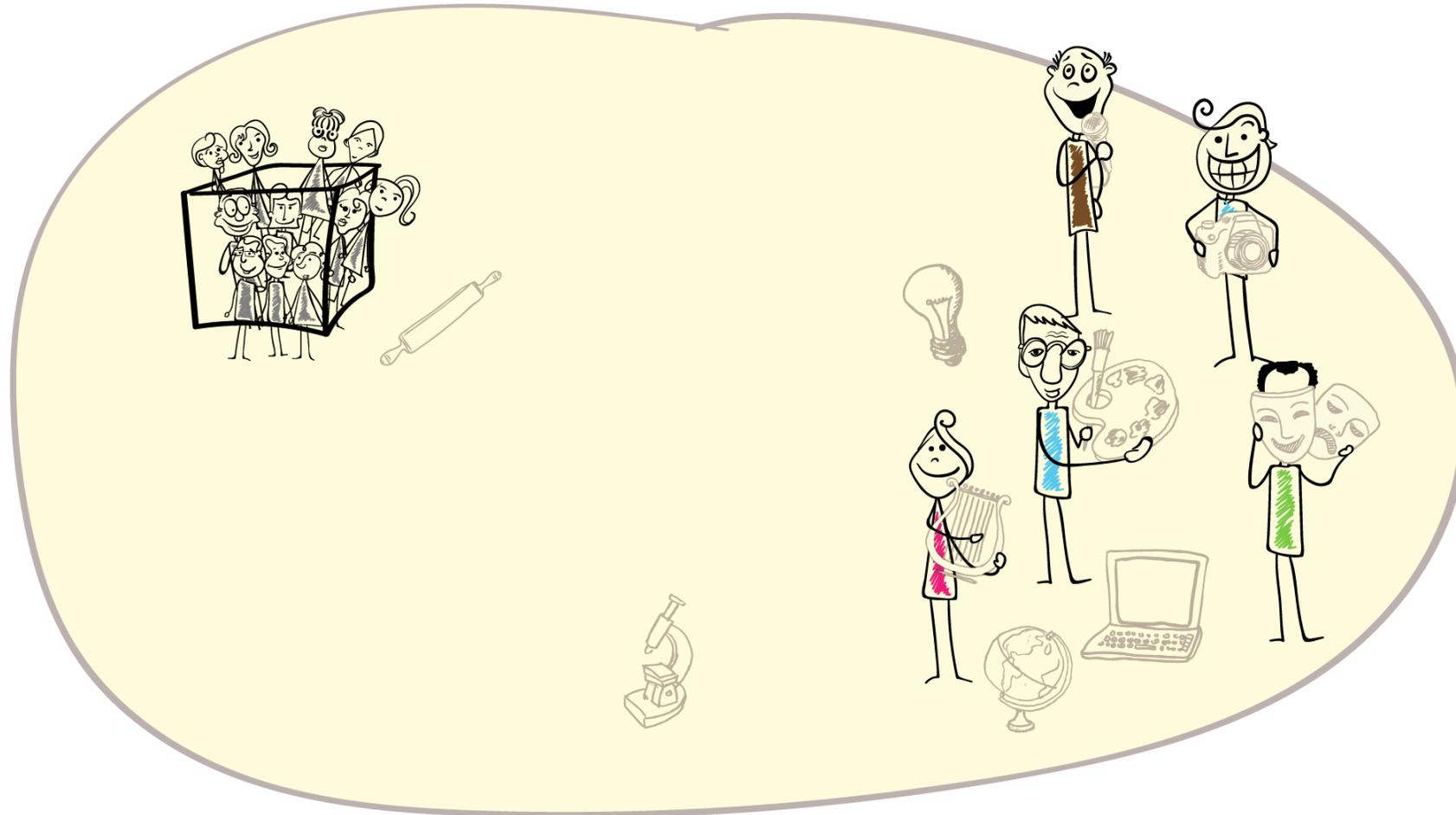
The small world of the curriculum



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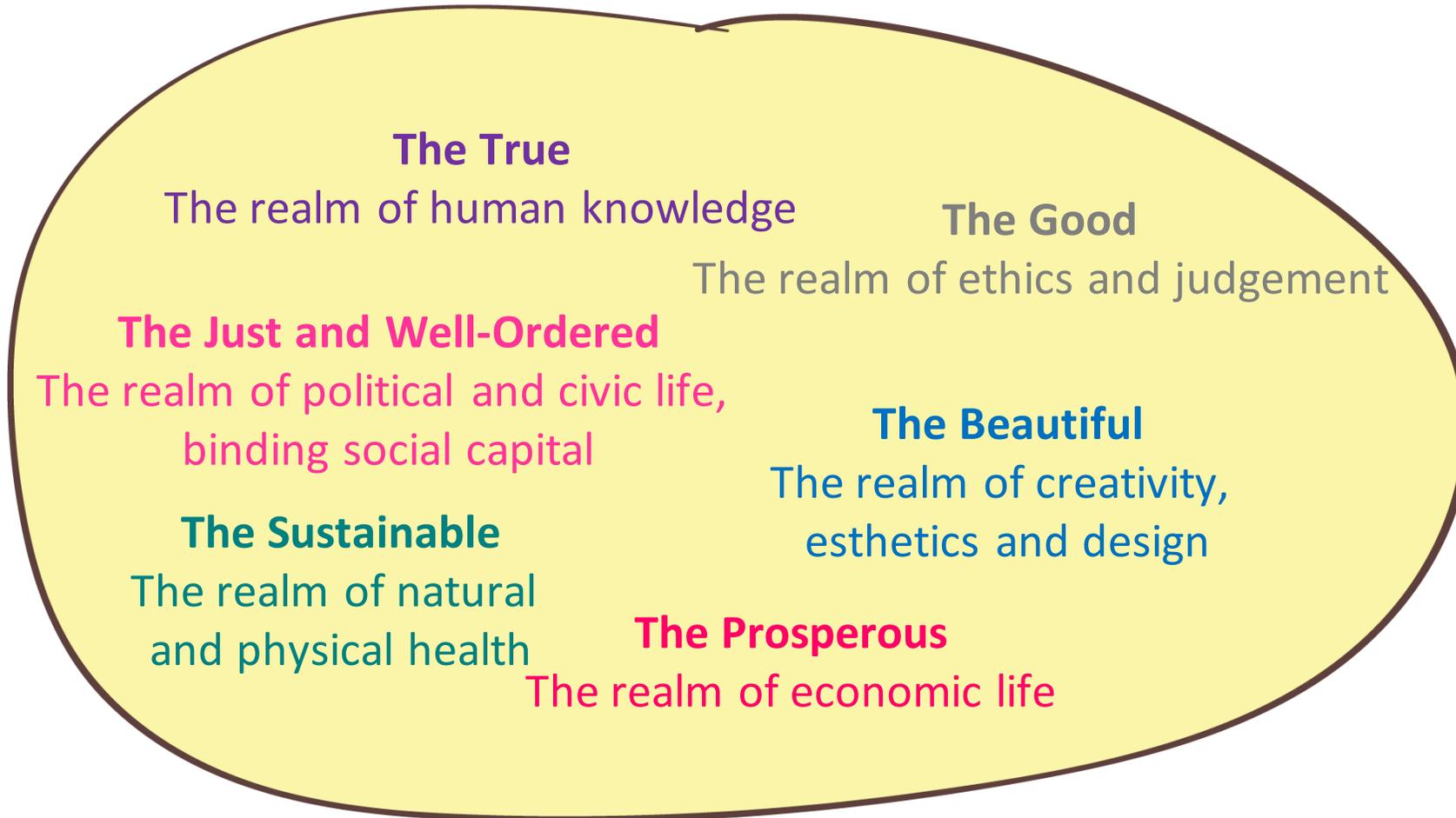
The small world of the curriculum



The small world of the curriculum



The big real world







Students participating in **art activities** reported higher levels of creativity and curiosity

Difference in skill scores, by participation in sports and arts activities, accounting for socio-economic status and gender

