

Teaching in post-pandemic times:
What we know from international
studies and international
experiences

Thank you for your invitation!

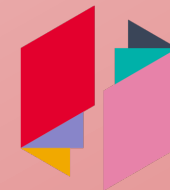
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TERESA E ALEXANDRE
SOARES DOS SANTOS
INICIATIVA EDUCAÇÃO

1. The general situation before the pandemic

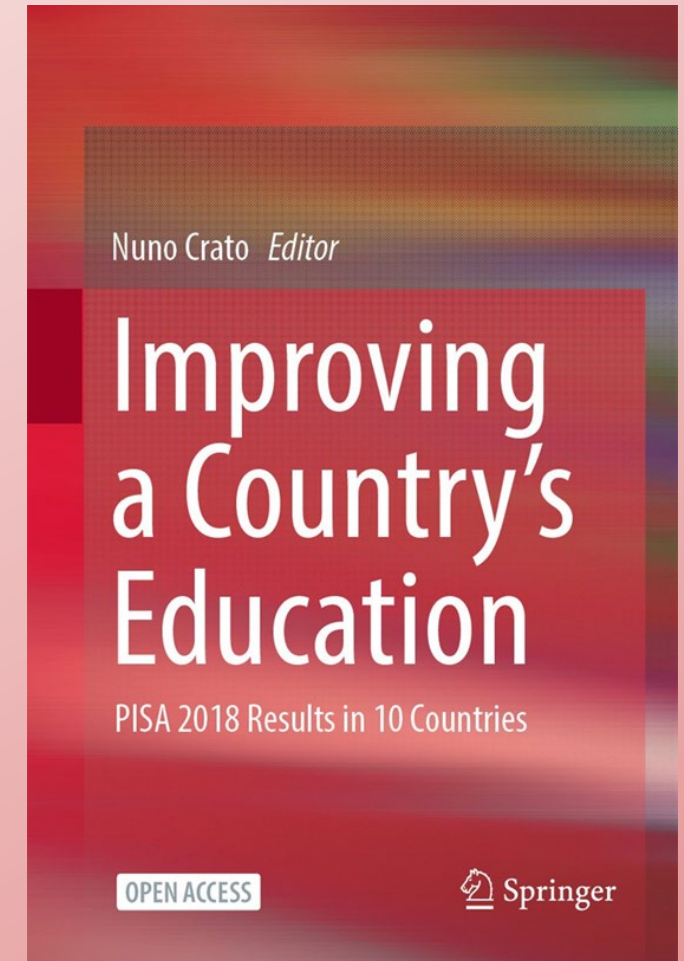
1. The general situation before the pandemic

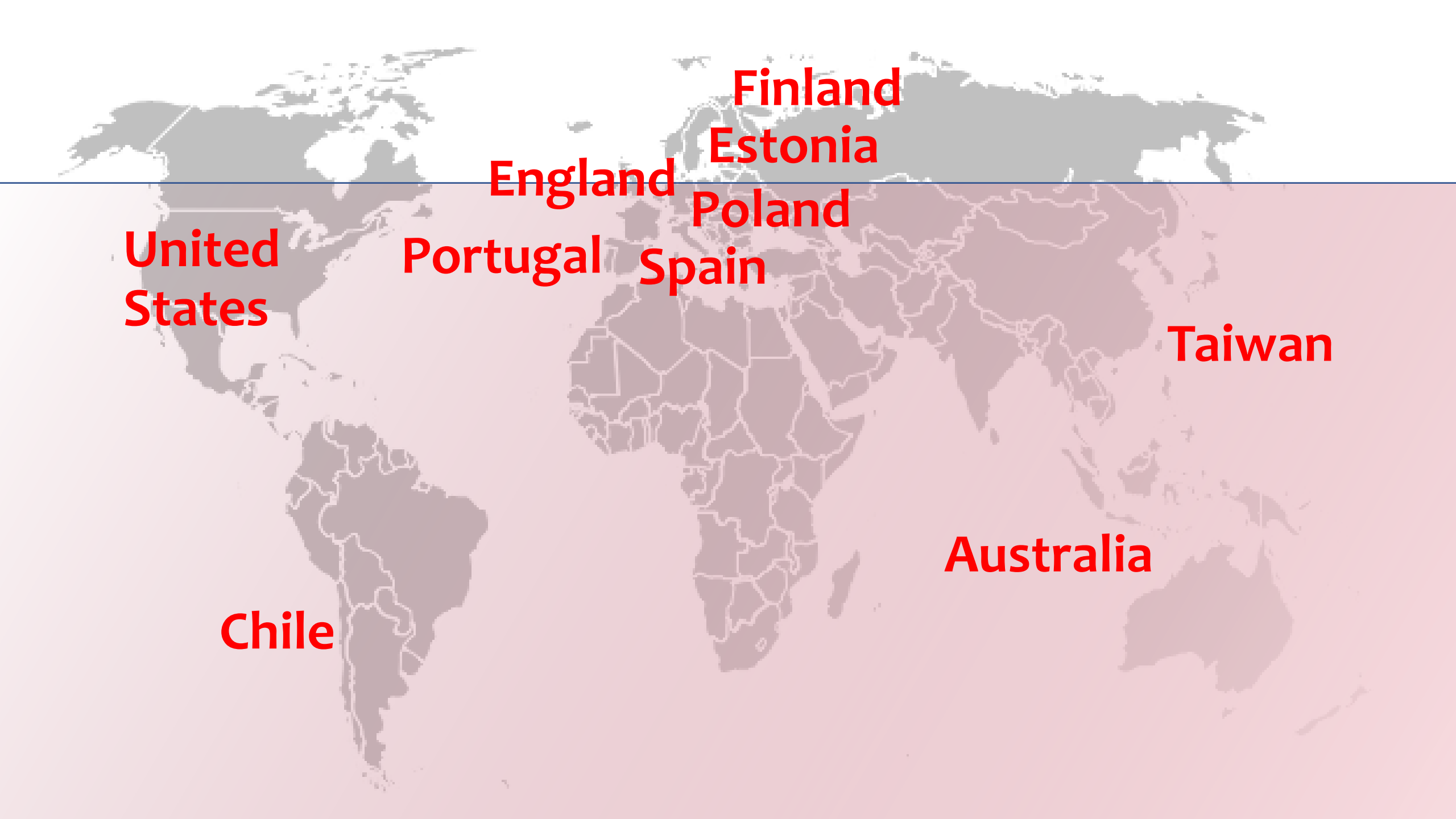
Published soon after PISA 2018 results release

