



TERESA E ALEXANDRE
SOARES DOS SANTOS
INICIATIVA EDUCAÇÃO



Lisbon School
of Economics
& Management
Universidade de Lisboa



Ferramentas do século XXI para a escola do século XXI

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22 Junho 2021

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@CratoNuno

Pobreza educativa

Outubro 2019: Banco Mundial + Unesco Office of Statistics

$$LP = BMP \times (1 - OoS) + [1 \times OoS]$$

BMP is share of 10-year-old children in school below minimum proficiency,
OoS is the percentage of Out-of-School children

Países pobres: LP = **88%**

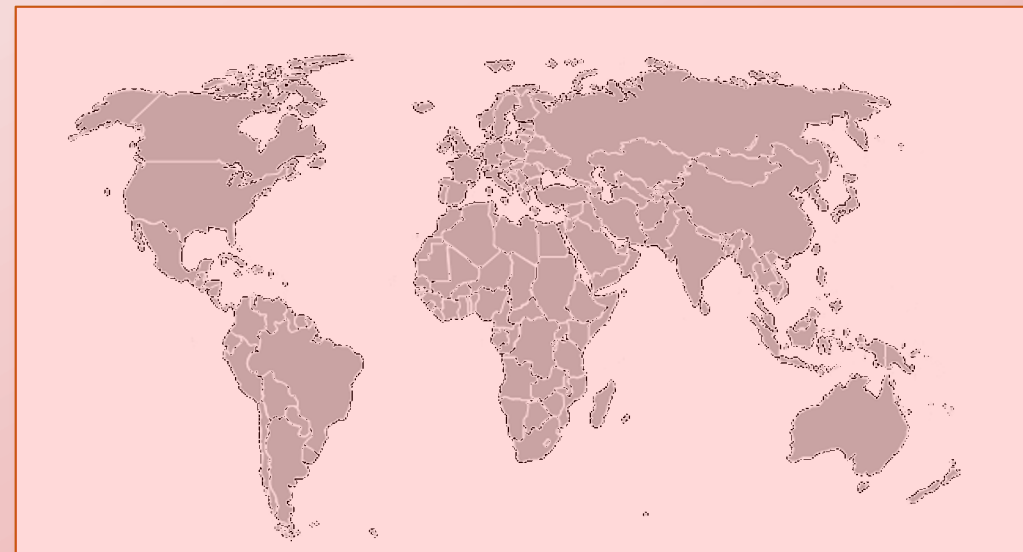
Países de médio e baixo rendimento: LP = **53%**

Países de rendimento elevado: LP = **23,9%**

2017: Unesco, alunos com 10 anos abaixo dos níveis mínimos de proficiência (MPL)

Mundo: **56%** em matemática e **58%** em leitura

América do Norte e Europa: **14%** em matemática e **14%** em leitura



<https://www.worldbank.org/en/topic/education/brief/learning-poverty>

“More Than One-Half of Children and Adolescents Are Not Learning Worldwide”. Unesco 2017, Fact Sheet 46

Pobreza reformista

SDG (Sustainable Development Goals), UN 2015:

“ensure that all girls and boys complete free, equitable and quality primary and secondary education” by 2030

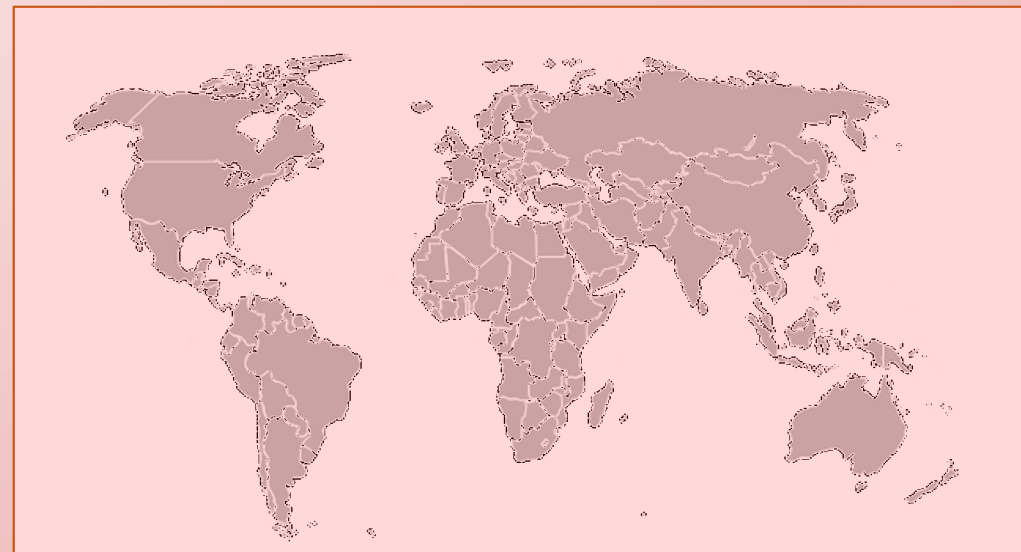
WB: “at the current rate of improvement, in 2030 about 43% of children will still be learning-poor. Even if countries reduce their learning poverty at the fastest rates we have seen so far in this century, the goal of ending it will not be attained by 2030”.

Situação em 2019:

Países pobres: LP = **88%**

Países de médio e baixo rendimento: LP = **53%**

Países de rendimento elevado: LP = **23,9%**

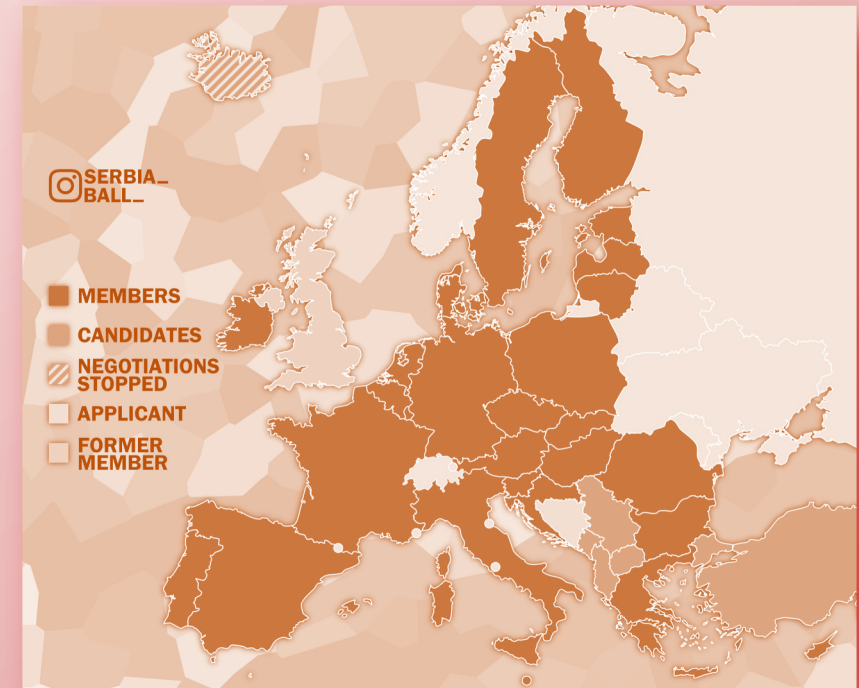


<https://sdgs.un.org/topics/education>

<https://www.worldbank.org/en/topic/education/brief/learning-poverty>

E os remediados...

