



WHY IS THERE SUCH A DISCONNECT BETWEEN EDUCATIONAL RESEARCH AND THE SYSTEMIC CHALLENGES EDUCATION SYSTEMS ARE CONFRONTED WITH TODAY?

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Intro

- A career split in half between an academic track and a policy track
 - Having lived on both sides
 - Having witnessed the continuous misunderstandings and battles
- As Head of the OECD Centre for Educational Research and Innovation (2008-2018)
 - Trying to foster translational research, connecting both worlds
 - Reflecting on the state of educational research, where it wins and why it fails



Outline

- Why isn't education research delivering more and better?
 - Quantity and quality of research
 - Competing knowledge systems
 - Research knowledge competing with politics
 - The macro-efficiency of education research
- What are the systemic risks of education today?
 - The quality risk
 - The productivity risk
 - The equity risk
 - The innovation risk
- How can the new science of learning help education research to improve education systems' support for learning?



WHY ISN'T EDUCATION RESEARCH DELIVERING MORE AND BETTER?

Education systems have not yet made the switch to
evidence-informed policy and practice





Today, educational policy making is more evidence-informed than, say, ten years ago

- Supply of high-quality educational data and research is growing (slowly)
- Demand among policy-makers, education systems and stakeholders for policies and practices that are evidence-informed is also increasing
- Many ministries improve their knowledge-capacity with specific departments or institutions
- Role for knowledge brokerage institutions



Today, educational policy making is more evidence-informed than, say, ten years ago, but...

- Yet, research knowledge doesn't seem to find its way easily into policy development
 - Evidence-informed policy is developing at a slower pace than expected or needed
 - Many researchers feel frustrated about the knowledge demands of policy-makers and the politicised use of research evidence
 - Policy makers often feel frustrated about researchers rarely willing to step out of their comfort zone and to take responsibility
 - Research evidence is one of the several, internally competing rationalities impacting on policy development, not the only one.

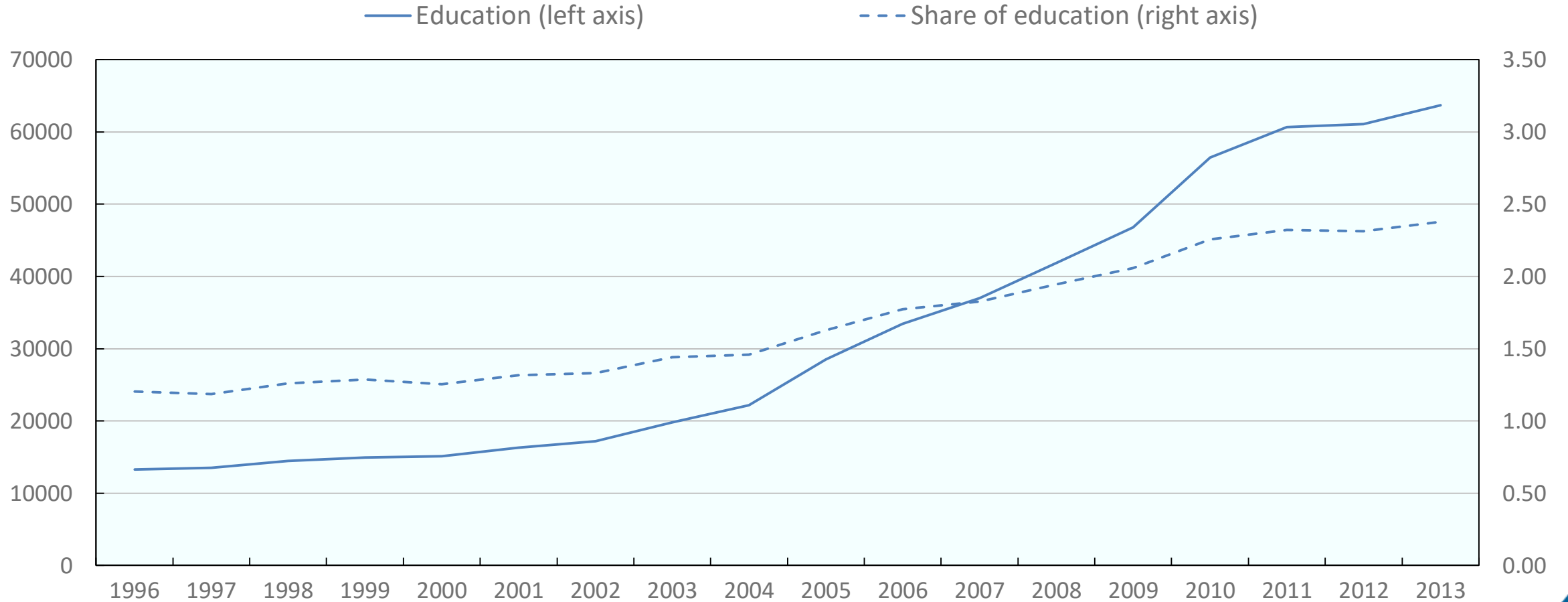


QUANTITY AND QUALITY OF EDUCATION RESEARCH



A growing output of educational research

Number education research articles and share of education in all research output (1996-2013)

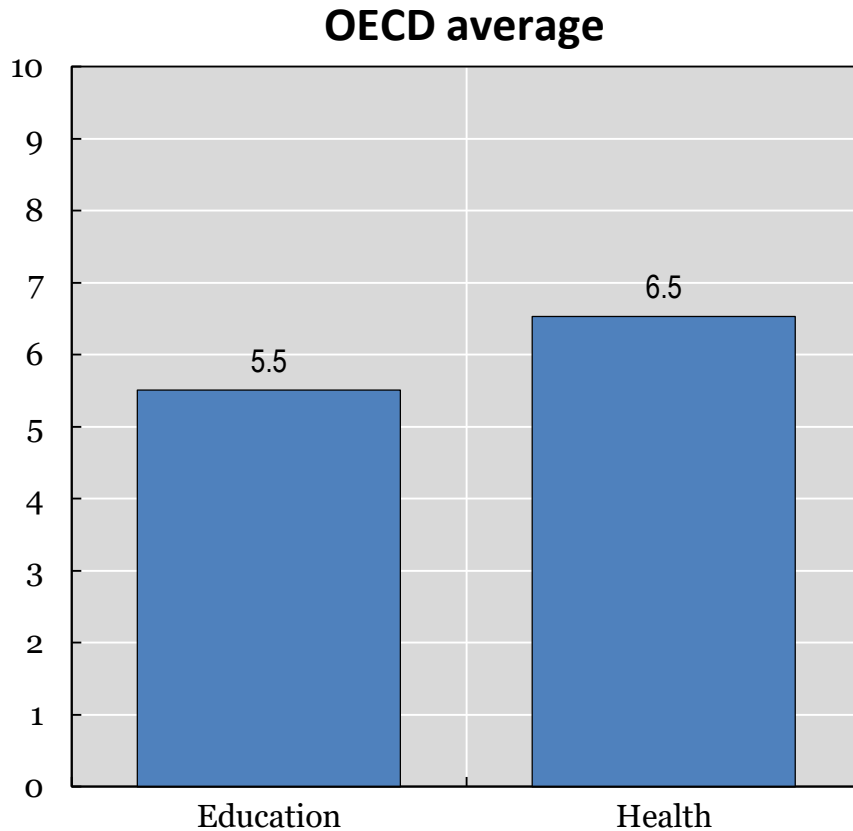


Source: Vincent-Lancrin and Jacotin (forthcoming)