PISA 2018 is the largest ILSA to date

Detailed analysis of 10 countries by leading experts

Taiwan: Su-Wei Lin, Huey-Ing Tzou, I-Ching Lu, and Psi-Hsia Hung





**United
States**

Chile

Portugal

England

Spain

Poland

Estonia

Finland

Taiwan

Australia

1. The general situation before the pandemic

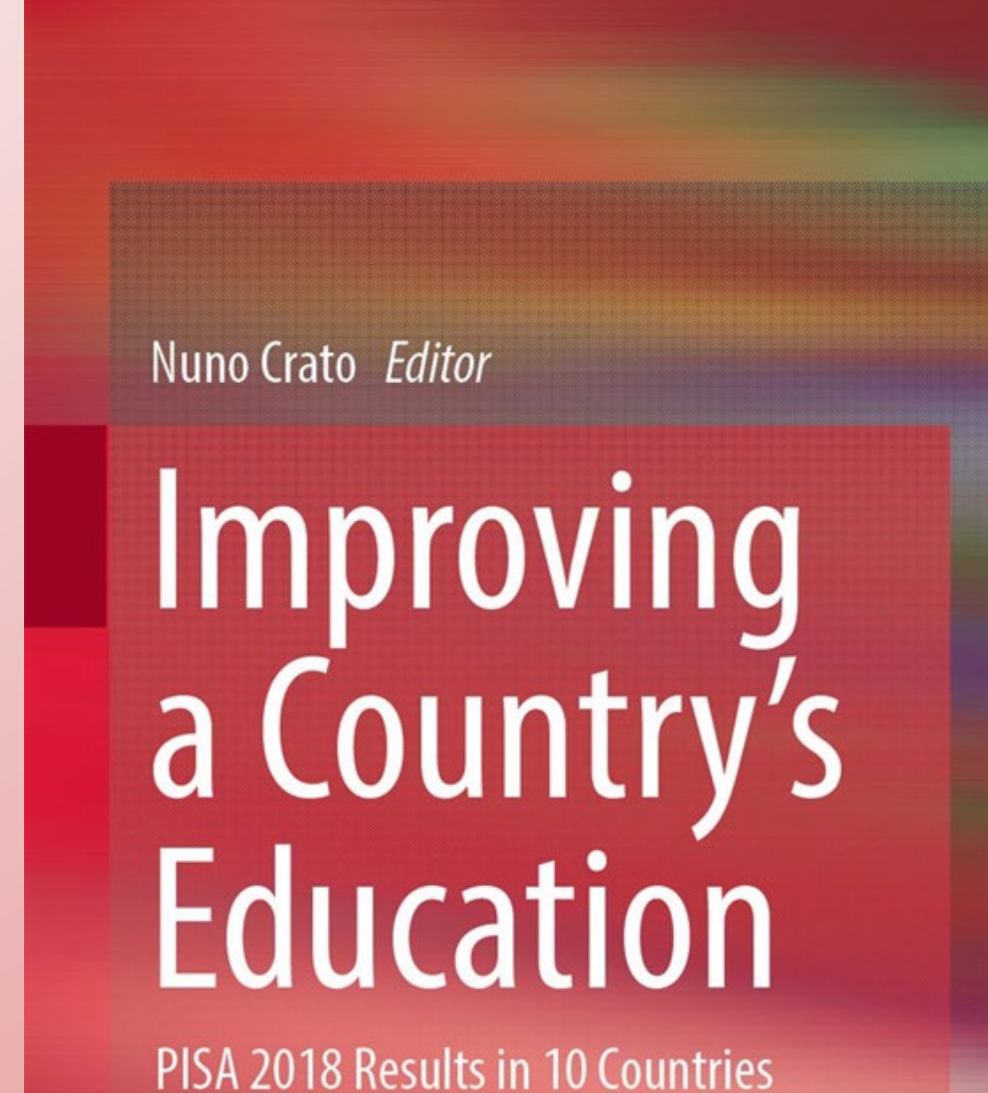
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Background chapter explaining PISA and ILSA

Introductory chapter



PISA 2021 -> 2022, 2024 -> 2025

2022: Math + creative thinking

2025: Sciences + foreign languages + self-regulated learning with digital tools

TIMSS 2023 Schedule Highlights

2021	2022	2023	2024
February — Combined 1 st /2 nd National Research Coordinators' Meeting	March-April — Field Test	Data Collection	December — Results Released

2. We didn't have good news

Initial standardization: Gaussian with mean 500 and s.d. 100.