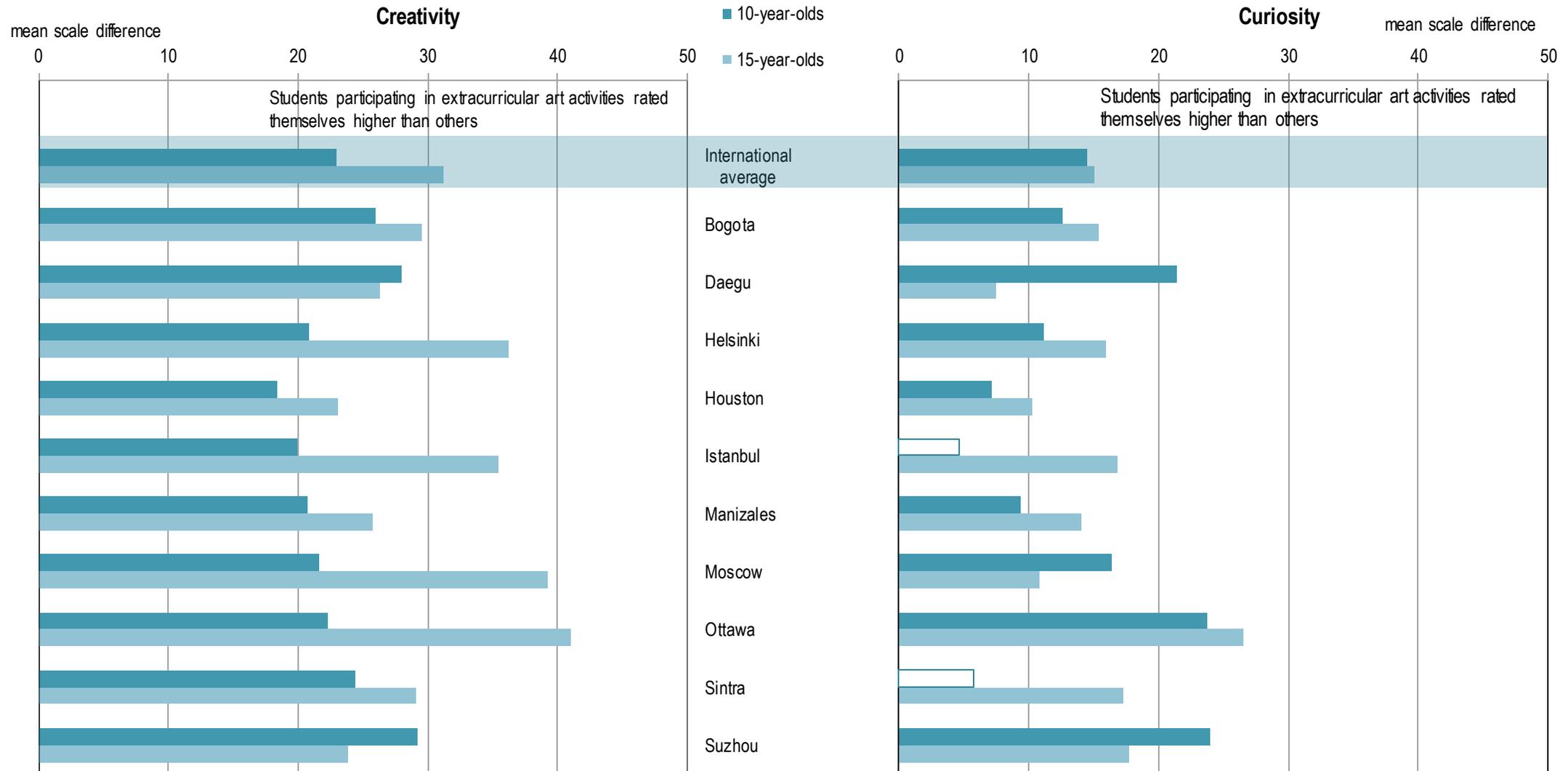


Figure 4.8



Students who report high levels of **creativity** exhibit higher levels of other social and emotional skills

A profile of 15-year-old students reporting high levels of creativity

Percentage of high-creativity students also reporting a high level of...