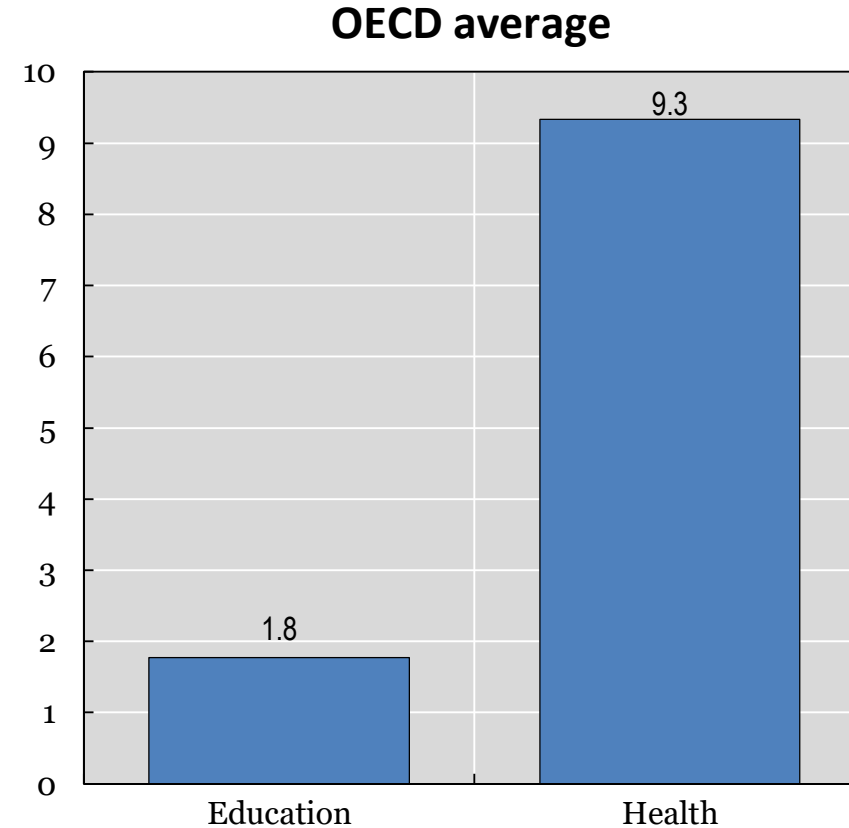


But still deficient quantity

Public expenditures in education and health as % of GDP (2014)



Share (%) of public research budget on education and health (2014)



Source: Vincent-Lancrin and Jacotin (forthcoming)



Quality issues in educational research

- Despite massive improvement in research methodologies still important **quality issues** which need to be addressed
 - Gold standard of experimental design very hard to implement
 - Replicability of educational research too low
 - Comparability of effect sizes
 - The power of dominant paradigms (social constructivism), myths and fashionable ideas ('student-centred learning is better')
 - Bias, material or career interests, ideology and political activism, partisan networks



Quality issues

Facts Are More Important Than Novelty: Replication in the Education Sciences

Matthew C. Makel¹ and Jonathan A. Plucker²

Despite increased attention to methodological rigor in education research, the field has focused heavily on experimental design and not on the merit of replicating important results. The present study analyzed the complete publication history of the current top 100 education journals ranked by 5-year impact factor and found that **only 0.13% of education articles were replications**. Contrary to previous findings in medicine, but similar to psychology, the majority of education replications successfully replicated the original studies. However, **replications were significantly less likely to be successful when there was no overlap in authorship between the original and replicating articles**. The results emphasize the importance of third-party, direct replications in helping education research improve its ability to shape education policy and practice.

Keywords: assessment; content analysis; educational policy; evaluation; replication; research methodology



Quality issues

Robert Slavin's Blog

John Hattie is Wrong



Robert Slavin's Blog

<https://robertslavinsblog.wordpress.com/2018/06/21/john-hattie-is-wrong/>



The dark side of education research: widespread bias

Johns Hopkins study finds that insider research shows 70 percent more benefits to students than independent research

An analysis of 30 years of educational research by scholars at Johns Hopkins University found that when a maker of an educational intervention conducted its own research or paid someone to do the research, the results commonly showed greater benefits for students than when the research was independent. On average, the developer research showed benefits — usually improvements in test scores — that were 70 percent greater than what independent studies found.

<https://hechingerreport.org/the-dark-side-of-education-research-widespread-bias/>



Contents lists available at [ScienceDirect](#)

Teaching and Teacher Education

journal homepage: www.elsevier.com/locate/tate



The myths of the digital native and the multitasker



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H I G H L I G H T S

- Information-savvy digital natives do not exist.
- Learners cannot multitask; they task switch which negatively impacts learning.
- Educational design assuming these myths hinders rather than helps learning.

