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Państwowy Instytut Badawczy

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EDUCATIONAL RESEARCH INSTITUTE

NATIONAL RESEARCH INSTITUTE

Maciej Jakubowski
Tomasz Gajderowicz



We conduct key research studies

INTERNATIONAL STUDIES

We represent Poland in the most important research projects:



Randomized controlled trials (RCT)

NATIONAL RESEARCH STUDIES

We conduct research in the areas of:

- the school education system (students' achievements and competences, the situation of teachers)
- the demand for occupations
- qualifications
- skills (Analysis of the Demand for Occupations, Qualifications and Skills – AZ-ZKU)
- the factors influencing learning in adulthood
- the effectiveness of various solutions in education (RCT)

THE RESULTS ➡ support educational policies and improve the quality of education

We analyse data and share knowledge

PUBLICATIONS AND REPORTS



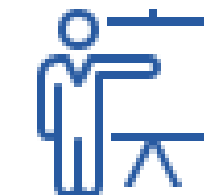
- systems analyses
- research reports

PRACTICAL GUIDES



- methods guides
- step by step instructions

EVENTS AND TRAINING



- conferences
- workshops with experts
- webinars

PUBLIC POLICY RECOMMENDATIONS



DIGITAL TOOLS



- applications
- educational portals

Our aim: **education based on facts, not fiction**

FACTS MYTHS

DEBUNKING MYTHS



We check common beliefs and **debunk myths** (e.g., about learning styles) that are not supported by science

PROMOTING EFFECTIVE METHODS

We explain the mechanisms of learning, promoting techniques with proven effectiveness

I KNOW I'M ABLE TO I ACT

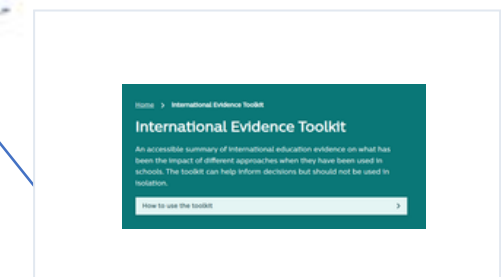
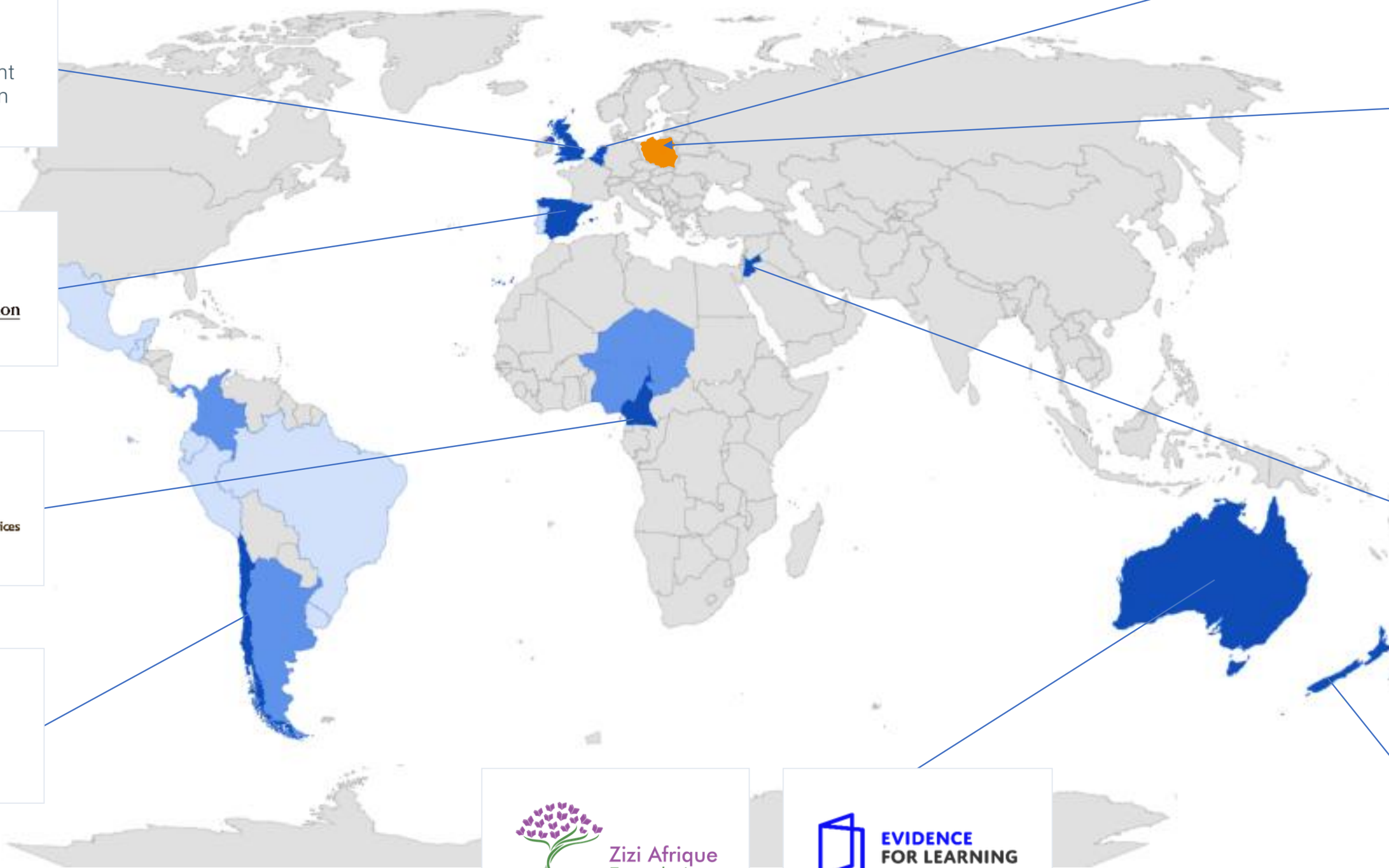