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
All domains				13.4
EU				
Science		16.6	20.6	21.6
Math (36)		22.1	22.2	22.4
Reading		17.8	19.7	21.7
All domains				12.7*

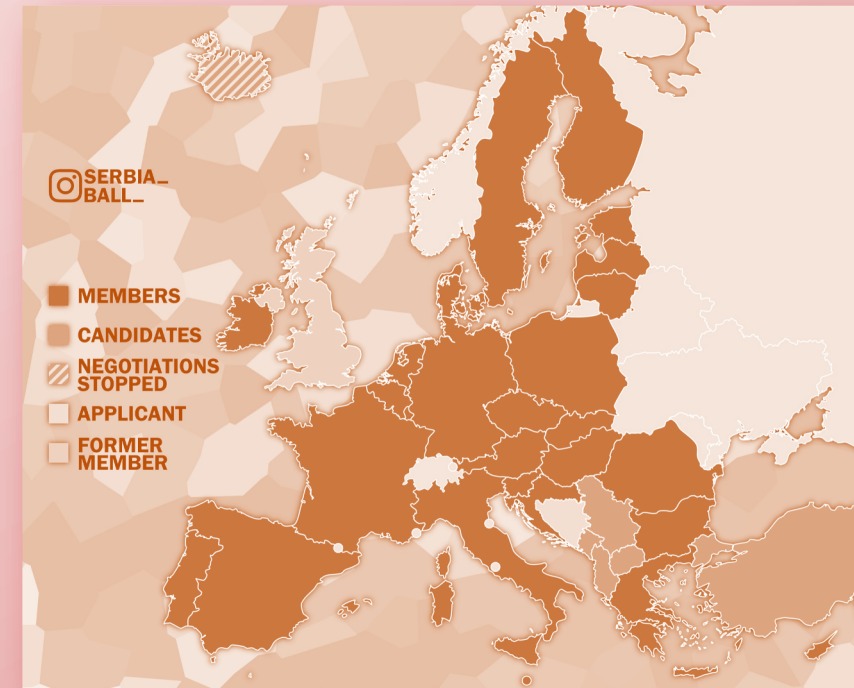


Remedeios reformistas

Quadro estratégico 2009:

1. tornar a aprendizagem ao longo da vida e a mobilidade uma realidade;
2. melhorar a qualidade e a eficácia da educação e da formação;
3. promover a igualdade, a coesão social e a cidadania activa;
4. incentivar a criatividade e a inovação, incluindo o espírito empreendedor, a todos os níveis da educação e da formação

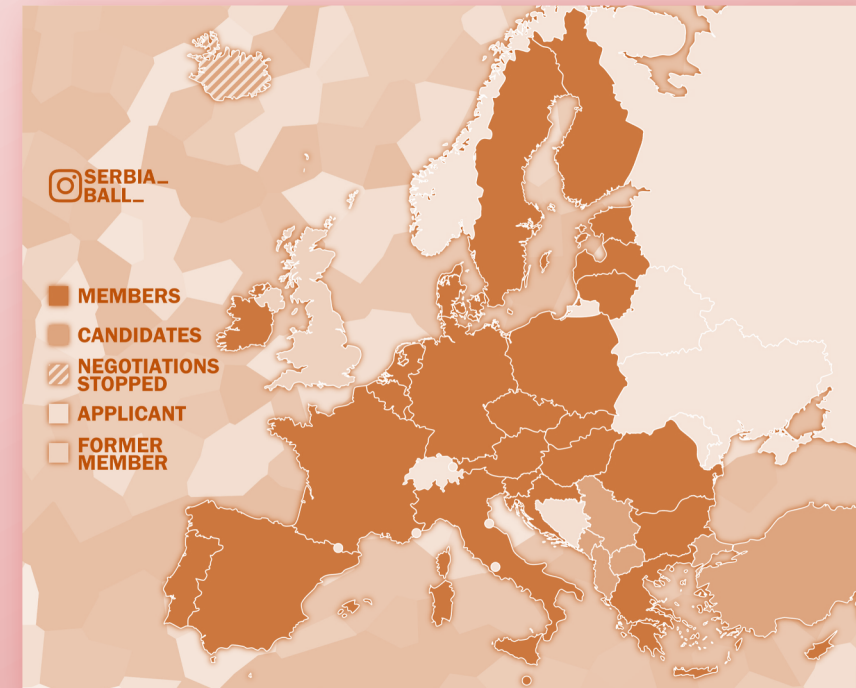
Até **2020**, a percentagem de alunos de 15 anos com fraco aproveitamento em leitura, matemática e ciências deverá ser inferior a **15 %**.



[https://eur-lex.europa.eu/legal-content/PT/TXT/HTML/?uri=CELEX:52009XG0528\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/PT/TXT/HTML/?uri=CELEX:52009XG0528(01)&from=EN)

A realidade

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
All domains				13.4
EU				
Science		16.6	20.6	21.6
Math (36)		22.1	22.2	22.4
Reading		17.8	19.7	21.7
PORTUGAL				
Science	16.5	19.0	17.4	20.2
Math (36)	23.7	24.9	23.8	23.3
Reading	17.6	18.8	17.2	19.6