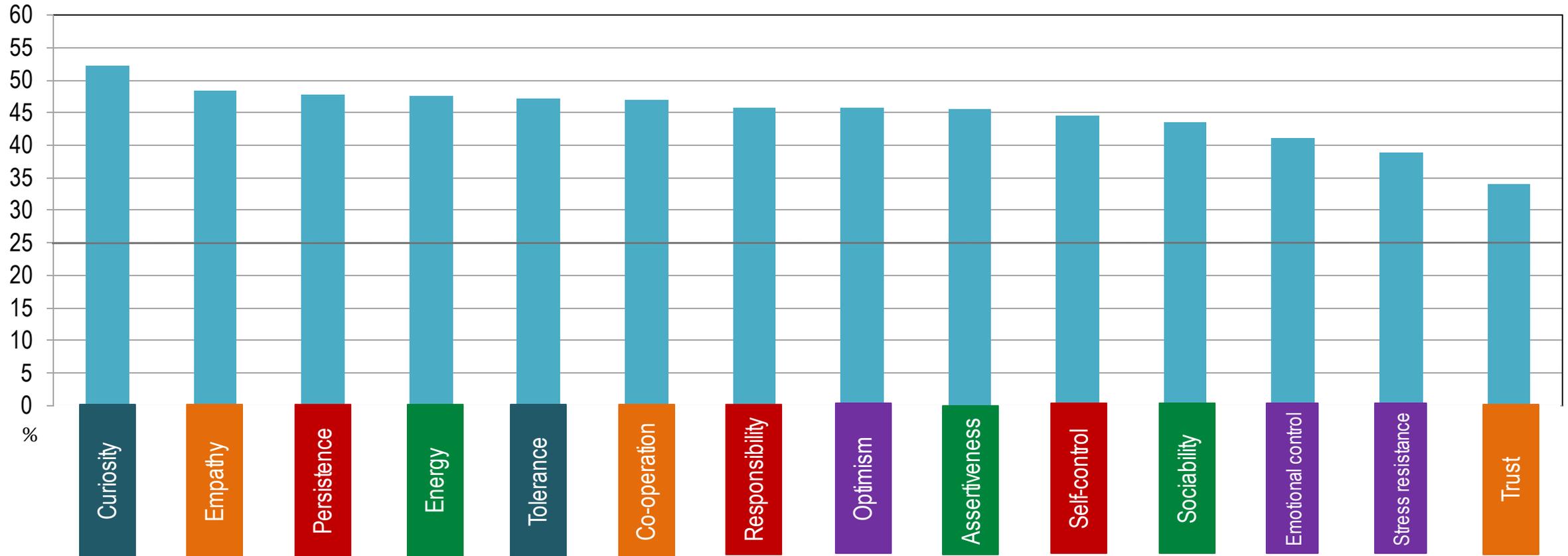


Figure 4.1



Instruction time for the **Arts** and **Mathematics** in compulsory general lower secondary education