We teach that critical thinking requires a solid foundation of subject-specific knowledge



We joined The **Evidence for Education Network**

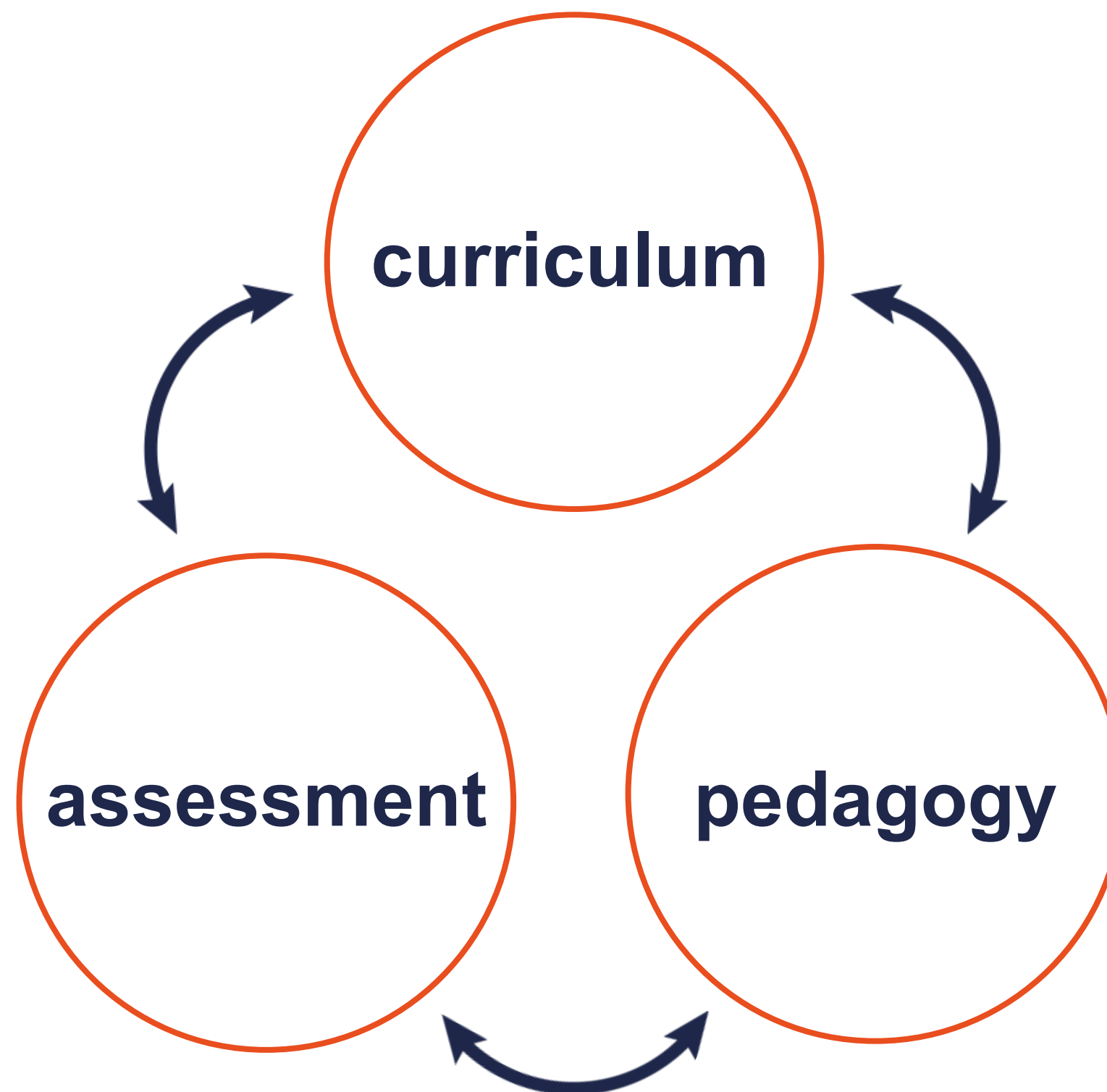
an international network of organizations that create local versions of the EEF Toolkit