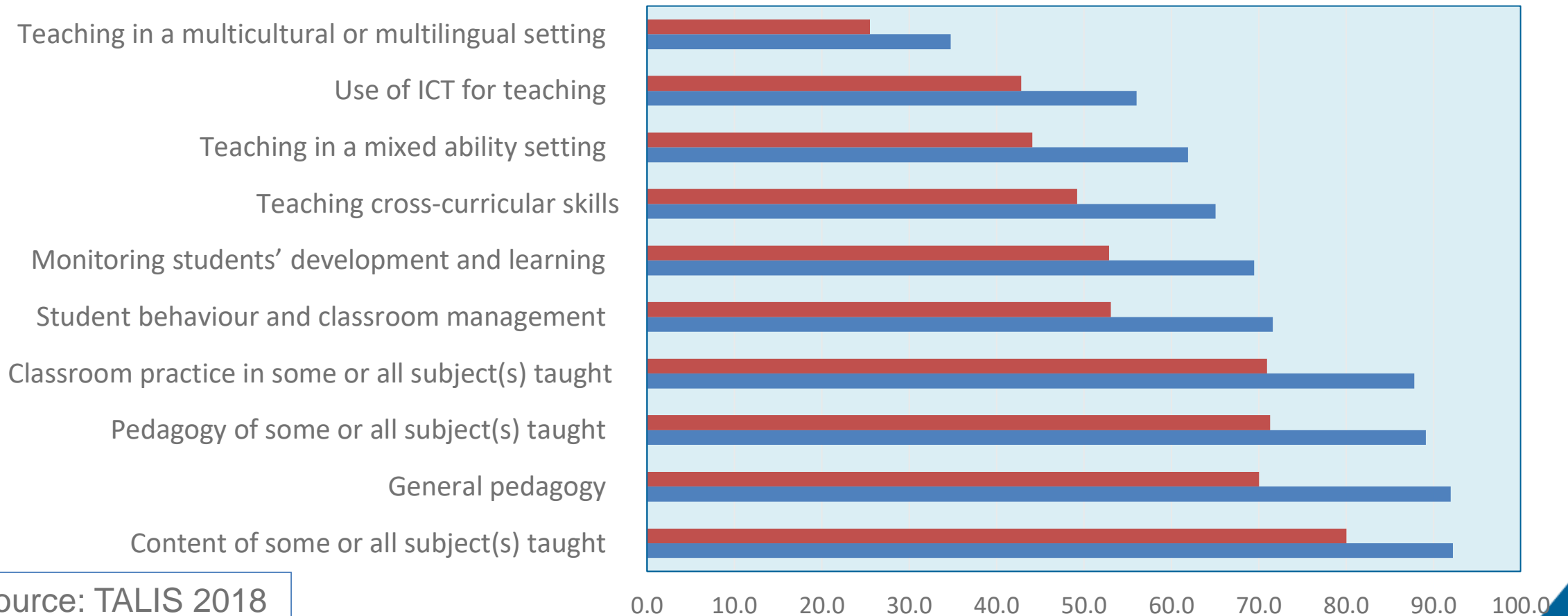


COMPETING KNOWLEDGE SYSTEMS



Teachers report important knowledge gaps in their professional competence

- Percentage of teachers who felt "well" or "very well" prepared for the following elements
- Percentage of teachers for whom the following elements were included in their formal education or training



Source: TALIS 2018



However, research evidence is not seen as the most important knowledge resource

- Education counts many more **knowledge resources** and systems which compete with research evidence:
 - The emergence of ‘Mode 2’ research (Gibbons et. al., 1994): more local, practical research, with limited validity
 - Professional knowledge “teachers know best”
 - Teachers’ experiential knowledge “we’ve always done it this way”
 - ‘Common sense’ and anecdotal knowledge, tacit knowledge
 - Lay expertise in interest groups and communities
 - “Everyone is an expert in education”
 - Traditions, beliefs, norms, values, ideologies, opinions



However, research evidence is not seen as the most important knowledge resource

- EEF/NFER research (2017):
 - “research evidence still has only a small influence on teachers’ decision-making relative to other sources
 - teachers were most likely to draw on their own expertise, or that of their colleagues, when making decisions about teaching and learning or whole-school change.”

Source:

https://educationendowmentfoundation.org.uk/public/files/Evaluation/Teachers_engagement_with_research_Research_Brief_JK.pdf



However, research evidence is not seen as the most important knowledge resource

“GOOD research is that which confirms what I have always believed. BAD research is that which disagrees with what I have always believed.”

(Superintendent in the US, quoted by Robert Slavin)

Source: <https://robertslavinsblog.wordpress.com/2019/08/29/superman-and-statistics/>

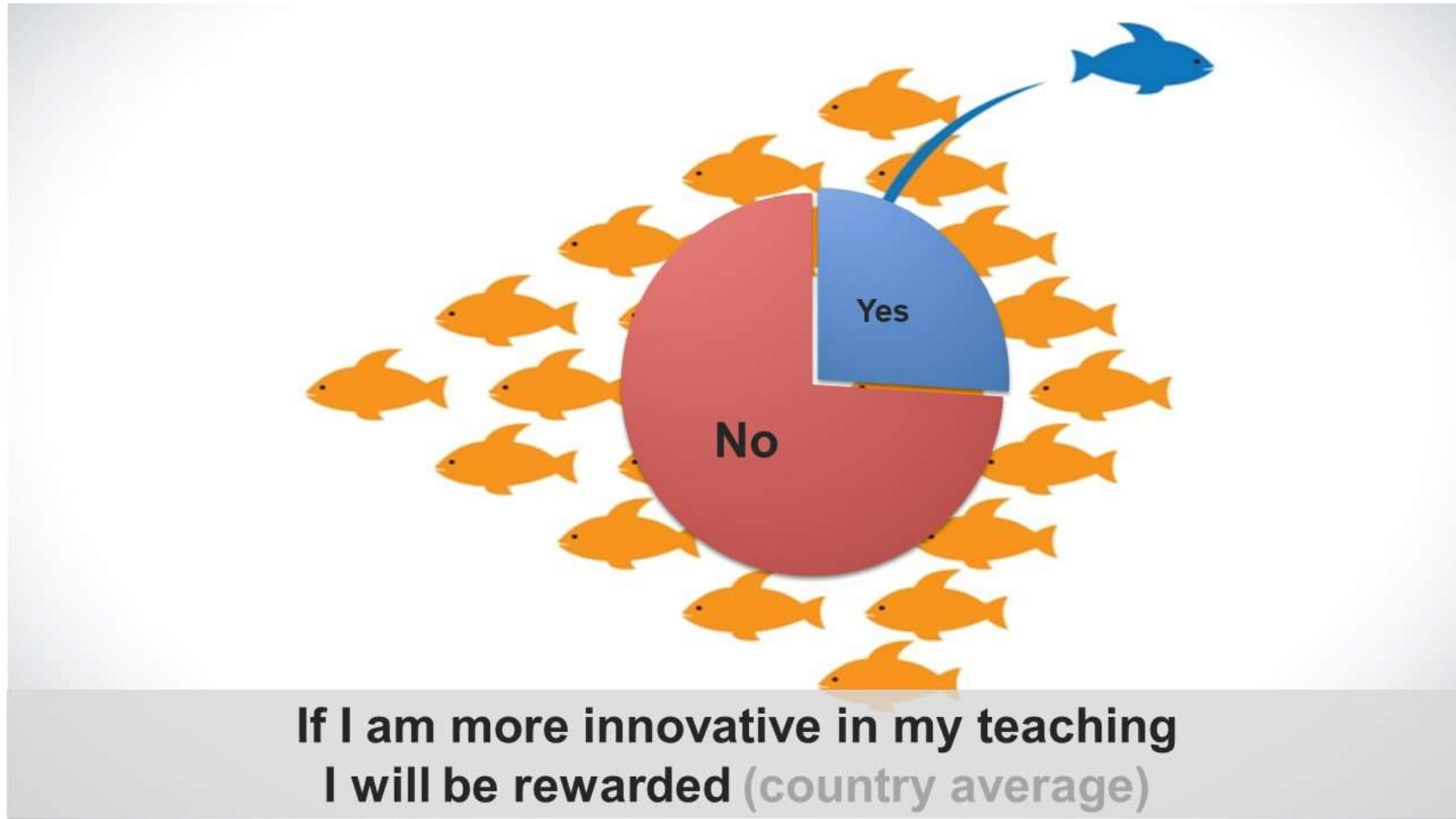


Education relies on outdated knowledge

- The power of pedagogical beliefs and value-systems
 - Jean-Jacques Rousseau's romanticism in *Emile*
 - Early 20th C child-centred *Reformpädagogik*
 - John Dewey's progressive pragmatism
 - Paulo Freire's critical pedagogy
 - Etc.
- Handbooks and resources used in teacher training, professional development for teachers, etc. often rely on dubious knowledge or decades-old knowledge



The power of conformity and tradition: risk aversion among teachers





THE MACRO-EFFICIENCY OF EDUCATIONAL RESEARCH



Macro-impact

Marc Tucker: “After decades and billions of dollars, the education research establishment, by and large, does not know how to reliably identify the factors that account for success in large-scale education systems.”