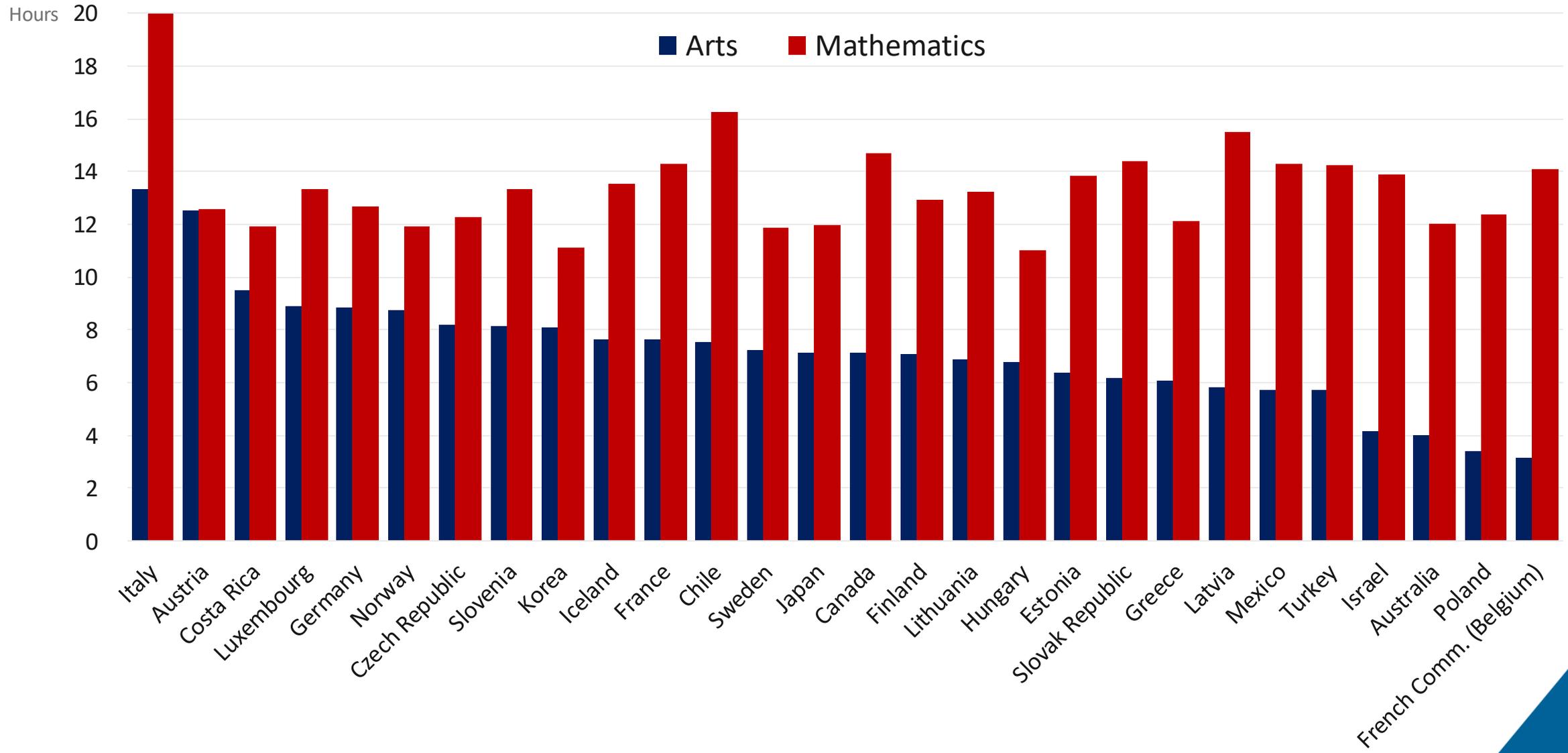
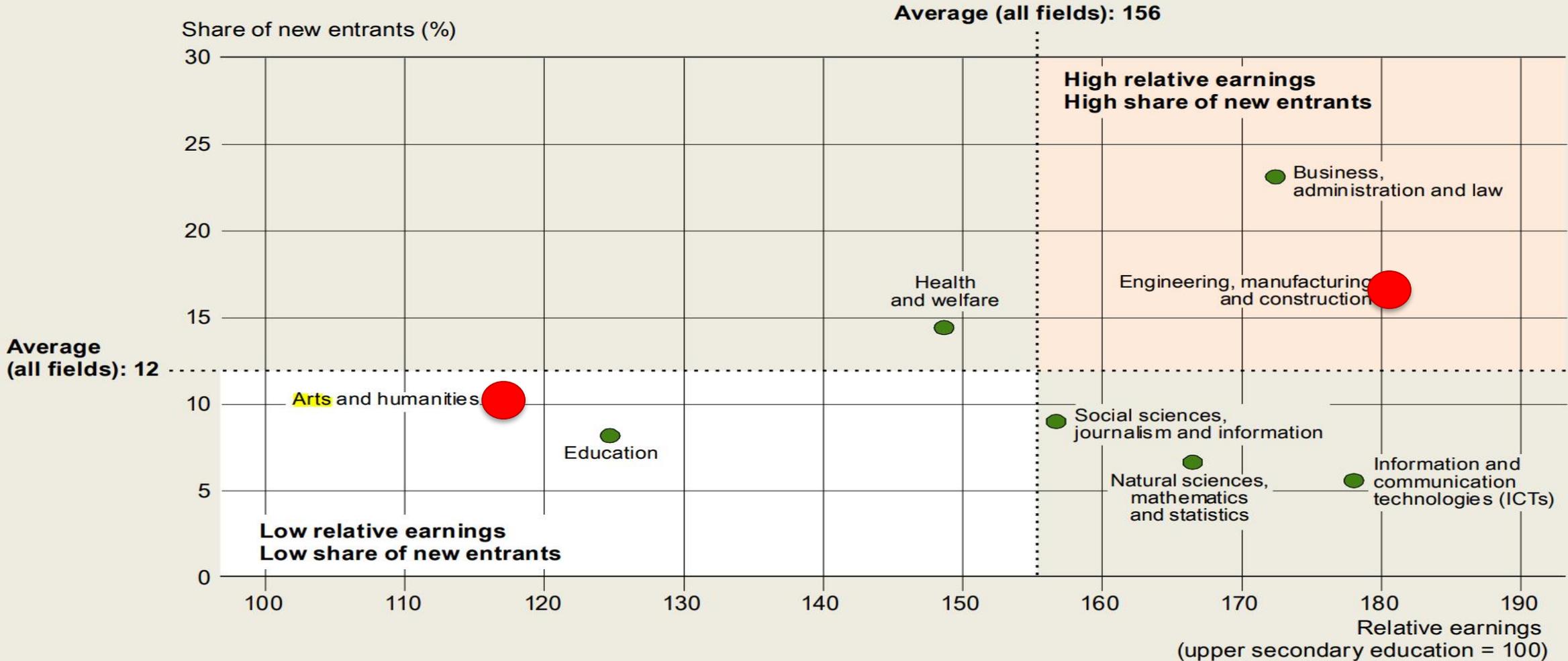