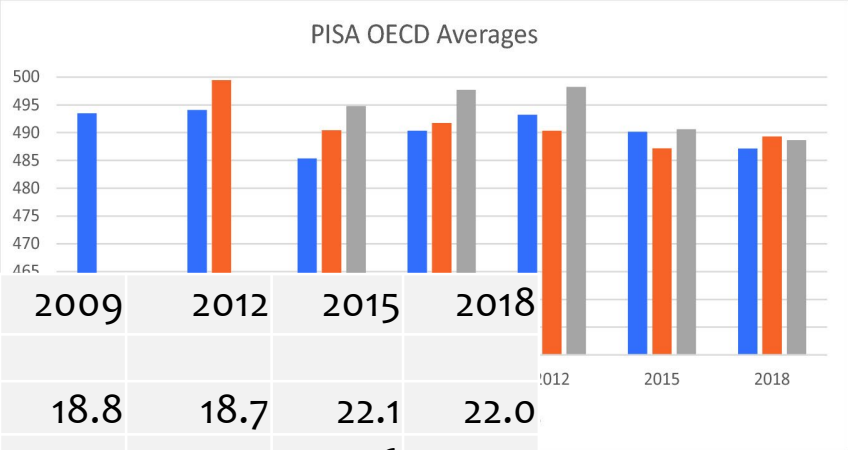
OECD mean scores now: 487, 489, 489

OECD countries declining slightly, but consistently after 2009

Particularly worrisome is the increase in the share of low-performers

But... are there positive impacts from PISA, TIMSS and other ILSA?

LOW PERFORMERS	2009	2012	2015	2018
OECD				
Science	18.8	18.7	22.1	22.0
Math (36)	23.5	24.4	24.6	24.1
Reading	19.4	18.9	20.9	22.6
EU				
Science		16.6	20.6	21.6
Math		22.1	22.2	22.4
Reading		17.8	19.7	21.7



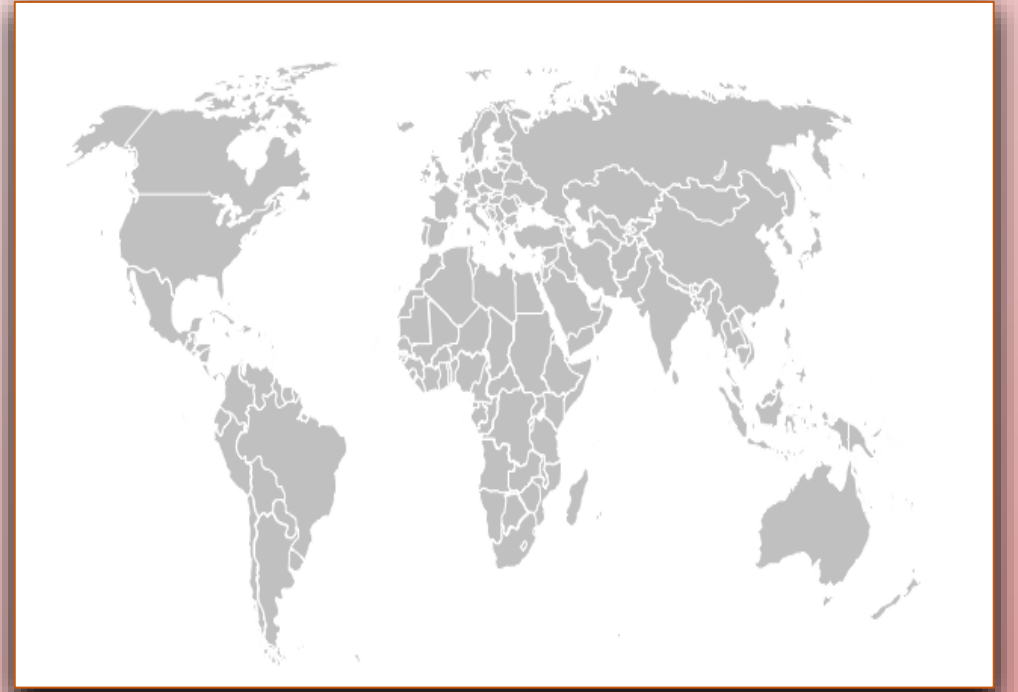
3. The measurement changes the measured

Almost all countries have been shaken by results

Some tried to change by giving more attention to curriculum and assessment

Others tried to switch to an elusive competence-based curriculum

However, if you want to improve competences, i.e., application skills, you have to pay attention to knowledge