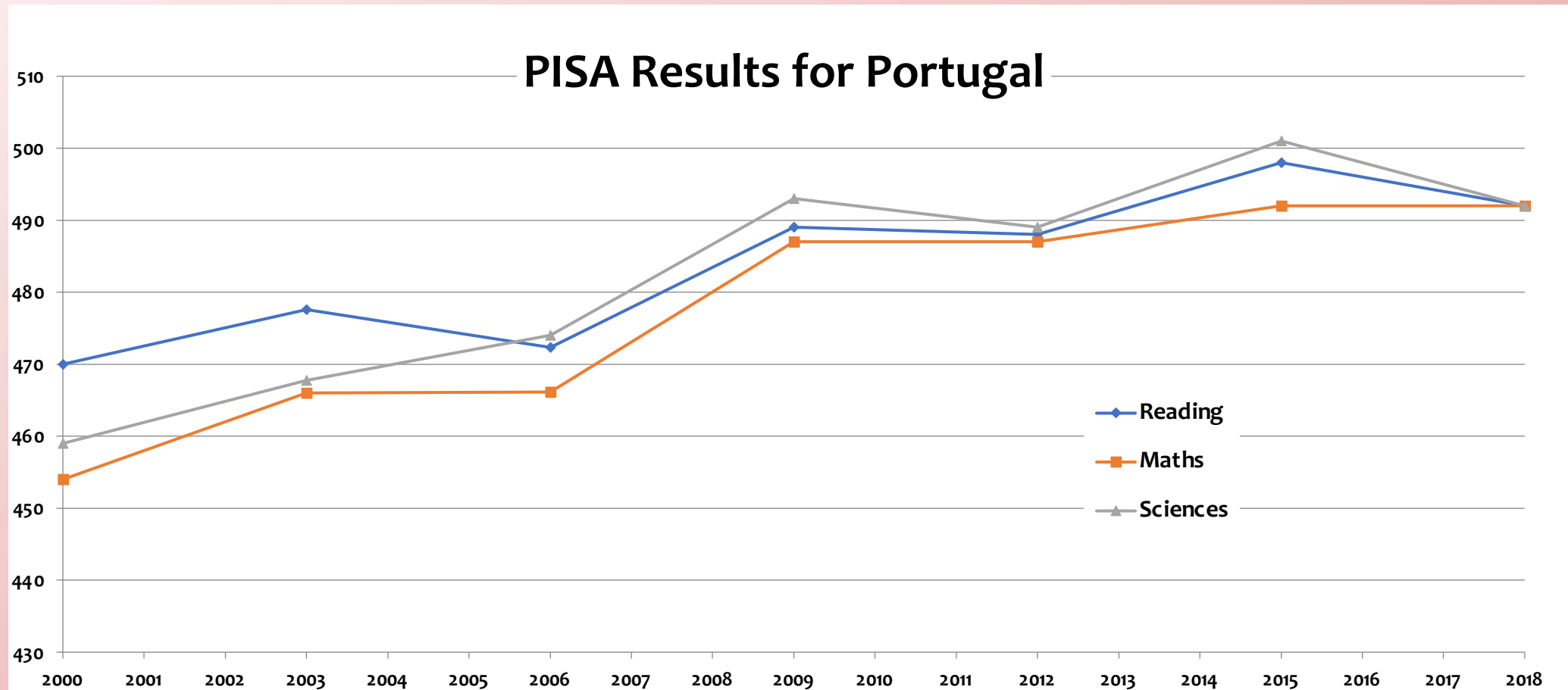
“in 2015 only two countries were able to reduce the share of low achievers simultaneously in all three PISA domains: these countries were Sweden and Portugal”