We propose changes to the education system

GROUNDING IN SCIENCE

- supporting systemic change
- designing new curricula
- developing the graduate profile



Wyse, D., Hayward, L., & Pandya, J. (2016). *The SAGE Handbook of Curriculum, Pedagogy and Assessment*, SAGE Publications Ltd.

The experience of migration

WE HELP SCHOOLS

better meet the needs of students with migration experience, particularly those from Ukraine

SCHOOLS



WE COLLECT
AND ORGANISE
DATA



WE ANALYSE
REGULATIONS



WE VERIFY
SOLUTIONS

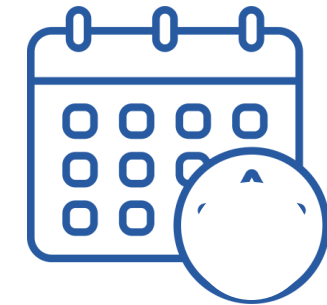
TEACHERS



REPORTS



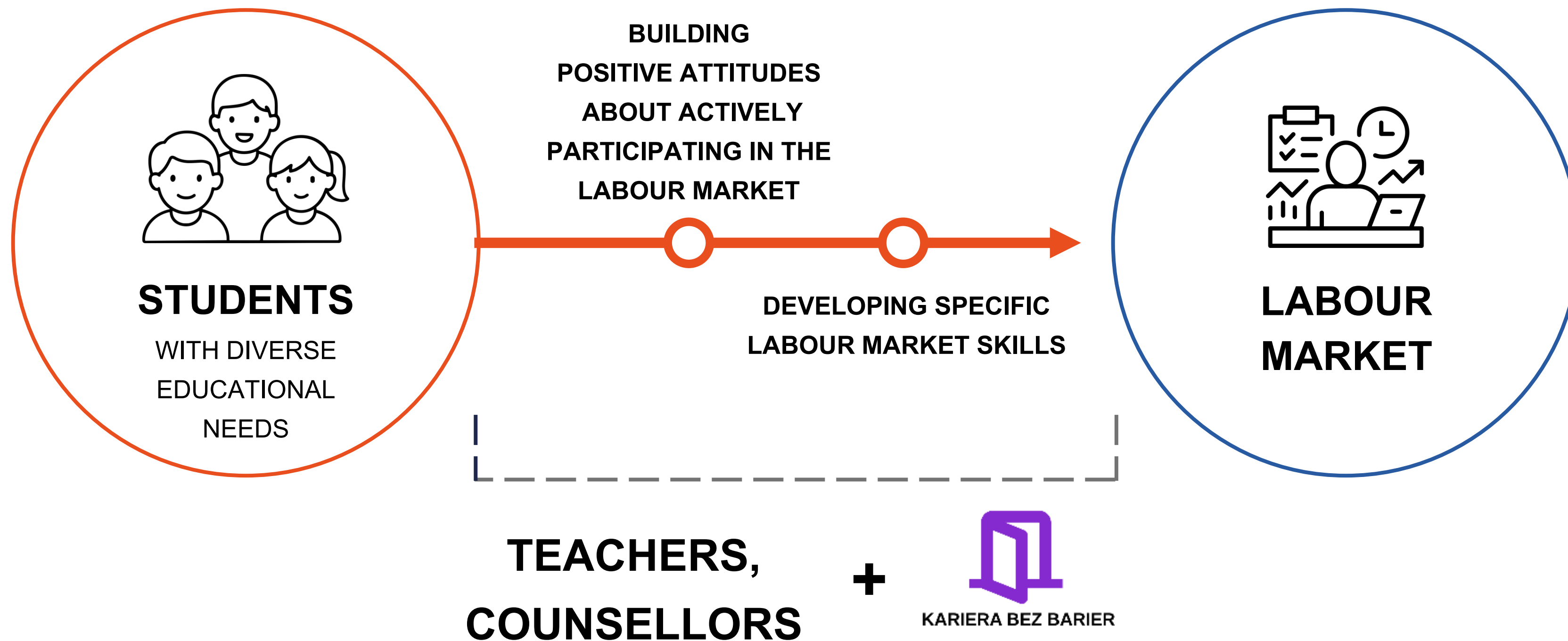
RECOMMENDATIONS



EVENTS

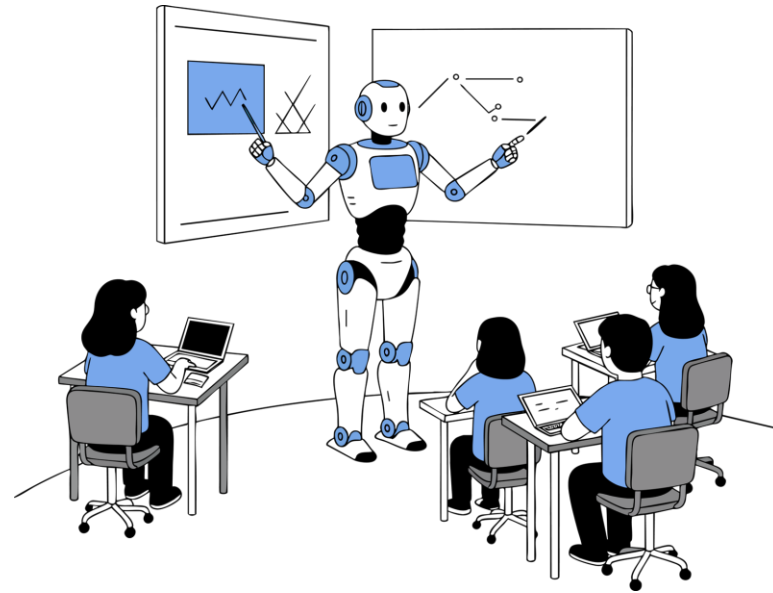
Supporting educational policies and practices that promote the integration of students with a migration background

A Career Without Barriers



Improving the effectiveness of education and the formation of children and youth (including those with disabilities) in order to prepare them for active participation in the labour market, in cooperation with external partners – A CAREER WITHOUT BARRIERS

Technology that helps, rather than harms



Digitalization is an opportunity and a challenge

Each **recommendation** is based on **reliable scientific studies**

STUDIES

The impact of technology on educational outcomes and social relationships among students



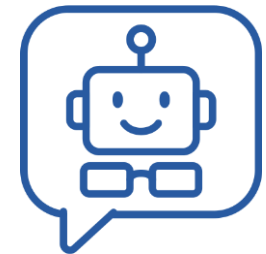
DIAGNOSING RISKS

We promote modern **education** while raising awareness of the risks



USING AI

We support the responsible introduction of **AI** in schools, while assessing teachers' readiness to use these tools



We are developing microcredentials and digital portfolios

VALIDATING COMPETENCES



We are setting the standards for microcredentials – the recognition of acquired skills

SOLUTIONS

ODZNAKA+ APP



Acquire and collect microcredentials in a digital badge format, which uses a secure standard

MY PORTFOLIO



Build an educational and professional portfolio and organise the evidence of your learning

SKILLS AUDIT



Organise acquired knowledge, skills and social competences, and draw up a plan for further development.