Figure A4.5. Relationship between the share of tertiary new entrants and relative earnings, by field of study (2017)

Average across OECD countries with available data

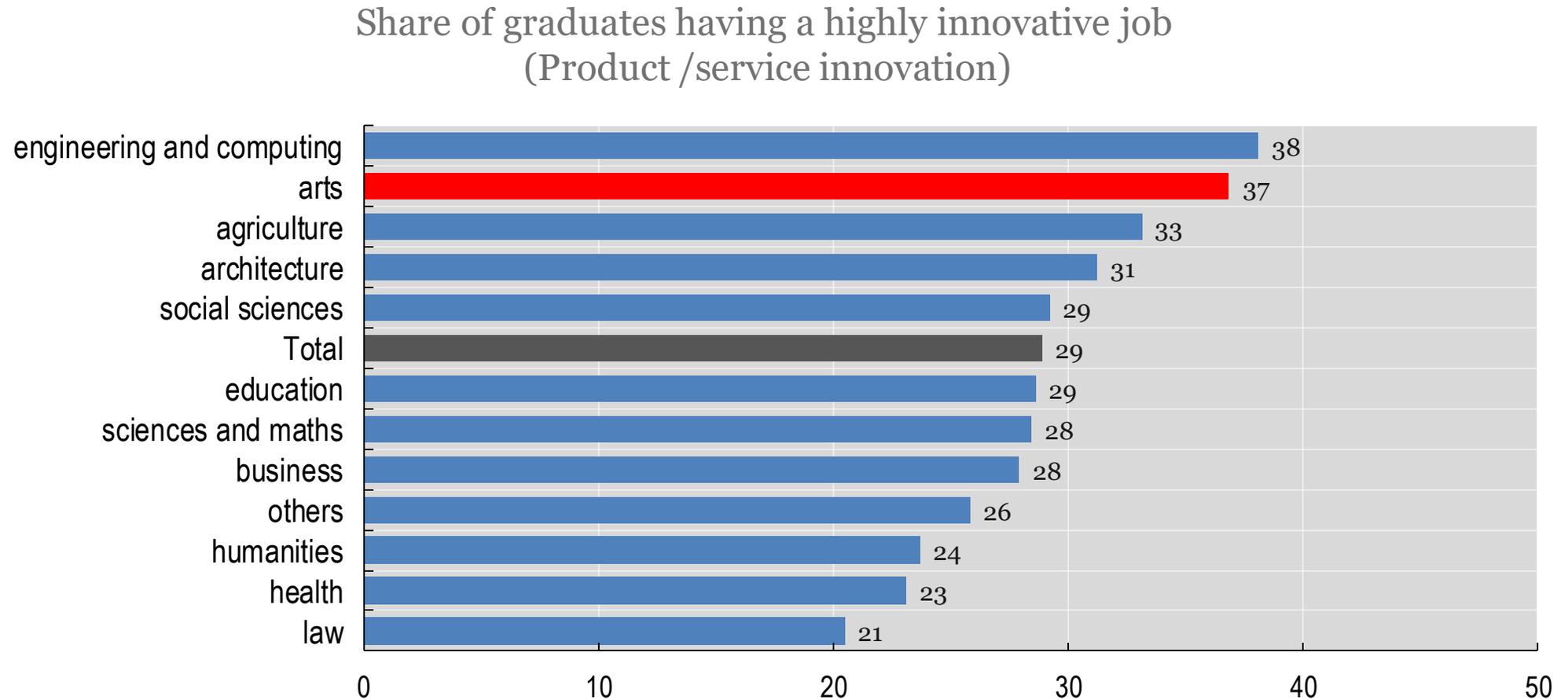


Source: OECD (2020). Education at a Glance Database, <http://stats.oecd.org/>. See Source section for more information and Annex 3 for notes (<https://doi.org/10.1787/f8d7880d-en>).