Era “romântica”
1974 - 1995/2000

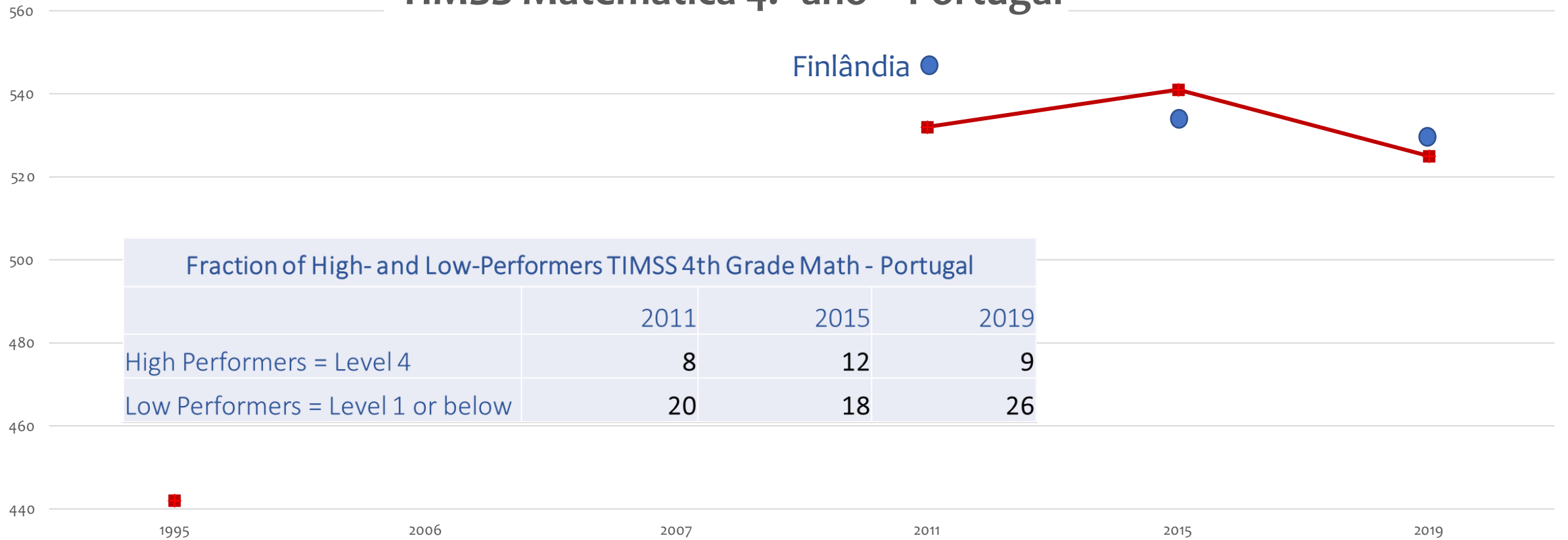
Tempos pragmáticos
2000/2003 - 2011

Currículo estruturado
2011 - 2015

Competências de novo
2016 - 2020



TIMSS Matemática 4.º ano – Portugal



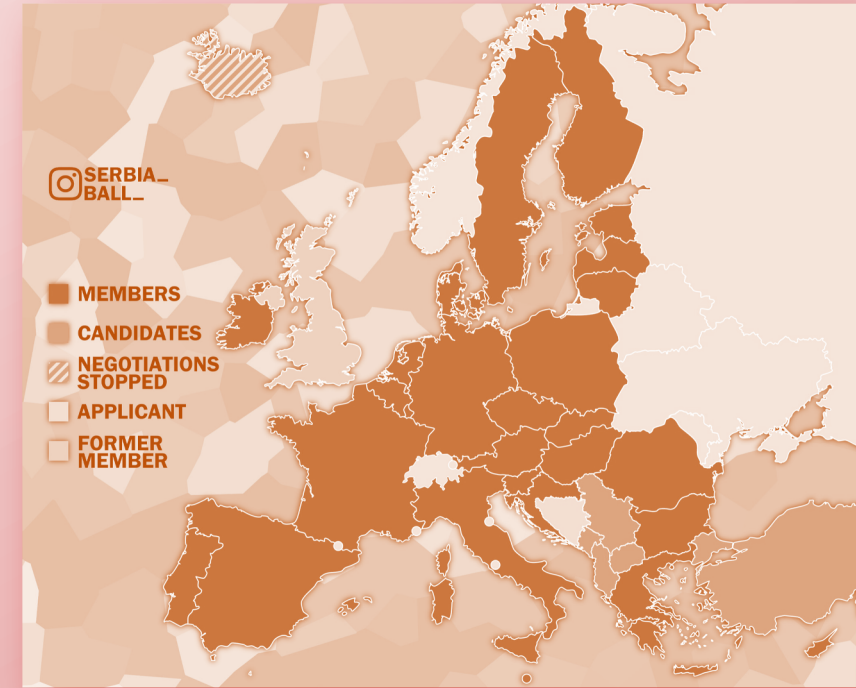
Fraction of High- and Low-Performers TIMSS 4th Grade Math - Portugal			
	2011	2015	2019
High Performers = Level 4	8	12	9
Low Performers = Level 1 or below	20	18	26

OCDE: o que diz e o que os dados mostram

Em 2018, “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.”

“Education is no longer about teaching students something alone; it is more important to be teaching them to develop a reliable compass and the navigation tools”

“In the past, literacy was mainly about learning to read, a set of technical skills that individuals would acquire once for a lifetime in order to process an established body of coded knowledge. In the 21st century, literacy is about reading for learning...”



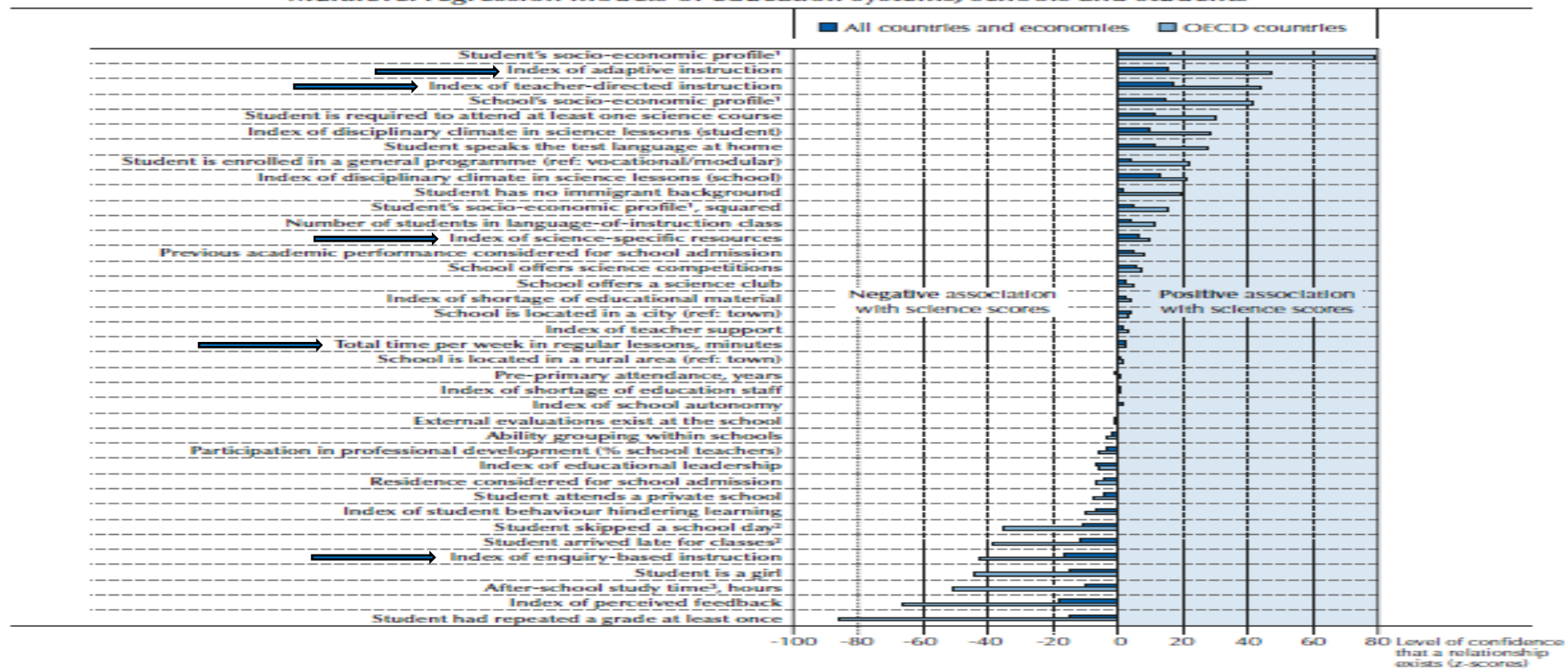
OECD (2019), *PISA 2018 Results (Volume I): What Students Know and Can Do*, PISA, OECD Publishing, Paris

<https://dx.doi.org/10.1787/9789264300002-en>

Schleicher, A. (2012), Ed., *Preparing Teachers and Developing School Leaders for the 21st Century: Lessons from around the World*, OECD Publishing, Paris

Que revela o PISA?