4. Time delay

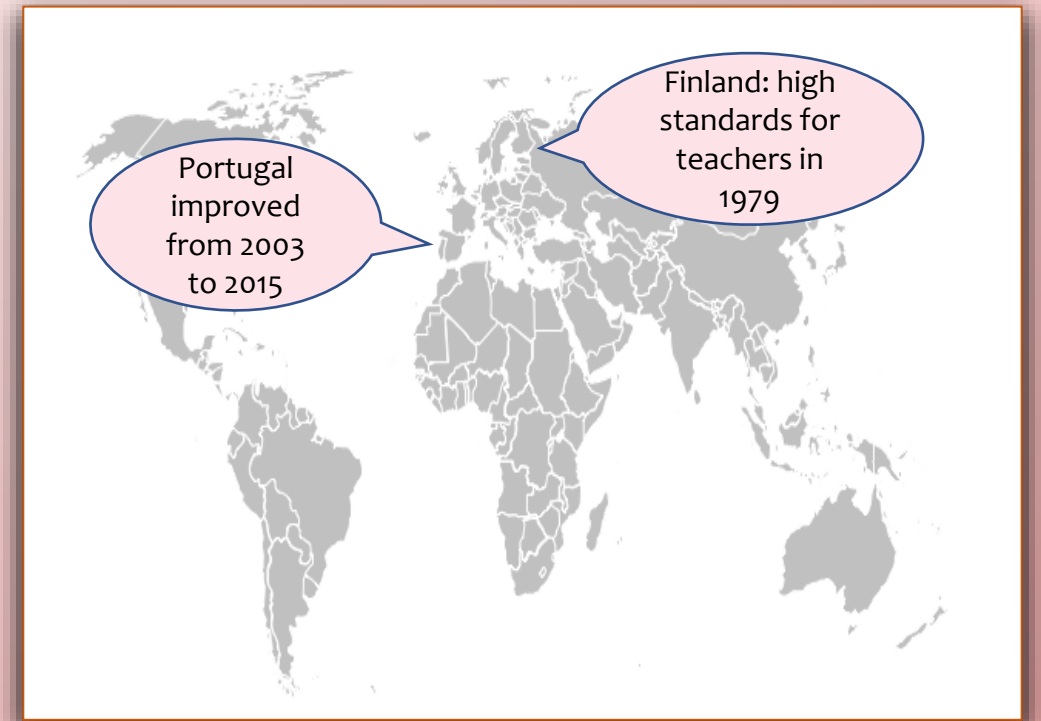
How to disentangle policy measures from other changes in education?

Time delay is important – some changes take a very long time to have an effect

Some changes have immediate impact:

- to eliminate exams
- to change the public perception of standards' rigour

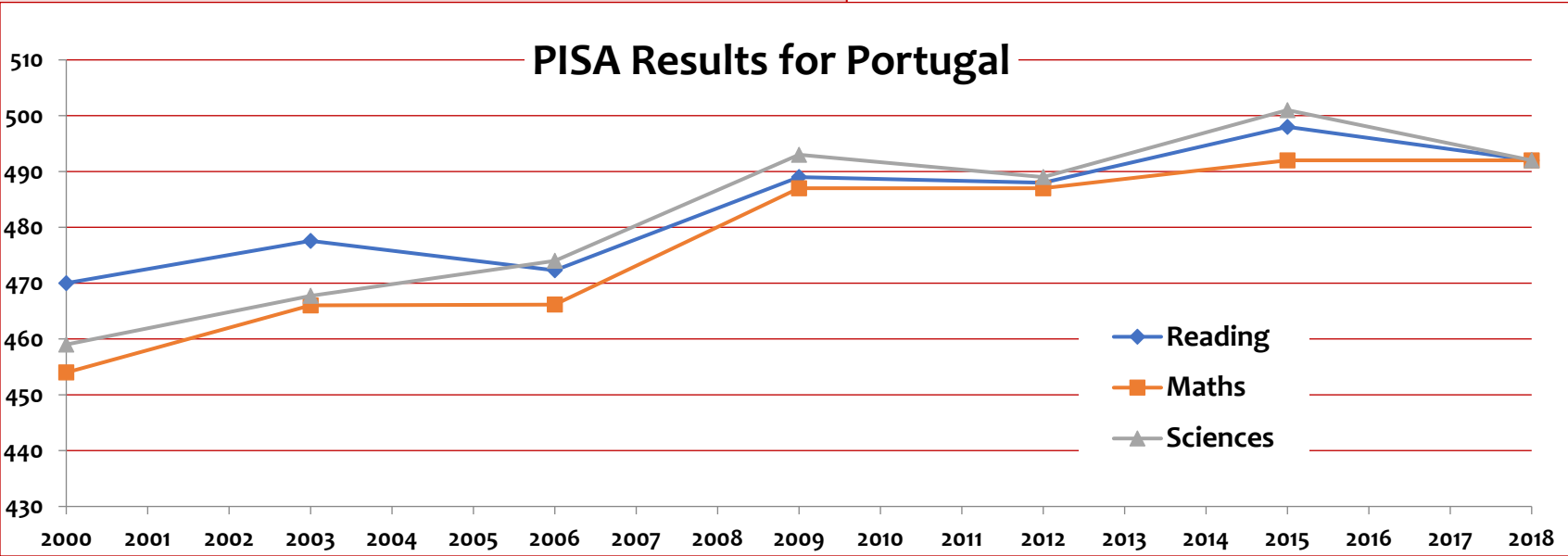
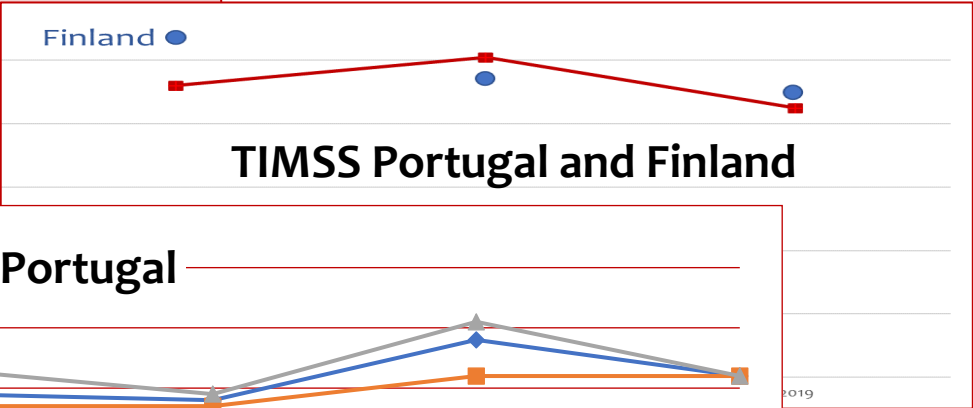
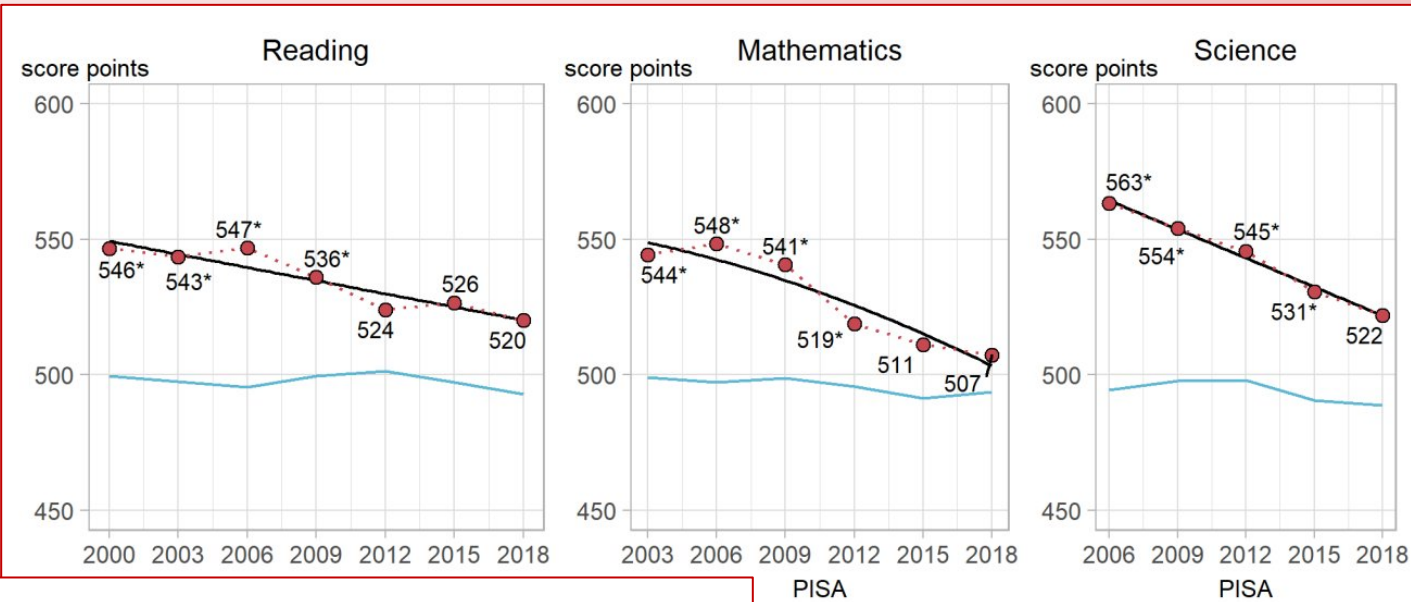
Don't be fooled looking just to what is now said!