We are promoting lifelong learning



The Integrated Qualifications System (IQS)



A public database
of

**20 000
qualifications**

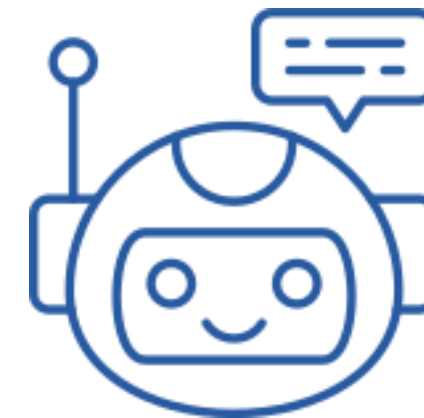
school,
academic,
market

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**Compendium of
knowledge**
on the qualifications system

ZETERKA CHATBOT



A virtual assistant
supporting decision-making
about education and career
development at all
stages of life

VOCATIONAL SCHOOL
COMPASS



KOMPAS SZKOLNICTWA
BRANŻOWEGO

Choose an occupation
that suits your aptitudes

We study and monitor the labour market in Poland

WE ANALYSE BIG DATA



We integrate data sources such as job vacancies, registry data and investment data. We use advanced computational models and large language models (LLMs) in our analyses.

WE FORECAST



We forecast the demand for over 240 occupations and the qualifications and skills associated with them.

WE TRACK GRADUATES



We monitor the educational and career paths of graduates to inform education policy at national, regional and local levels.

We study and monitor graduates' career paths

which allows us to see what happens to young people after they leave school

CAREER TRACKING

we do this by 'recycling' administrative data

AIMS

- Help schools improve their educational offer
- Provide information to local authorities that operate schools
- Help students and parents with educational choices
- Facilitate research
- Lay the foundations for evidence-based public policies

LEGAL BASIS

A solid legal basis allows us to **use information** from public registers:

- SIO (further education)
- POL-on (higher education)
- OKE (exam results)
- ZUS (employment and wages)
- KRUS (employment in agriculture)

DATA SECURITY

The **Education IT Centre** ensures that the data we analyse at IBE PIB is processed securely.



PART I

Polish education reforms

Two decades of structural reform – and what the thermometer recorded



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The 1999 reform: six structural components

A generation ago Poland rebuilt its school system in one move – the components in one view

- Change of the **school structure**
- Introduction of **new core curriculum**, more **autonomy** for schools and teachers;
- Further **decentralization**
- New **financing** scheme
- National **examinations**
- New **professional** scheme for teachers

1999 → 2017

Poland rebuilt its school architecture twice in one generation – neither time with a designed evaluation. The next slides show what the thermometer recorded anyway.