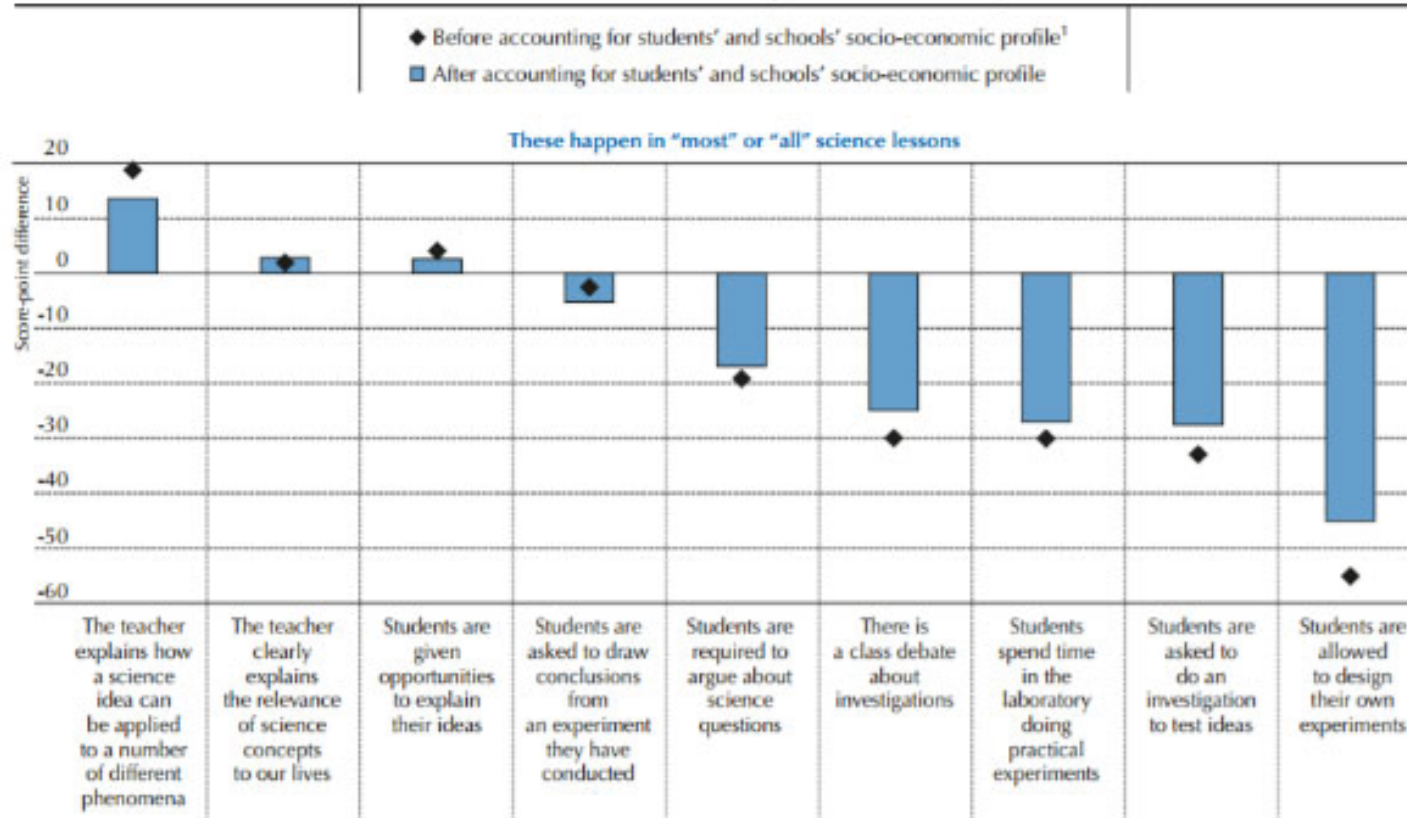
Figure II.7.2 ■ Factors associated with science performance
Multilevel regression models of education systems, schools and students



1. The socio-economic profile is measured by the PISA Index of economic, social and cultural status (ESCS).
 2. In the two weeks prior to the PISA test.
 3. Includes homework, additional instruction and private study.
 Notes: All variables have been introduced jointly in a three-level regression model.
 Statistically significant coefficients have associated z-scores below -1.96 or above 1.96.
 The z-scores for «all countries and economies» are generally lower because the uncertainty surrounding the relationships is significantly higher.
 See Table II.7.1. for results by education system.
 Factors are ranked in descending order of the z-scores for OECD countries.
 Source: OECD, PISA 2015 Database.
 StatLink <http://dx.doi.org/10.1787/888933436455>

Figure II.2.20 ■ **Enquiry-based teaching practices and science performance**

Results based on students' reports, OECD average



1. The socio-economic profile is measured by the PISA index of economic, social and cultural status.

Note: All differences are statistically significant (see Annex A3).

Source: OECD, PISA 2015 Database, Table II.2.28.

StatLink <http://dx.doi.org/10.1787/888933435628>

Oliver, M., McConney, A. & Woods-McConney, A. The Efficacy of Inquiry-Based Instruction in Science: a Comparative Analysis of Six Countries Using PISA 2015. *Res Sci Educ* (2019). <https://doi.org/10.1007/s11165-019-09901-0>

O caso de Portugal é claro

LOW PERFORMERS	2009	2012	2015	2018
PORTUGAL				
Science	16.5	19.0	17.4	20.2
Math	23.7	24.9	23.8	23.3
Reading	17.6	18.8	17.2	19.6
EU				
Science		16.6	20.6	21.6
Math		22.1	22.2	22.4
Reading		17.8	19.7	21.7
TIMSS 4.º Ano Matemática - Portugal				
	2011	2015	2019	
High Performers = Nível 4	8	12	9	
Low Performers ≤ Nível 1	20	18	26	

2006-2015

Rigor crescente no currículo
 Metas curriculares mais precisas
 Mais avaliação

2016-2019-

Currículo menos ambicioso
 Desvalorização das metas curriculares
 Mais flexibilidade curricular
 Menos avaliação

Que mais revela o PISA?

PISA aponta a eficácia do ensino dirigido e explícito

Estónia: menos "ensino centrado no estudante",
"equilíbrio entre tradição e inovação",
"currículo muito exigente" y "exames de alta qualidade
construídos diretamente sobre o currículo"

Inglaterra: evitar a memorização prejudicou os estudantes

Polónia: cuidado com as "competências do século XXI"


Se queremos que os estudantes sejam competentes na aplicação do conhecimento, i.e., nas competências, não devemos centrar-nos nas aplicações, mas sim nos conhecimentos básicos