The U.S. has spent tens of billions on education research since the early 70's.



But, in the entire history of NAEP, student performance in reading and math at the high school level has not budged.

If the purpose of education research is to improve student performance, something is wrong with this picture.



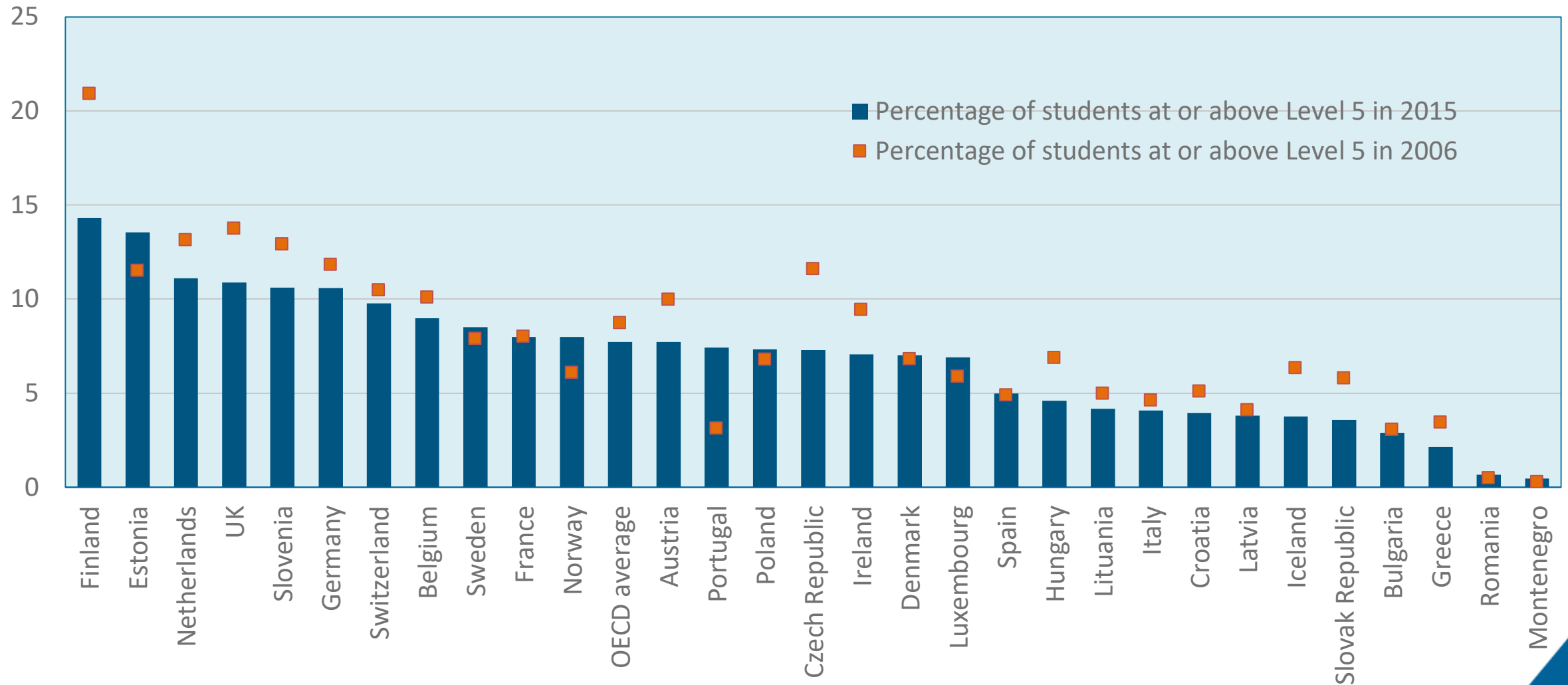
WHAT ARE THE SYSTEMIC RISKS OF EDUCATION TODAY?



THE QUALITY RISK

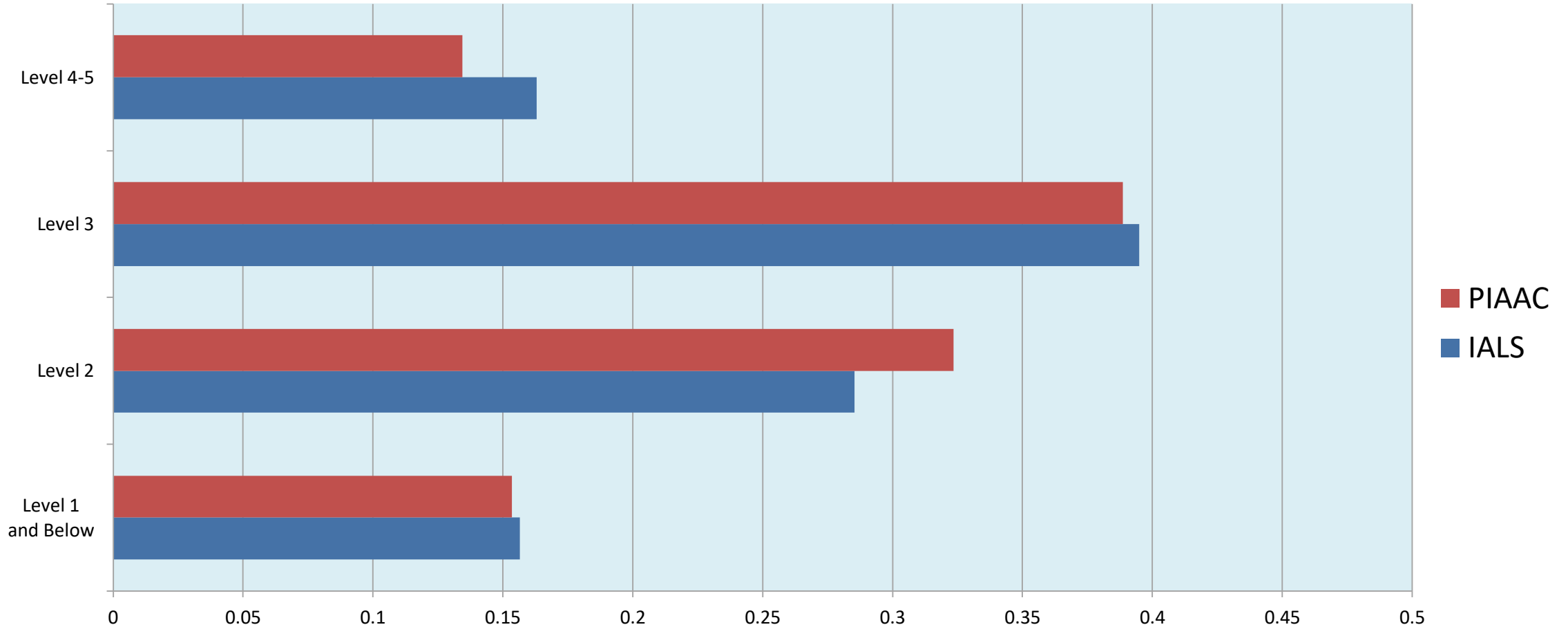


PISA 2015 science: decline in share of top-performers in most EU countries





Despite massification, between '90s and 2010s levels of foundation skills have slightly decreased...