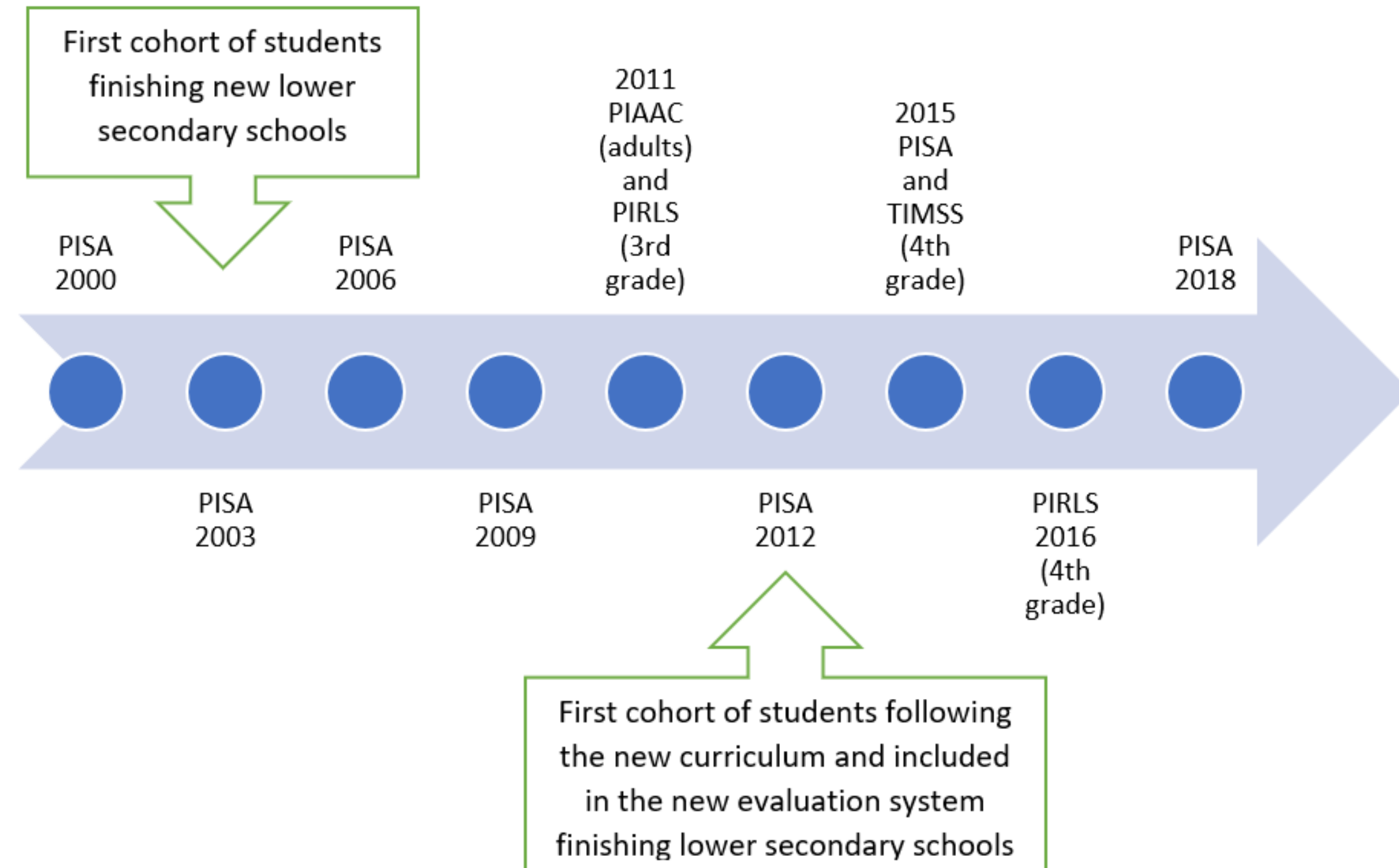
What the thermometer can see

PISA 2000 tested the last cohorts of the old system; from PISA 2003 the first cohorts of the new lower secondary schools; from 2012 the first cohort fully under