Nuno Crato *Editor*

Improving a Country's Education

PISA 2018 Results in 10 Countries

OPEN ACCESS

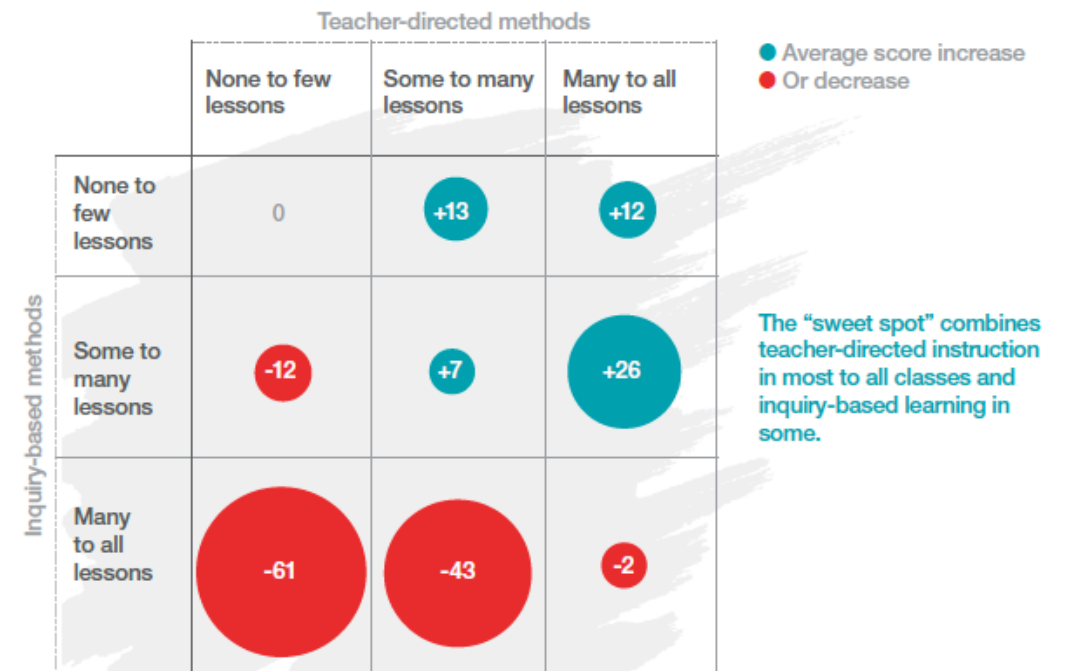
 Springer

ENSINO DIRIGIDO: CURRÍCULO BASEADO NO CONHECIMENTO

Ensino dirigido \neq Ensino passivo

EXHIBIT 03: STUDENTS WHO RECEIVE A BLEND OF TEACHER-DIRECTED AND INQUIRY-BASED INSTRUCTION HAVE THE BEST OUTCOMES (EUROPEAN UNION EXAMPLE)

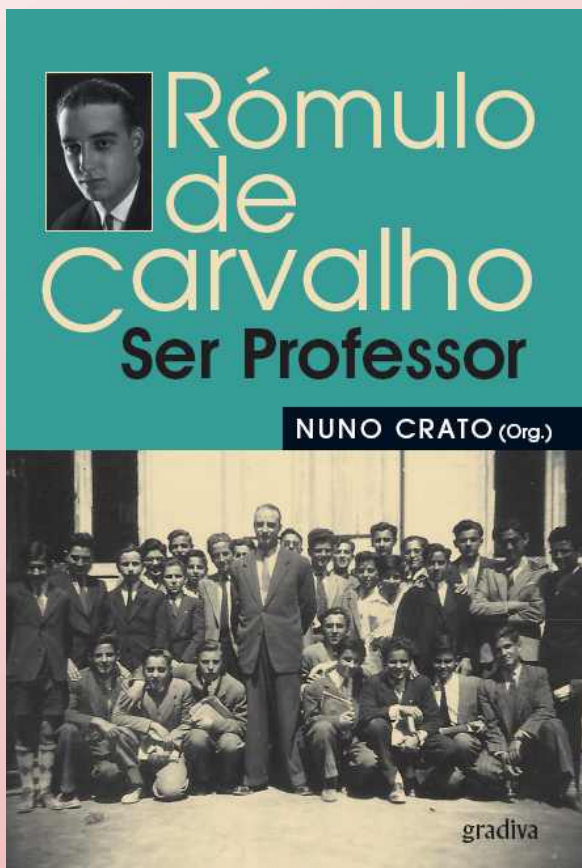
Average point increase in PISA science score relative to baseline¹



¹ Statistically significant expected change in score controlling for PISA's index for economic, social, and cultural status (ESCS), public/private schools, and urban/rural location for all quadrants except for teacher-directed and inquiry-based instruction in all classes (-2), which was not significant at 95% confidence level. Source: OECD PISA 2015, McKinsey analysis

ENSINO DIRIGIDO: CURRÍCULO BASEADO NO CONHECIMENTO

Ensino dirigido = ensino aborrecido ? = ensino passivo ?



Entre a experiência efectuada e a respectiva indução que se deseja provocar abre-se um fundo abismo, embora muitas vezes o professor se maravilhe, inadvertidamente, com a facilidade de generalização que conseguiu obter dos alunos. O professor, no seu hábito de insinuar o que deseja transmitir, não chega a dar conta da ponte levadiça que fez baixar sobre o fosso que separava a experiência da respectiva indução, e pela qual os alunos passaram vitoriosamente.

Os exemplos, que poderiam ser numerosos, mostrariam exuberantemente que é necessário ter cuidado ao considerar a experiência como base fundamental do ensino da Física em vista do seu valor como estimulante do processo indutivo. Realmente, não é a experiência que permite a indução. Somos nós, os que ensinamos, com as palavras que escolhemos e proferimos no decorrer da sua execução, com as nossas hábeis insinuações, com as nossas escamoteações oportunas, com o nosso conhecimento sagaz do aluno e das suas circunstâncias.

Nós somos, em última análise, o método, o processo, a forma e o modo.

«A Física como objecto de ensino», *Palestra 4*, 1959

ENSINO DIRIGIDO: CURRÍCULO BASEADO NO CONHECIMENTO

Ensino dirigido -> Conhecimento profundo ≠ Coleções de truques episódicos

*A little learning is a dangerous thing
Drink deep, or taste not the Pierian spring:
There shallow draughts intoxicate the brain,
And drinking largely sobers us again.*

Alexandre Pope (1688-1744)

*Aprender apenas um pouco é uma coisa perigosa
Beba a fundo ou não prove da fonte da sabedoria:
Aí, pequenos golos intoxicam a mente
e beber deveras torna-nos sóbrios novamente.*

Mas porquê?

Porque a educação não é natural, é civilizacional?

Bons selvagens, que se devem desenvolver por si?

Ou *fantasmas em máquinas*, não condicionados pela biologia?

Se sim: o aborrecimento dos jovens estaria sempre no ensino, que deveria ir de encontro aos seus interesses em vez de se impor artificialmente

Dewey dizia: “The child’s own instincts and powers furnish the material and give the starting point for all Education” (1902).

Psicologia evolutiva moderna:

A fala é “biologicamente primária”, mas a escrita é “biologicamente secundária” (D. Geary 1995)

Matemática tem de ser ensinada... Geografia tem de ser ensinada... História tem de ...

A escola é civilizacional, o raciocínio pertence ao “Sistema 2” (D. Kahneman):

em certa medida, algum aborrecimento e esforço são inevitáveis

Mas porquê?