Looking closer to Finland and Portugal

“... only seven of the 79 education systems analysed saw significant improvements in the reading, mathematics and science performance of their students throughout their participation in PISA, and only one of these, **Portugal**, is a member of the OECD.”

PISA 2018 Results (Vol. I), Preface



tions/PISA2018_CN_FIN.pdf

Sometimes, people think there is a dichotomy
between quality and fairness.

5. High Performance and Equity: Nonconflicting Goals

Are all inequality gap reductions positive?

We have **negative** gap reduction in equity


And we have **positive** gap reduction in equity

Recommendation: assist low performers,
don't lower standards!

Large scale studies show there is no opposition
between excellence and equity

American Educational Research Journal
August 2018, Vol. 55, No. 4, pp. 836–858
DOI: 10.3102/0002831218760213
© 2018 AERA. <http://aerj.aera.net>

Inequity and Excellence in Academic Performance: Evidence From 27 Countries

Philip D. Parker 

Herbert W. Marsh

Australian Catholic University

John P. Jerrim

University College London

Jiesi Guo

Theresa Dicke

Australian Catholic University

Research suggests that a country does not need inequity to have high performance. However, such research has potentially suffered from confounders

6. Curriculum and pedagogy

PISA studies point to the effectiveness of *direct teaching*

Estonia: less “student-centred approaches”,
“balance between tradition and innovation”,
“very demanding curriculum” and “high quality
examinations built directly on the curriculum”

England: abhorring memorization has harmed students


Poland: be cautious on “twenty-first-century skills”

If we want students to be proficient in the application of
knowledge, i.e., *competences*, we need to primarily focus
not on applications, but on *basic knowledge*



The same follows from studies on reading

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Articles

Information about education provided online, with recent results of scientific research and useful information for teachers, parents, students and the general public. Contributing to an informed debate.

AUTHOR

DATE

SEARCH



27.07.2021


AUTHOR: STEVE BISSENETTE E CHRISTIAN BOYER

READING TIME: 6 MIN

The effects of remote learning on the progress of students before and during the pandemic

Ever since March 2020, the Covid-19 pandemic has forced schools to replace in-person teaching with remote means of learning. These unprecedented circumstances are, for the evangelists of technology, ideal for the complete transformation of the regular teaching system, favouring the concept of the virtual school and the development of 21st century competences, the rising personalisation of student learning paths and truly differentiated education.