the new curriculum and evaluation system.

Source: IBE PIB.

Two decades of measurement around the reform

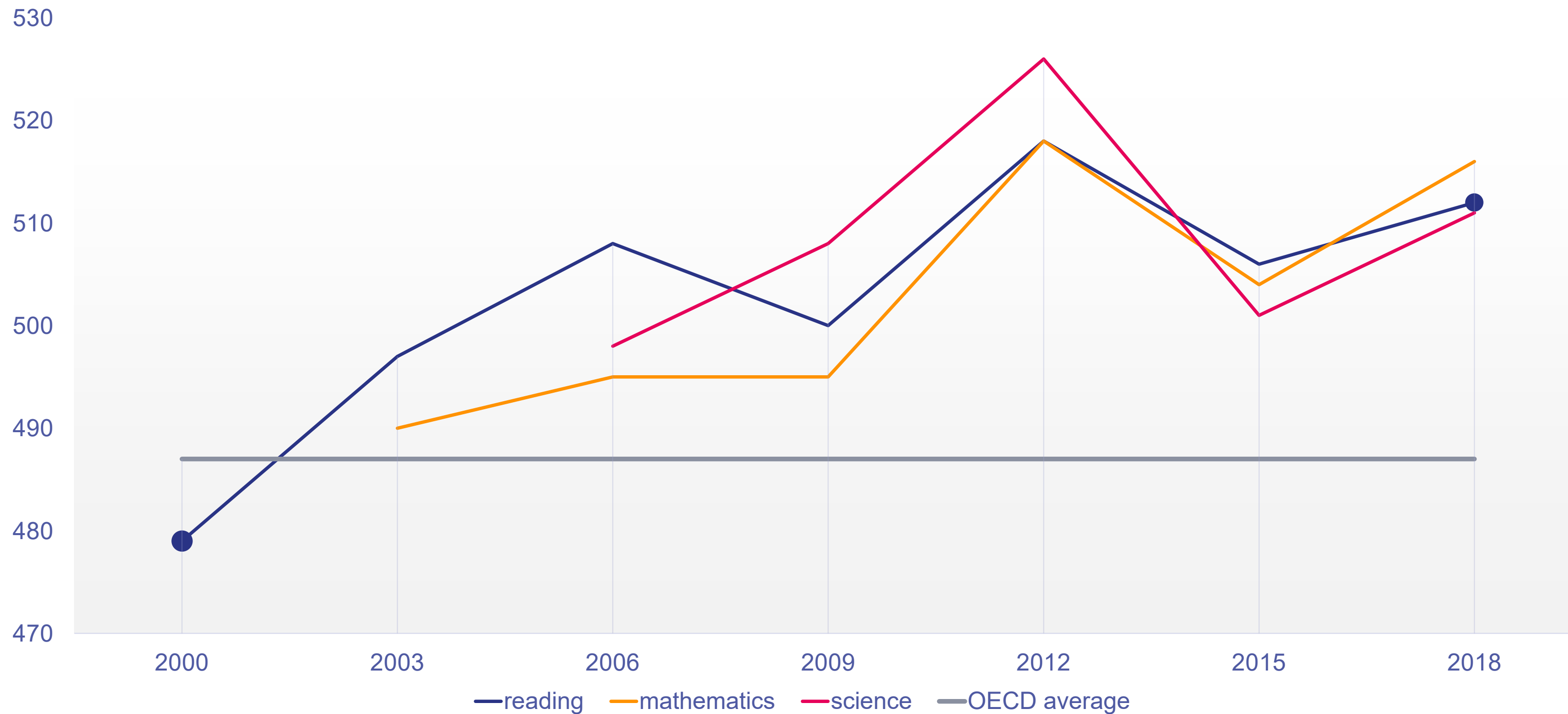
PISA, PIRLS, TIMSS and PIAAC cycles 2000–2018 – which cohorts the thermometer caught