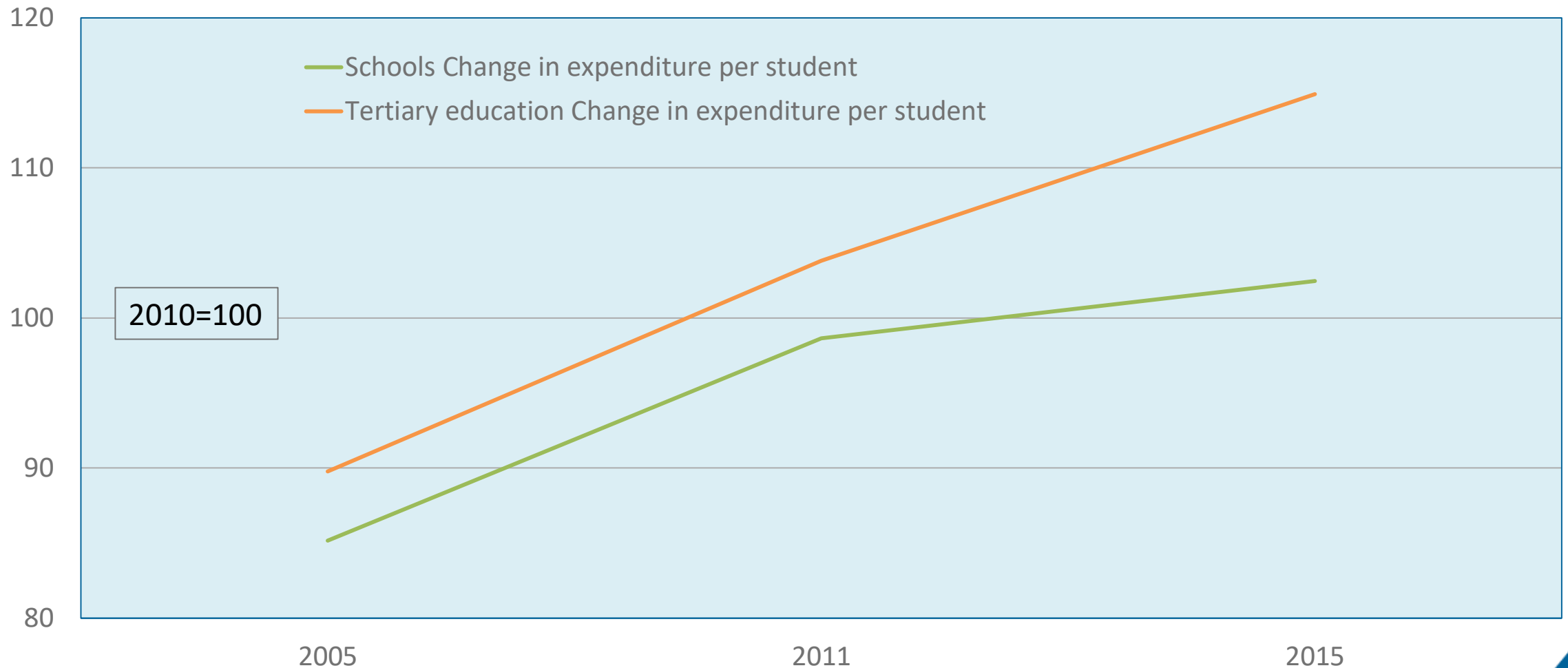




THE PRODUCTIVITY RISK



The exploding per student cost of education (EU22)