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23.03.2021


AUTHOR: LUDMILA NUNES

READING TIME: 6 MIN

Motivation is important, but it's not enough

Students who are more motivated, feel safe in their school environment, know how to manage their feelings and behaviors, and whose parents are involved in their education can have better educational outcomes than their peers. A new study supports this old idea. However, this study also indicates that these factors, not very related with intelligence or school aptitude, appear to benefit more the students who already have a good achievement than the students who still must develop a solid knowledge base.

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01.12.2020


AUTHOR: JOANA PAIS

READING TIME: 6 MIN

Technology and Education. An effective alliance?

Education is no stranger to technological innovation. However, doubts remain about the effectiveness of the use of technology in education. What scientific evidence is there showing that the use of tablets and computers improves student performance? A very recent study used PISA data from over 80,000 students to try to answer these and other questions.

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17.11.2020


AUTHOR: PEDRO FREITAS E HUGO REIS

READING TIME: 4 MIN

The importance of the class start times

The challenge of defining timetables is common to most schools and has more or less obvious consequences on pupils' lives. A study just out adds new data to what research has told us about the importance of the time of day for classes.

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03.11.2020

AUTHOR: CÉLIA OLIVEIRA

READING TIME: 3 MIN

Who's afraid of

18.04.2021


AUTHOR: HARRY A. PATRINOS

READING TIME: 5 MIN

The Impact of COVID-19 on Education

COVID-19 school closures have brought significant disruption in education. Emerging evidence suggests that the pandemic is resulting in learning losses and increases in inequality. To reduce and reverse the long-term negative effects, countries need to implement learning recovery programs, protect educational budgets, and prepare for future shocks.

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19.01.2021

AUTHOR: PAUL A. KIRSCHNER

READING TIME: 6 MIN

A novice is not a little expert

There are many who think that children are just tiny humans, identical in all but size to an adult. As odd as this may sound in 2020, these are the same people that think that the cognitive/ intellectual development of a child (and by extension, a novice) into an adult (and by extension, into an expert) is just a matter of growth. But is it really? Do novices and experts think and learn in the same way?

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10.04.2021


AUTHOR: CINDY NEBEL

READING TIME: 6 MIN

Can we boost elaboration with retrieval practice?

If you want to combine elaboration and retrieval practice, don't just have students answer elaborative questions without being able to retrieve the answers.

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10.11.2020


AUTHOR: CLERMONT GAUTHIER E MARIE BOCCOGLIOLLO

READING TIME: 4 MIN

The advantages of explicit teaching

Research from last decades have shown that school plays a critical role in the achievement of students from disadvantaged social backgrounds and that the teacher's pedagogical choices can be decisive for students' academic achievement. Among the existing pedagogical orientations, two methods stand out and are frequently contrasted.

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09.06.2021

AUTHOR: RAQUEL LEMOS (1,2) COM EDICAO DE ANA GERSCHENFELD (SCIENCE WRITER) (1)

READING TIME: 3 MIN

Math at Your Fingertips! Why does counting on their fingers help kids calculate?

How frequent is it to have toddlers showing their fingers when asked about their age, across different cultures? How commonly do children start by silently holding up their fingers to implicitly find the answer for that same question? How do they end up using this ability when, starting to develop mathematical skills, by holding up five fingers on one hand and counting to two while raising two



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The 'fiction effect' in youth reading

17.09.2020 AUTHOR: VIOLANTE F. MAGALHÃES

In a 2019 study, based on PISA data analysis on reading, researchers John Jerrim and Gemma Moss concluded that there is a consistent relationship between the highest scores obtained and the frequent reading of narrative fiction books. However, the same does not apply to reading magazines, comic books, non-fiction books, or newspapers. There is, therefore, a salutary fiction effect that cannot be overlooked, making it urgent to encourage young people to read this type of text.



7. How to improve a Country's Education

Concentrate on the fundamentals:

- Demanding **curriculum** – rich in knowledge content
- Rigorous **assessment**
- Support **all students** without lowering standards

Education policies need to be judged by **student results**, rather than by policy intentions.

Nuno Crato *Editor*

Improving a Country's Education

PISA 2018 Results in 10 Countries

OPEN ACCESS

 Springer

8. The debate on remote digital thinking before the pandemic

“Books will soon be obsolete in the public schools. Scholars will be instructed through the eye. It is possible to teach every branch of human knowledge with the motion picture. Our school system will be completely changed inside of ten years”

“the traditional teacher is replaceable by memory banks, didactics can be entrusted to machines (...). The students will still be taught something: not contents, but how to use terminals.”

“Educated people are not those who know everything, but rather those who know where to find, at a moment’s notice, the information they desire.”