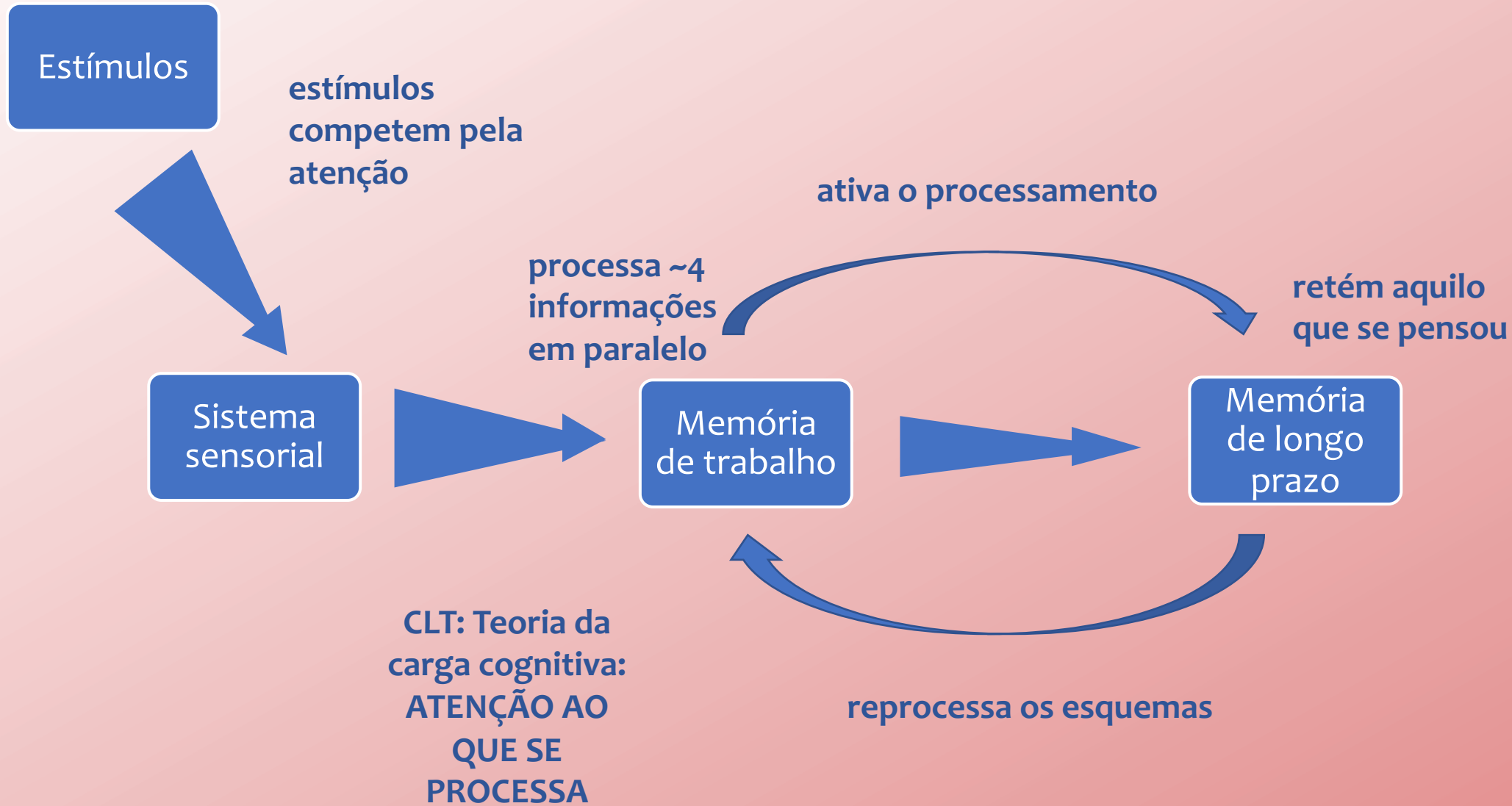
O que é ensinar? O que é aprender?

Aprender é enriquecer a memória de longo prazo (Kirshner et al. 2006)

A memória é o sedimento do pensamento (Willingham 2009)

Memória não são só factos, são esquemas





Psicologia cognitiva

Esforço cognitivo na memória de trabalho é aliviado pela memória de longo prazo

Conhecimento baseia-se em conhecimento: o mais importante é construir na base do que se sabe

Construir significado a partir do que já se conhece leva a uma melhor aprendizagem e retenção

Atividade de processamento é facilitada por **rotinas e automatismos**

Organização do ensino e docência

LIDERAR A APRENDIZAGEM

APRENDIZAGEM EM CAMADAS

APRENDIZAGEM MAIS PROFUNDA

MECANISMOS AJUDAM

Um pequeno exercício de pesquisa:

Queremos dados sobre os conflitos antigos com a Galiza, que tiveram por vezes expressão violenta, em algumas batalhas

guerras da galiz

 guerras da galiz

Batalha da

Origem: Wikipédia, a enc

A **Batalha da Galícia**, entre o **Império Russo** e a **Guerra Mundial** em 1914 e forçado a evacuar a C nove meses, ocupavam

Referências

- ↑ Conrad von Hötz politischen und mil bis zum Beginn de

Bibliografia

- Golovin, Nikolai. «G de 2012
- Tucker, Spencer (20

People also see
[the battle of gal](#)
[battle of galicia](#)
[who won the ba](#)

Background [[edit](#)]

When war came the Austro-Hungarian Chief-of-Staff **Franz Conrad von Hötzendorf** planned to launch an offensive into **Russian Poland** with his northern armies (the 1st and 4th). The Russians would far outnumber the Central Powers in the east (especially the Austro-Hungarian armies, which were Russia's primary target), Conrad believed that their best option was an early advance into southern Poland where the Russians would be concentrating their newly mobilized units.^[1]

Conrad knew that his German allies were committed to an offensive in the West to defeat the French in the first ten weeks of the war. Only the **German 8th army** would be in the East, where they would stand on the defensive in East Prussia. However, their alliance with the French obliged the Russians to attack the Germans promptly, so substantial Russian forces would be sent to invade East Prussia. The 1st and 4th Austro-Hungarian Armies would advance into Poland without direct German support. By 23 August 1914 Conrad's 1st, 3rd, and 4th Armies were concentrated in Galicia along a front of 280 km (170 mi).