Art for Art's Sake?

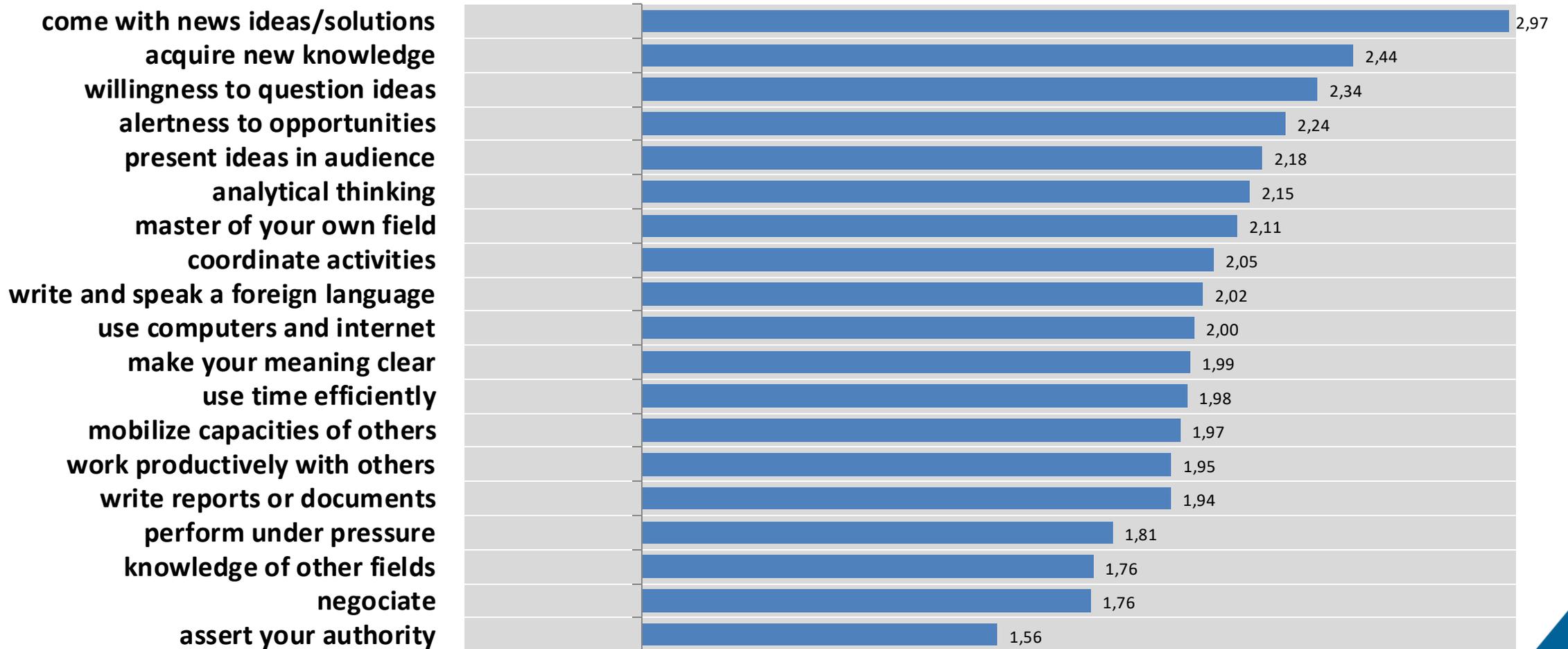
Yes, but also to contribute to innovation





Critical skills for the most innovative jobs (according to tertiary-educated workers)

Likelihood (odds ratios) of reporting the following skills: people in the most innovative jobs vs. least innovative jobs