So... we should avoid overarching hasty conclusions

Thomas Edison. 1913

Lyotard. 1979

The Expositor and Current Anecdotes, 1914

Willingham, D.T., 2019, The Digital Expansion of the Mind Gone Wrong in Education, *Journal of Applied Research in Memory and Cognition*,
<https://doi.org/10.1016/j.jarmac.2018.12.001>

9. What we learned during the pandemic

We learned that presential teaching is invaluable

Nothing replaces classes

Teaching and learning is a social activity

Teaching: direct cues, direct and fast feedback, daily assessment, daily adaptation, daily verified progresses, personal incentives

Learning: learn to live and work with others

Atlantis Group, *Without action, COVID-19 could reverse decades of global progress on education*, 29th of April 2020, <https://www.varkeyfoundation.org/opinion/covid-19-represents-most-significant-challenge-to-education-since-ww2/>

UNESCO, *Framework for reopening schools*, April 2020. <https://unesdoc.unesco.org/ark:/48223/pf0000373348>

UNESCO, *Distance learning strategies in response to COVID-19 school closures*, <https://unesdoc.unesco.org/ark:/48223/pf0000373305>

OECD, *Schooling disrupted, schooling rethought: How the Covid-19 pandemic is changing education*, 4th of June 2020. https://globaled.gse.harvard.edu/files/geii/files/education_continuity_v3.jpg?m=1590772172

10. And what we can now do better

THE MEDIUM IS NOT THE MESSAGE

Good teaching follows the same principles

It's not the content that should adapt to the medium

Structured subjects and not a collection of activities

Clear goals – standards

Good supporting materials – textbooks, software

Teacher guidance

WHAT DO GOOD TEACHERS DO ONLINE?

Set up clear goals for the students

Call upon previous knowledge

Try to prevent distractions – multitasking is a myth

Dialogue – check for understanding

Implement frequent retrieval

Marshall McLuhan, *Understanding Media: The Extensions of Man*, 1964

Richard Clark, *Learning from Media: Arguments, Analysis, and Evidence*, Greenwich, Connecticut: Information Age Publishing, 2001.

«Remember, it's not the vehicle, but the instructional method used that influences achievement», Paul A. Kirshner & Carl Henrick, *How Learning Happens*, Routledge, 2020.

Mayer, R. E., Applying the science of learning: Evidence-based principles for the design of multimedia instruction, *American Psychologist*, 63, 2008.

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.457.5957&rep=rep1&type=pdf>

Ludmila Nunes, Does retrieval practise improve learning in real-life classrooms? A recent database will help us answer this question, 2020, <https://www.iniciativaeducacao.org/en/ed-on/ed-on-articles/does-retrieval-practise-improve-learning-in-real-life-classroomss-a-recent-database-will-help-us-answer-this-question>

Curriculum for the pandemic recuperation and the 21st century

FOCUS ON PERMANENT AND CENTRAL PILLARS

We cannot fail Reading and Math

Data analysis, History, Geography, Sciences, Arts...

Critical and active citizens in a changing world need knowledge and training that is not easily outdated

Learn what cannot be rapidly outdated

t one of the
nfluential
rs, creators and
reneurs of all
Steve Jobs was
the greatest CEO
generation.

p. CEO Rupert Murdoch

Once in a rare while,
somebody comes along
who doesn't just raise
the bar, they create an
entirely new standard of
measurement.

Writer CEO Dick Costel

Think Different

The high School teacher Steve Jobs
refers to in his 2005 Stanford address
is Robert Palladino...

The world has lost
a visionary. And there
may be no greater
tribute to Steve's
success than the fact
that much of the world
learned of his passing on
a device he invented.

President Barack Obama

For those of us lucky
enough to get to work
with him, it's been
an incredibly great
honor. I will miss Steve
immensely.

Microsoft Chairman Bill Gates

Steve Jobs Watch

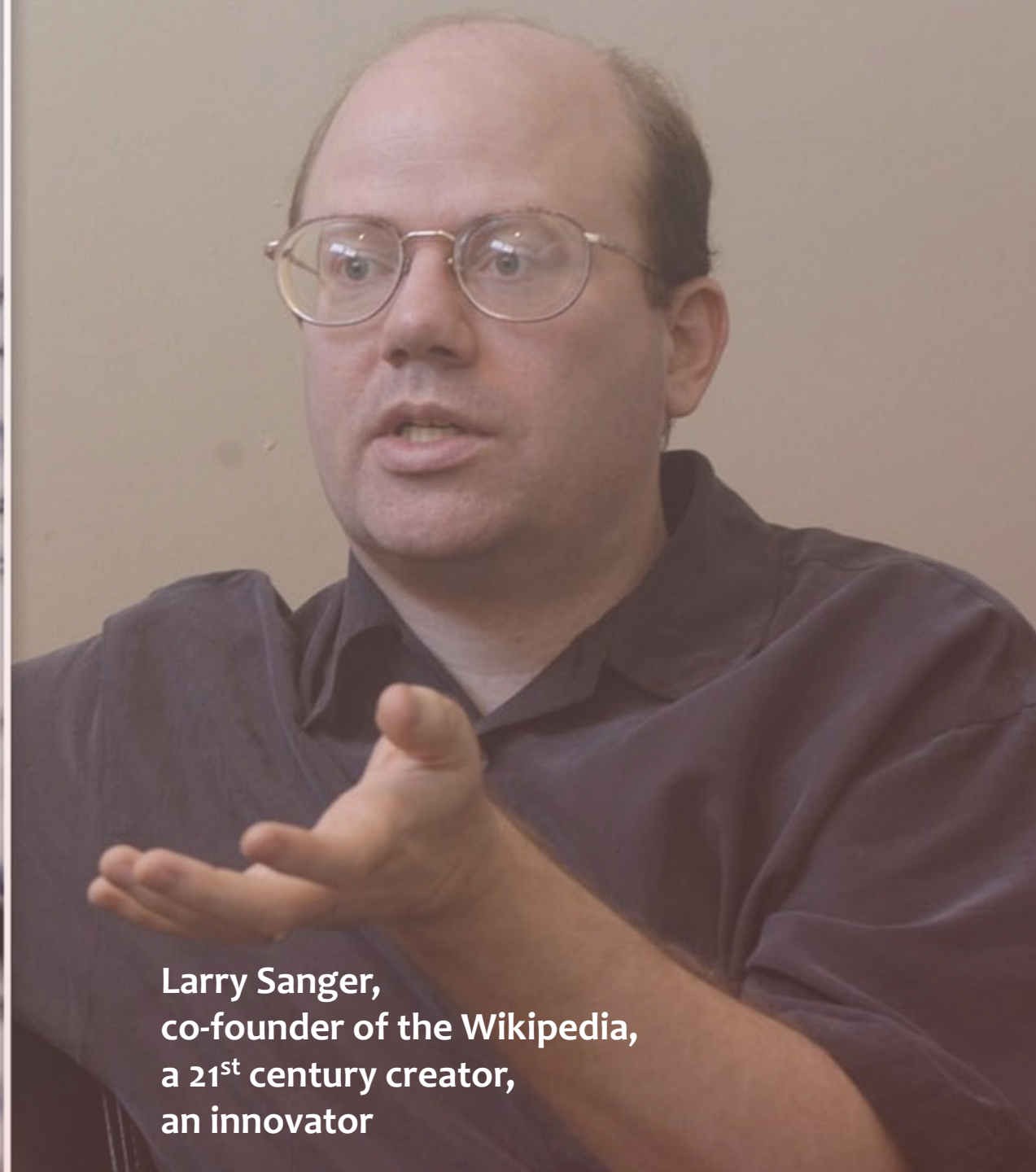
Apple has lost a visionary
and creative genius, and
the world has lost an
amazing human being.
Those of us who have
been fortunate enough
to know and work with
Steve have lost a dear
friend and an inspiring
mentor.