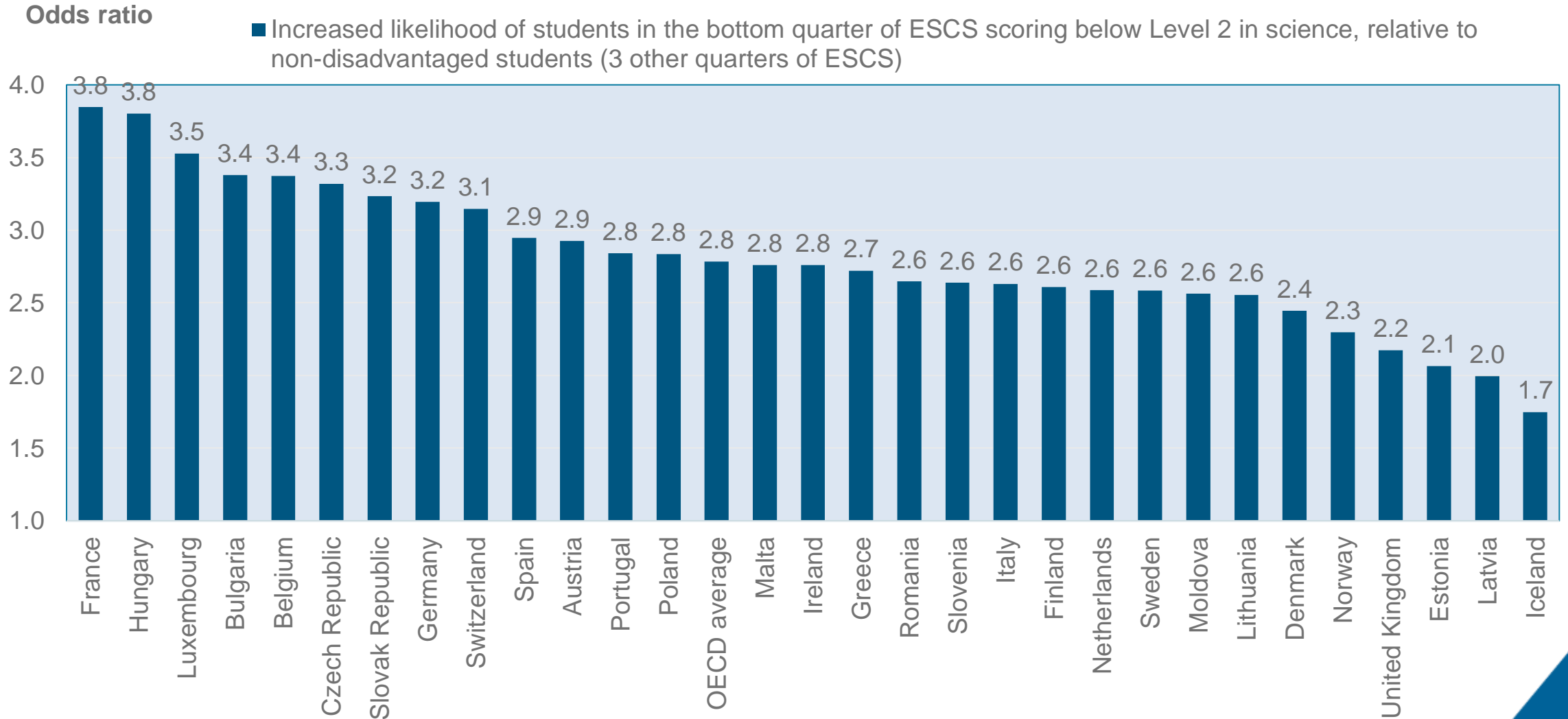




THE EQUITY RISK

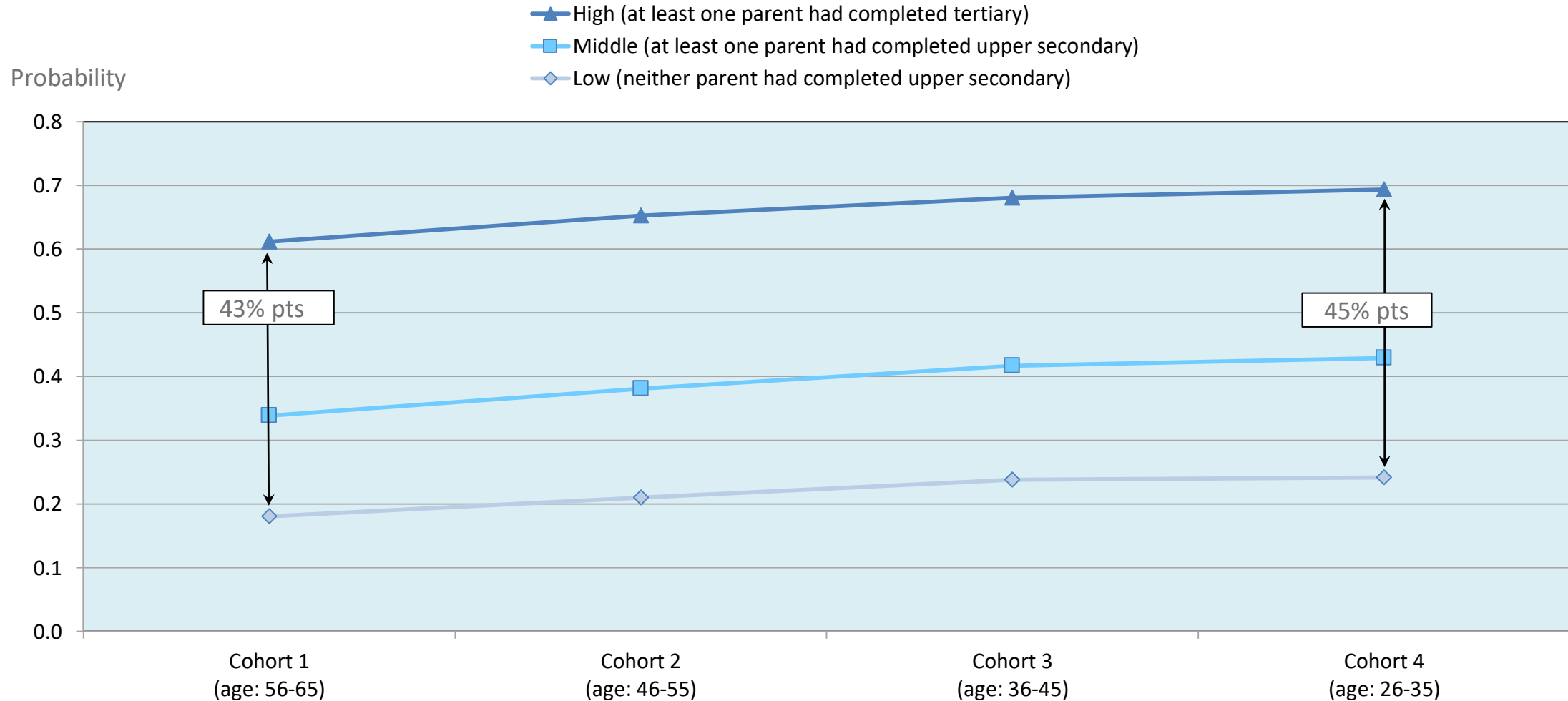


Across OECD countries, disadvantaged students are almost 3 times more likely to not attain the baseline level of proficiency in science





The gap in likelihood of completing tertiary education, by parents' education, has not decreased