On 2 August **Grand Duke Nicholas Nikolaevich**, a second cousin of **Emperor Nicholas II** who had made his career in the army, was made Commander-in-Chief. He had an excellent reputation for training troops, but had never commanded a field army and was staggered by his unexpected elevation. The Russian 3rd, 4th, 5th, and 8th Armies were assigned to Galicia. The Russian war plan called for **Nikolai Ivanov**, the Russian commander of the Southwest Front, to counter an anticipated Austro-Hungarian offensive thrusting eastward from **Lemberg**. The 3rd and 8th Armies would mount an offensive into eastern **Galicia**. The Russians could bring 260 trains a day to their front, compared to the Austro-Hungarian's 152.

Battles [[edit](#)]

Main article: [Battle of Kraśnik](#)

The Austro-Hungarian 1st Army under **Viktor Dankl** was moving in the north towards **Lublin**. Dankl struck and drove back Baron Zaltsa's Russian Fourth Army in what would be known as the **Battle of Kraśnik**. Dankl's army was able to capture 6,000 prisoners.

Main article: [Battle of Komarów \(1914\)](#)

To the right of Dankl the Austro-Hungarian 4th Army, aiming at Cholm, drove back the Russian Fifth Army under **Pavel Plehve** in the **Battle of Komarów**, capturing 20,000 prisoners and inflicting heavy casualties. However, a planned Austrian enveloping movement around the Russian army failed.

Main article: [Battle of Gnila Lipa](#)

As the Russians were being driven back along the northern front, the Austrian 3rd Army and Army Group Kovess made a simultaneous advance against Ivanov's left wing. Along the southern front, Ivanov had the **Russian Third Army** under **Nikolai Ruzsky** and the **Russian Eighth Army** under **Aleksei Brusilov**. Brusilov and Ruszky routed the Austro-Hungarians so thoroughly that even though poor roads necessitated that the Russians halt for two days, the Austrians could not regroup to halt the Russian drive. This attack became known as the **Battle of Gnila Lipa**.

Main article: [Battle of Rawa](#)



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811
 БУКОВИНА

?!
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Kingdom of Galicia and Lodomeria

From Wikipedia, the free encyclopedia

For the medieval Kingdom of Galicia and Lodomeria, see [Kingdom of Galicia–Volhynia](#).

Not to be confused with [Kingdom of Galicia](#).

The **Kingdom of Galicia and Lodomeria** was a province of the [Austrian Habsburg Monarchy](#) as a result of the [Congress of Vienna](#). In 1804 it became a crownland with some degree of Polish administrative autonomy. It was part of the [Lithuanian Commonwealth](#). Among the [Napoleonic Wars](#) and the [Congress of Vienna](#), it was part of the [Congress Kingdom of Poland](#).

The name "Galicia" is the Latinized name of the [Volynskiy](#), that was founded in the [Kingdom of Galicia and Lodomeria](#) (King of Galicia and Lodomeria) in the 12th century.

This historical region is in Eastern Europe, in the [Ternopil](#), and [Ivano-Frankivsk](#) regions.

Contents [hide]

- Ceremonial name
 - Other names
- History
 - From 1815 to 1860
 - Constitutional experiments
 - Galician autonomy
 - The Great Economic Emigration
 - First World War and Polish independence
- Administrative divisions
 - Major cities and towns
 - Administrative divisions

Kingdom of Galicia

From Wikipedia, the free encyclopedia

For other uses, see [Kingdom of Galicia \(disambiguation\)](#).

The **Kingdom of Galicia** (Galician: *Reino de Galicia*, or *Galiza*; Spanish: *Reino de Galicia*; Portuguese: *Reino da Galiza*; Latin: *Galliciense Regnum*) was a political entity located in southwestern Europe, which at its territorial zenith occupied the entire northwest of the [Iberian Peninsula](#). It was founded by the Suebic king [Hermeric](#) in 409, with its capital established in [Braga](#).^[1] It was the first kingdom which adopted Catholicism officially. In 449 it minted its own currency. In 585, it became a part of the [Visigothic Kingdom](#). In the 8th century, Galicia became a part of the newly founded Christian [Kingdom of Asturias](#), which later became the [Kingdom of León](#), while occasionally achieving independence under the authority of its own kings.^[2] [Compostela](#) became capital of Galicia in the 11th century, while the independence of [Portugal](#) (1128) determined its southern boundary. The accession of Castilian King [Ferdinand III](#) to the Leonese kingdom in 1230 brought Galicia under the control of the [Crown of Castile](#).

Galicia resisted central control, supporting a series of alternative claimants, including [John of León](#), [Galicia and Seville](#) (1296), [Ferdinand I of Portugal](#) (1369) and [John of Gaunt](#) (1386), and was not brought firmly into submission until the Catholic Monarchs imposed the [Santa Hermandad](#) in Galicia. The kingdom of Galicia was then administered within the [Crown of Castile](#) (1490–1715) and later the [Crown of Spain](#) (1715–1833) by an *Audiencia Real* directed by a Governor which also held the office of [Captain General](#) and [President](#). The representative assembly of the Kingdom was then the *Junta* or *Cortes of the Kingdom of Galicia*, which briefly declared itself sovereign^[3] when Galicia alone remained free of [Napoleonic occupation](#) (1808–1809). The kingdom and its *Junta* were dissolved by [Maria Cristina of Bourbon-Two Sicilies](#), Regent of Spain, in 1834.

Contents [hide]

- Origin and foundation (409)
- Suebic Kingdom (409–585)
 - 5th century
 - 6th century
- Visigothic monarchy (585–711)
- Early and High Middle Ages
 - Society
 - Interludes of independence: 10th and 11th centuries
 - [Raymond of Burgundy](#)
 - Separation of the County of Portugal (1128)
 - [Compostelan Era](#) (1111–1230)
 - Union under the Crown of Castile (1230)
- Late Middle Ages
 - Emergence of the Galician language
 - Galicia and the Castilian Crown

Coordinates: 42°52′57″N 8°32′28″W﻿ / ﻿42.88250°N 8.54111°W﻿ / 42.88250; -8.54111

Kingdom of Galicia

Reino de Galicia or *Galiza* (in Galician)
Reino de Galicia (in Spanish)
Reino da Galiza (in Portuguese)
Galliciense Regnum (in Latin)
Galiza Rouantelezh (in Breton) ;

409–1833



Flag



Coat of arms

Motto: *Hoc hic misterium fidei firmiter profitemur*

"Here is the mystery of faith that we strongly profess"

Anthem: *Antiga Marcha do Reino de Galicia*



The location of the Kingdom of Galicia in the 11th century CE, in red

Capital [Santiago de Compostela](#)¹

Common languages [Latin](#)

Conclusão: para procurar informação na internet é indispensável informação prévia

Para aumentar o conhecimento, é necessário conhecer



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Obrigado a todos!



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