Apple CEO Tim Cook

Steve, thank you for
being a mentor and
a friend. Thanks for
showing that what you
build can change the
world. I will miss you.

Facebook CEO Mark Zuckerberg


*None of this had even a hope of any
practical application in my life... If I had
never dropped in on that single course
in college, the Mac would have never
had multiple typefaces or proportionally
spaced fonts.*



Larry Sanger,
co-founder of the Wikipedia,
a 21st century creator,
an innovator

“So let’s see, which would have been better for me to learn back in 1985, when I was 17: all the ins and outs of WordPerfect and BASIC, or U.S. History?”

There should be no question at all: what I learned about history will remain more or less the same, subject to a few corrections; skills in WordPerfect and BASIC are no longer needed.”



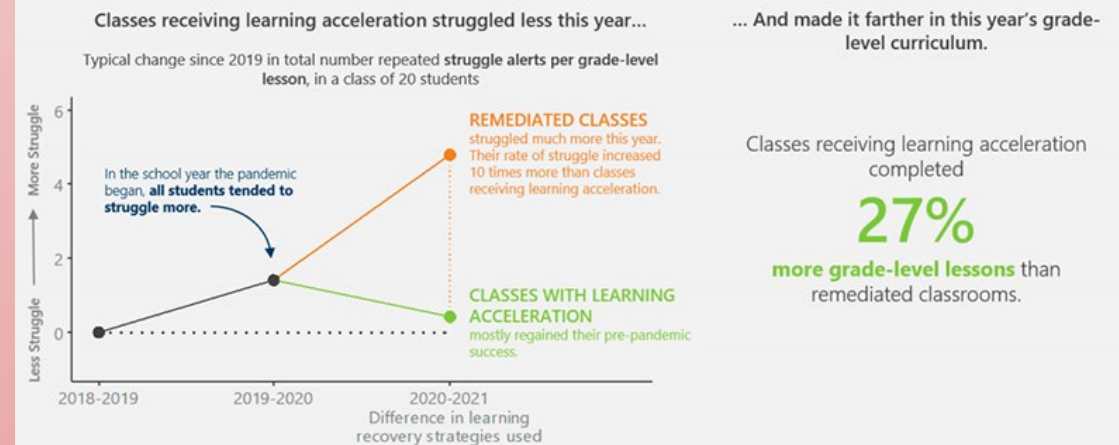
Larry Sanger,
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11. How to recover learning losses

- **Evaluation**
 - various components
 - even more important after the pandemic
- **Acceleration not remediation**
- **Recommended strategies** (J. Newman & B.C. Czuprik, Oct. 2021)
 - Develop a clear vision for students' experiences
 - Prioritize high-quality curricular resources
 - Find supplemental materials to close gaps
 - Focus on all students, not on the mythical “average”

REMEDICATION	ACCELERATION
<i>Spending significant time in below-grade level content before moving into new learning</i>	<i>Connecting unfinished learning into the context of new learning</i>
..... covering many objectives or standards from prior grades/units (usually extending to a month or more of instruction) integrating a few lessons from prior grades/units
.... isolated from grade-appropriate learning Just-in-time to grade-appropriate learning (whether in core or extended time)

FIGURE 1 | Effectiveness of Learning Acceleration vs. Remediation



SOURCE: N = 27,926 students / 3,742 classrooms for the remediated group. N = 22,713 students / 2,337 classrooms for the learning acceleration group. Zearn data drawn from 3rd, 4th, and 5th grade classrooms in school grades that missed the final set of lessons of previous school year with sufficient student activity and 3+ years of continuous data.

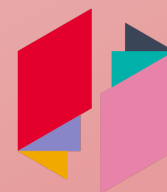
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