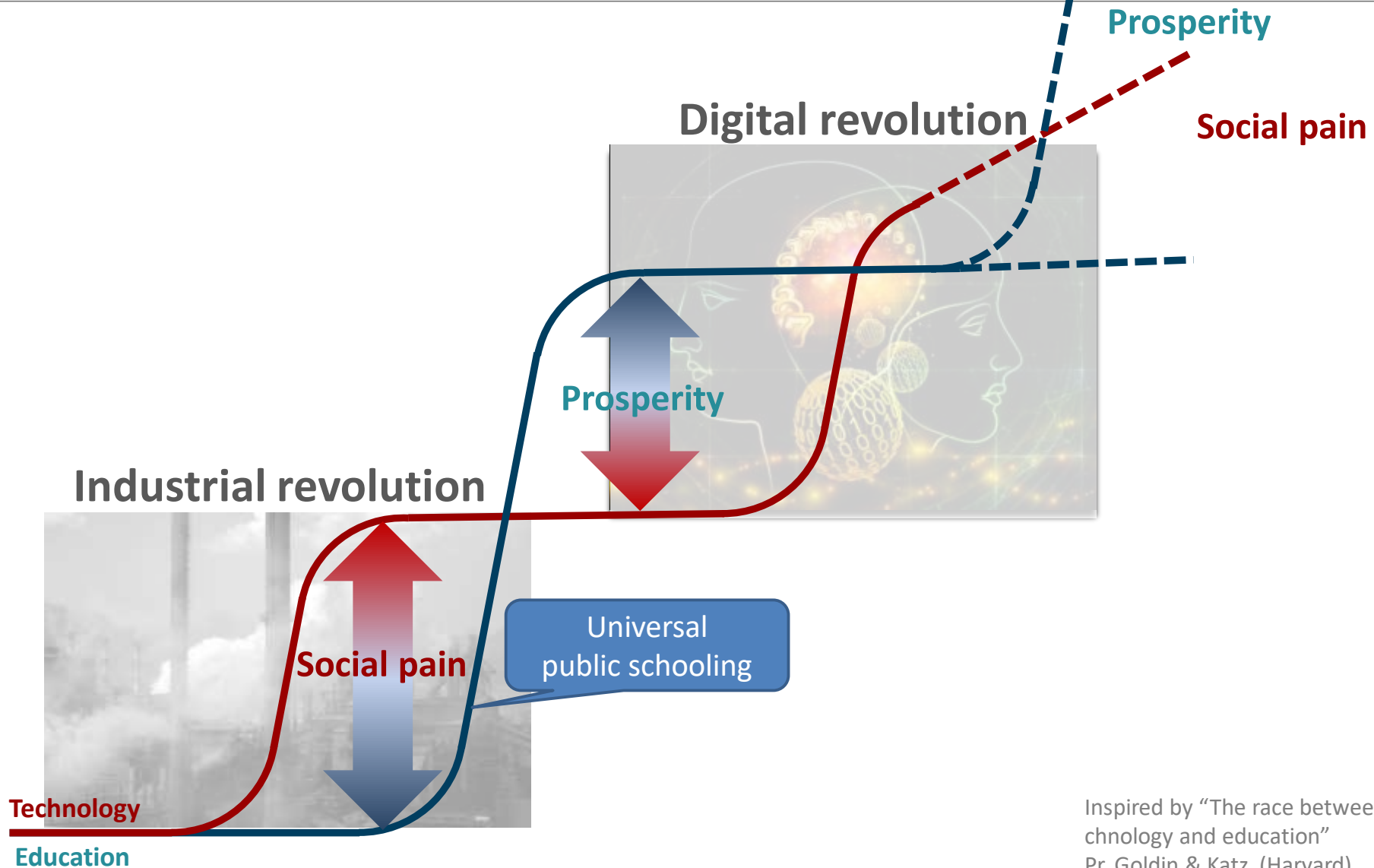




THE INNOVATION RISK



Education is so slow to change

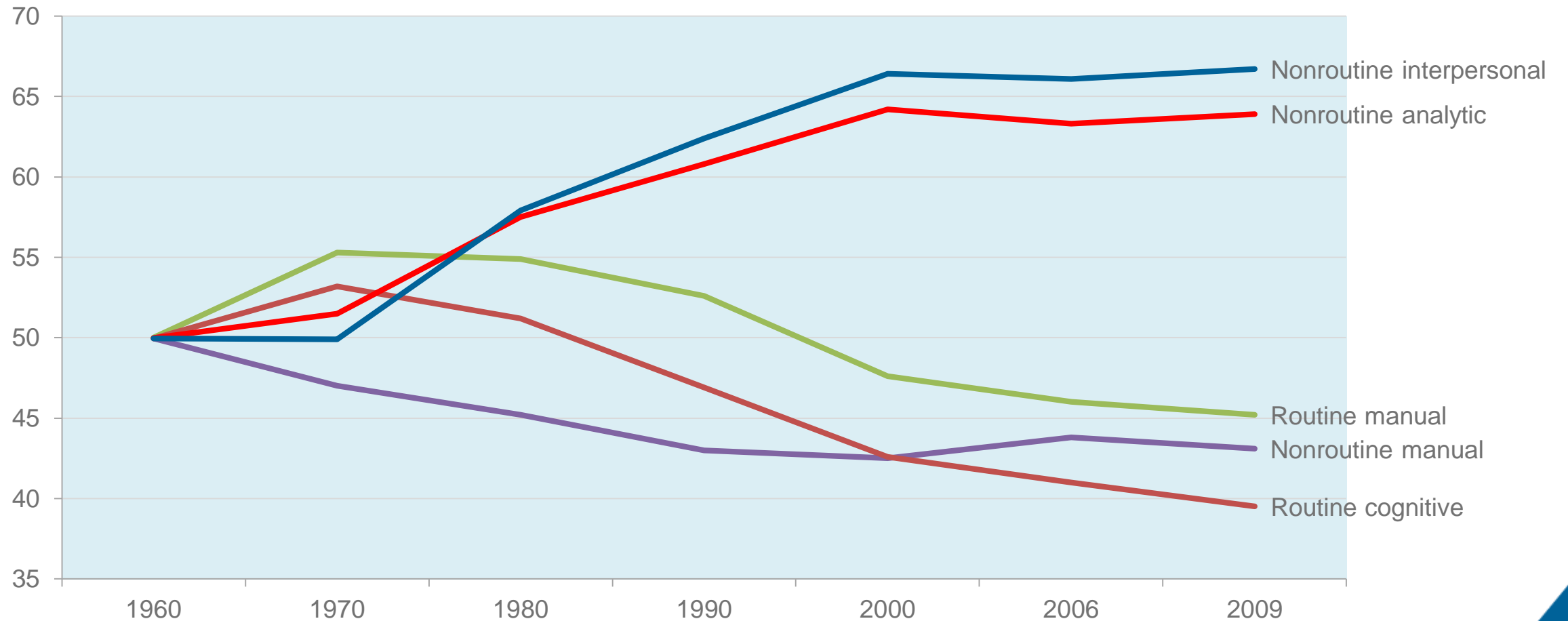


Inspired by "The race between technology and education"
Pr. Goldin & Katz (Harvard)



Changing skills demand: is education ready?

Mean task input in percentiles of 1960 task distribution (US)





The broken promise of credentialism

Ernst & Young Removes Degree Classification From Entry Criteria As There's 'No Evidence' University Equals Success

The Huffington Post UK | By Lucy Sherriff

Posted: 04/08/2015 14:55 BST | Updated: 21/09/2015 09:59 BST



Ernst & Young, one of the UK's biggest graduate recruiters, has announced it will be removing the degree classification from its entry criteria, saying there is "no evidence" success at university correlates with achievement in later life.

The accountancy firm is scrapping its policy of requiring a 2:1 and the equivalent of three B grades at A-level in order to open opportunities for talented individuals "regardless of their background".

Maggie Stilwell, EY's managing partner for talent, said the company would use online assessments to judge the potential of applicants.

"Academic qualifications will still be taken into account and indeed remain an

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Research and education's systemic risks

- Something is not right in the **equation!**
 - More and better education research
 - Stagnating or decreasing quality of learning outcomes
 - Higher per unit cost
 - Stagnant equity in distribution of learning outcomes
 - Hesitant innovation in learning environments
- Research is not the sole responsible, but its macro-efficiency is problematic
- From *‘are we doing things right?’* to *‘are we doing the right things?’*



What are the possible explanations?

1. Research knowledge is adequate, but doesn't get implemented because of lack of transmission channels, wrong political decisions and the dead-weight of existing practice
2. Research knowledge is adequate, but is losing the battle with professional knowledge, tacit knowledge and other competing kinds of knowledge
3. Research knowledge is adequate, but loses power and credibility in the transition from the clean research environment to messy classroom practice
4. Research knowledge itself is inadequate, because its scientific foundations are deficient



HOW CAN THE NEW SCIENCE OF LEARNING HELP EDUCATION RESEARCH TO IMPROVE EDUCATION SYSTEMS' SUPPORT FOR LEARNING?



What has the science of learning to do with this?

- Education research is not helping education systems enough to do better in supporting the human and social potential of all learners
 - Compare with health: life sciences and medical research have supported public health systems to increase overall human longevity and well-being
- It might have to do with the way we look at fundamental processes of learning, the biases in the scientific approaches to learning