Source: IBE PIB; OECD (PISA, PIAAC); IEA (PIRLS, TIMSS).

Poland in PISA 2000–2018: the long climb

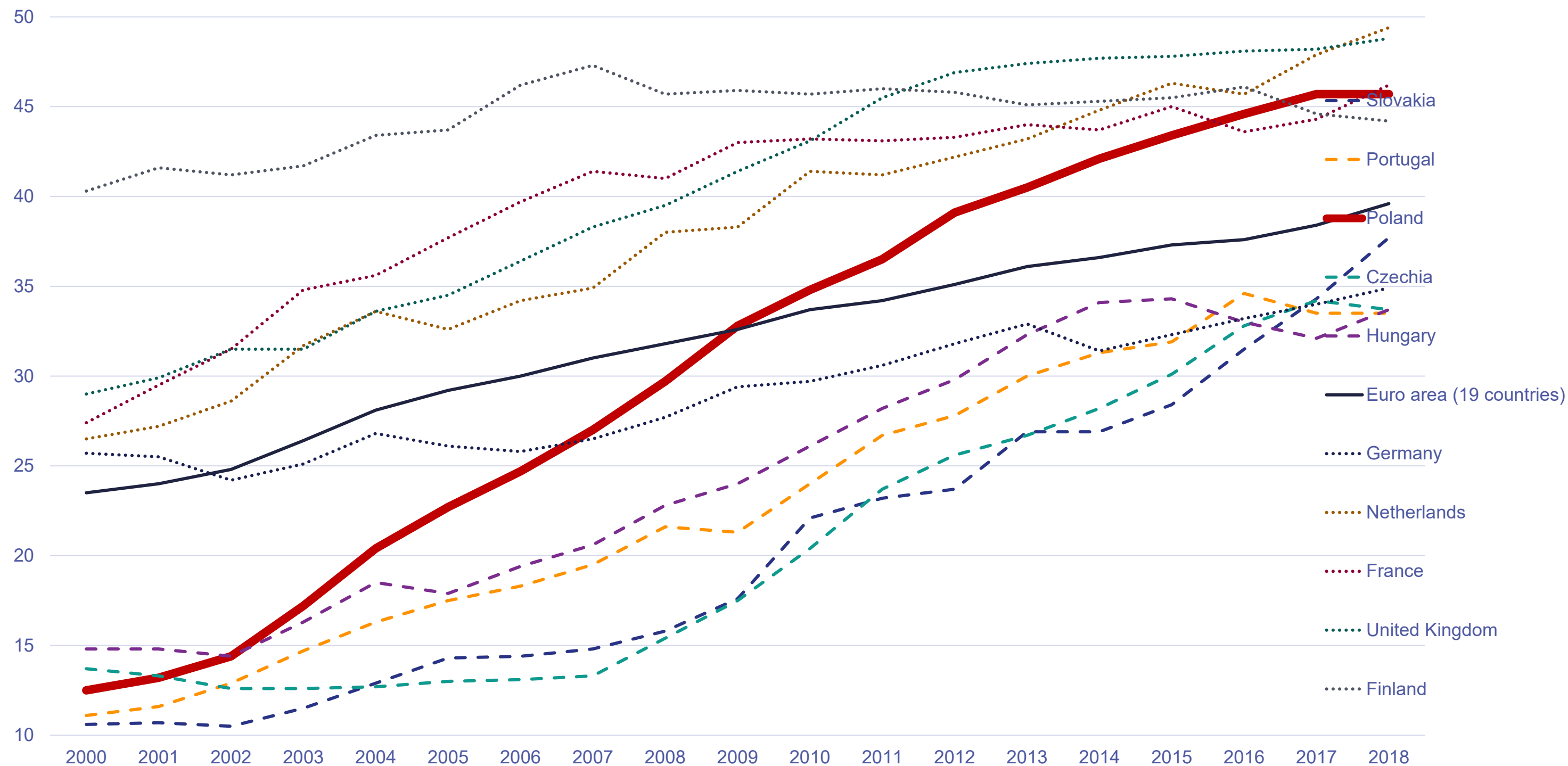
Mean scores in reading, mathematics and science; horizontal line = OECD average