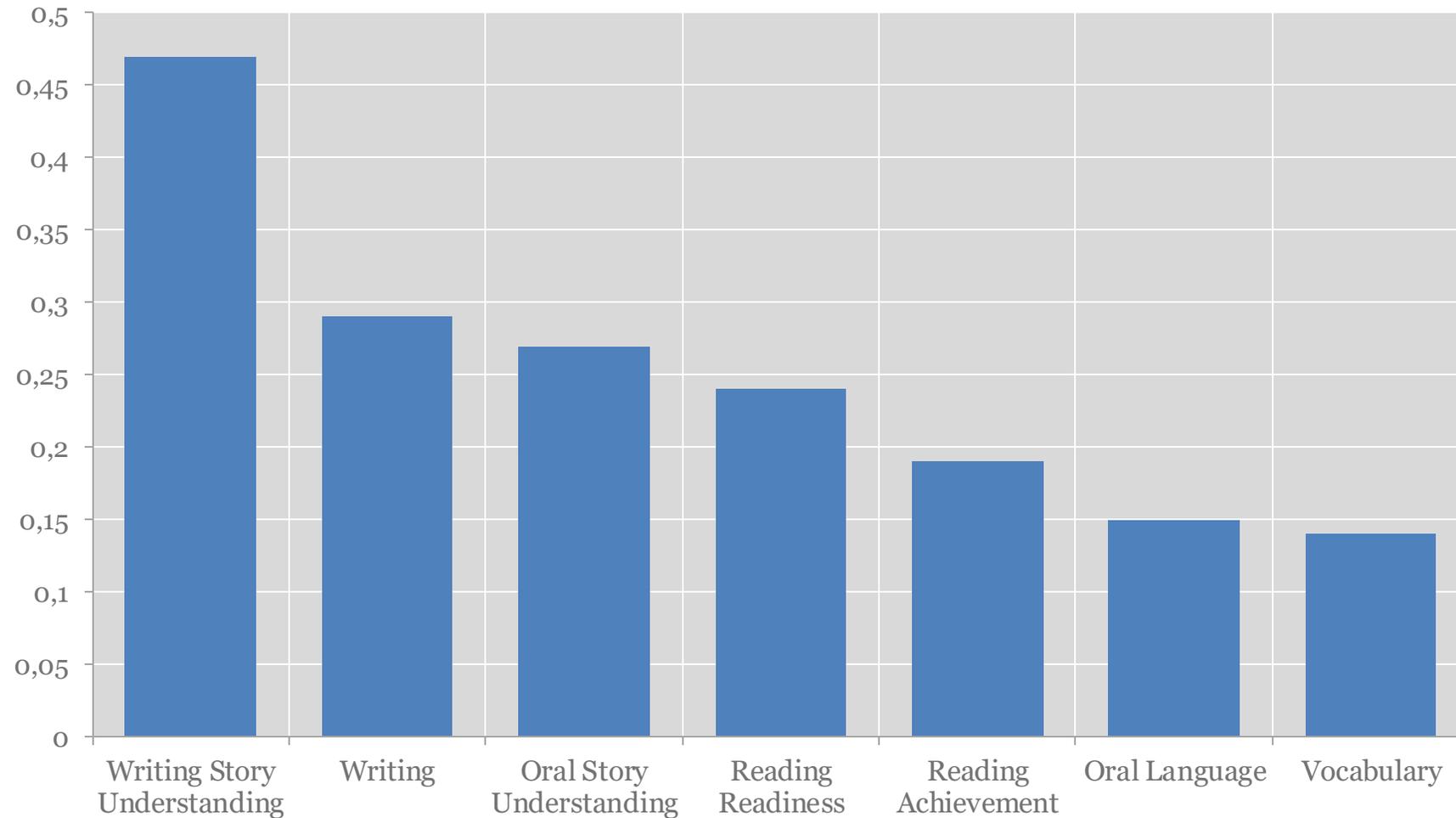






Classroom drama strengthens verbal skills

A clear causal link







Arts education and non-arts academic achievement

- (Classical) music education:
 - Causal impact on IQ (and on academic achievement)
- Possible explanations:
 - School-like activity (schooling also has such an impact)
 - Involves one-to-one interaction with an adult
 - could be mediated by conscientiousness





Tentative evidence

- Motivational outcomes:
 - Measures: attendance, persistence, dropout, engagement
 - Positive correlational evidence, which does not allow us to conclude yet
- Social and behavioural skills (social norms, self-concept, self-efficacy, emotion regulation, empathy, perspective taking)
 - Most promising on theatre



Thank you

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

- PISA 2018: *Insights and Implications*
- PISA 2018 Results (Volume I): *What Students Know and Can Do*
- PISA 2018 Results (Volume II): *Where All Students Can Succeed*
- PISA 2018 Results (Volume III): *What School Life Means for Students' Lives*

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PISA Data Explorer: www.oecd.org/pisa/data

Email: Andreas.Schleicher@OECD.org