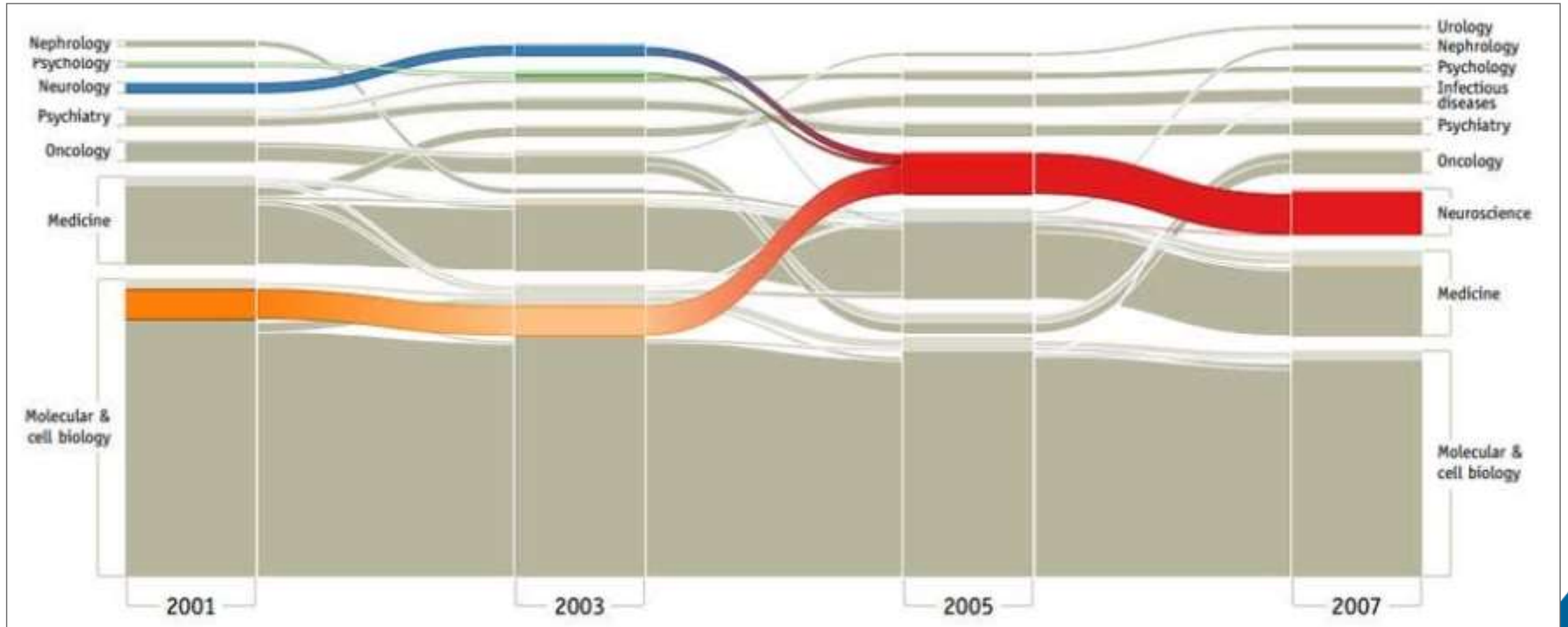


The science of learning

- A new ‘science of learning’ is emerging, based on brain research, neuroscience, cognitive psychology, genetics, computer and information sciences, machine learning and artificial intelligence
- Competing with the old pedagogical sciences and educational sciences
- Putting learning first, focusing on the fundamental building blocks and mechanisms of learning, and see what interventions foster or hinder learning
- Rigorous research methodologies, comparable to biomedical and psychological sciences



The birth of neuroscience



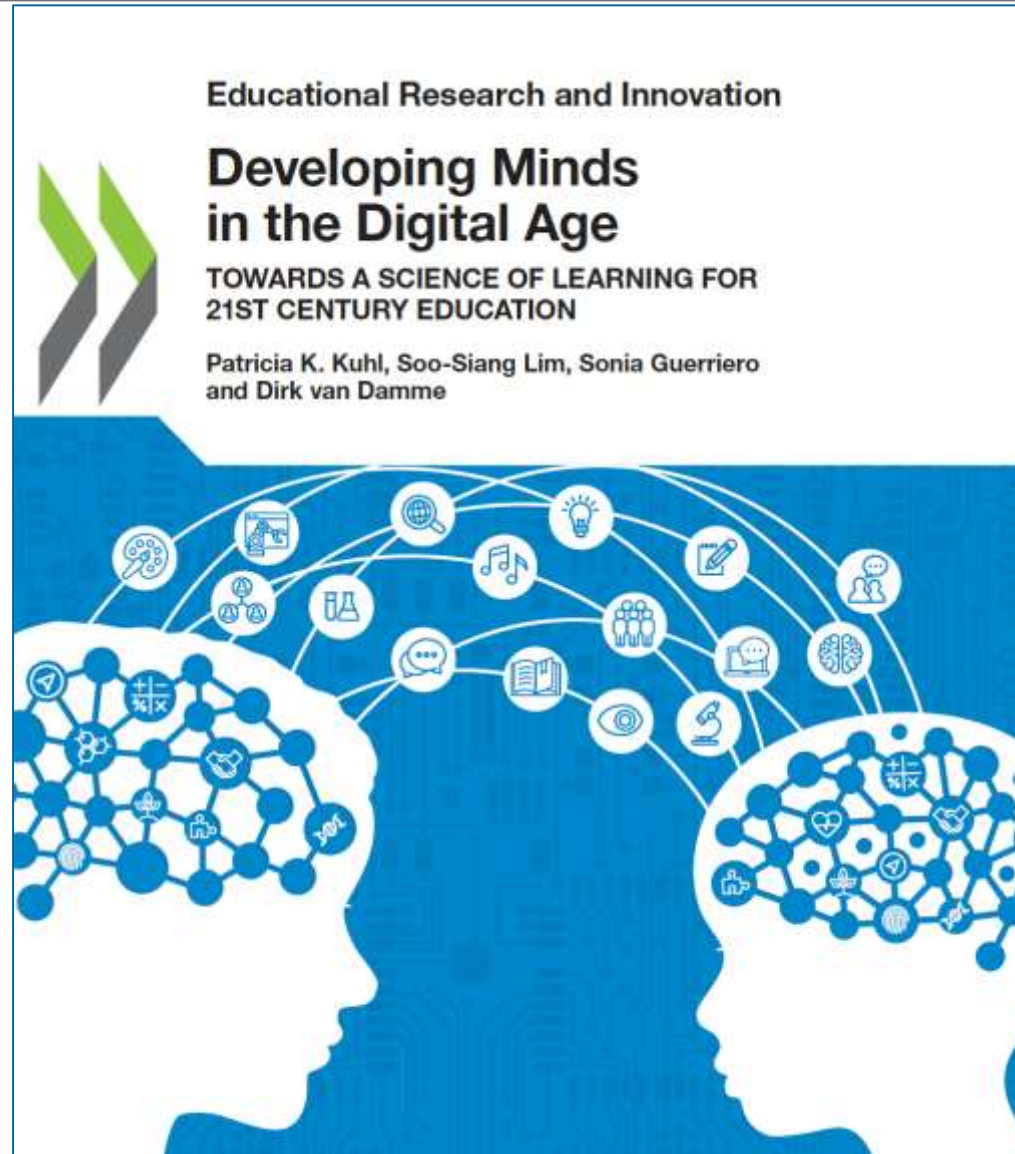


The science of learning

- Is not completely revolutionising our fundamental understanding of learning, more continuity than discontinuity
- Is gradually replacing social constructivism as the dominant paradigm, with its many false beliefs and rulings
 - “active learning is best”
 - “the teacher should be a coach, rather than an instructor”
- Is capable of correcting influential ideas which continue to live on even when having been falsified (Maslow’s pyramid, multiple intelligences, learning styles, growth mind-set, etc.)
- Choosing the side of the learner, not of the education system



Towards a science of learning for 21st century education





Thank you !

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