Source: OECD, PISA 2000–2018 results.

After 1999: tertiary attainment surged

Share of adults with tertiary education, 2000–2018 – Poland (red) vs the euro area and selected EU countries



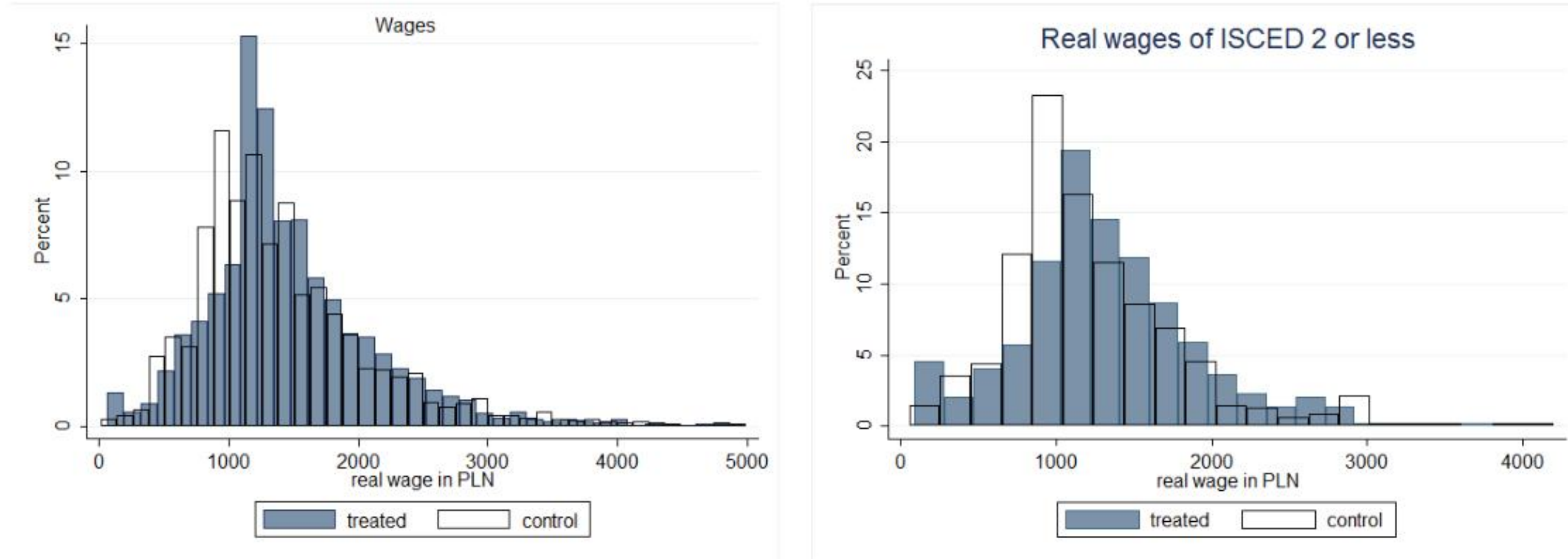
Source: Eurostat.

The 1999 reform: long-term gains on the labour market

Distribution of real wages (2005 PLN), treated vs control cohorts – all workers (left) and ISCED 2 or less (right)

Figure 3.

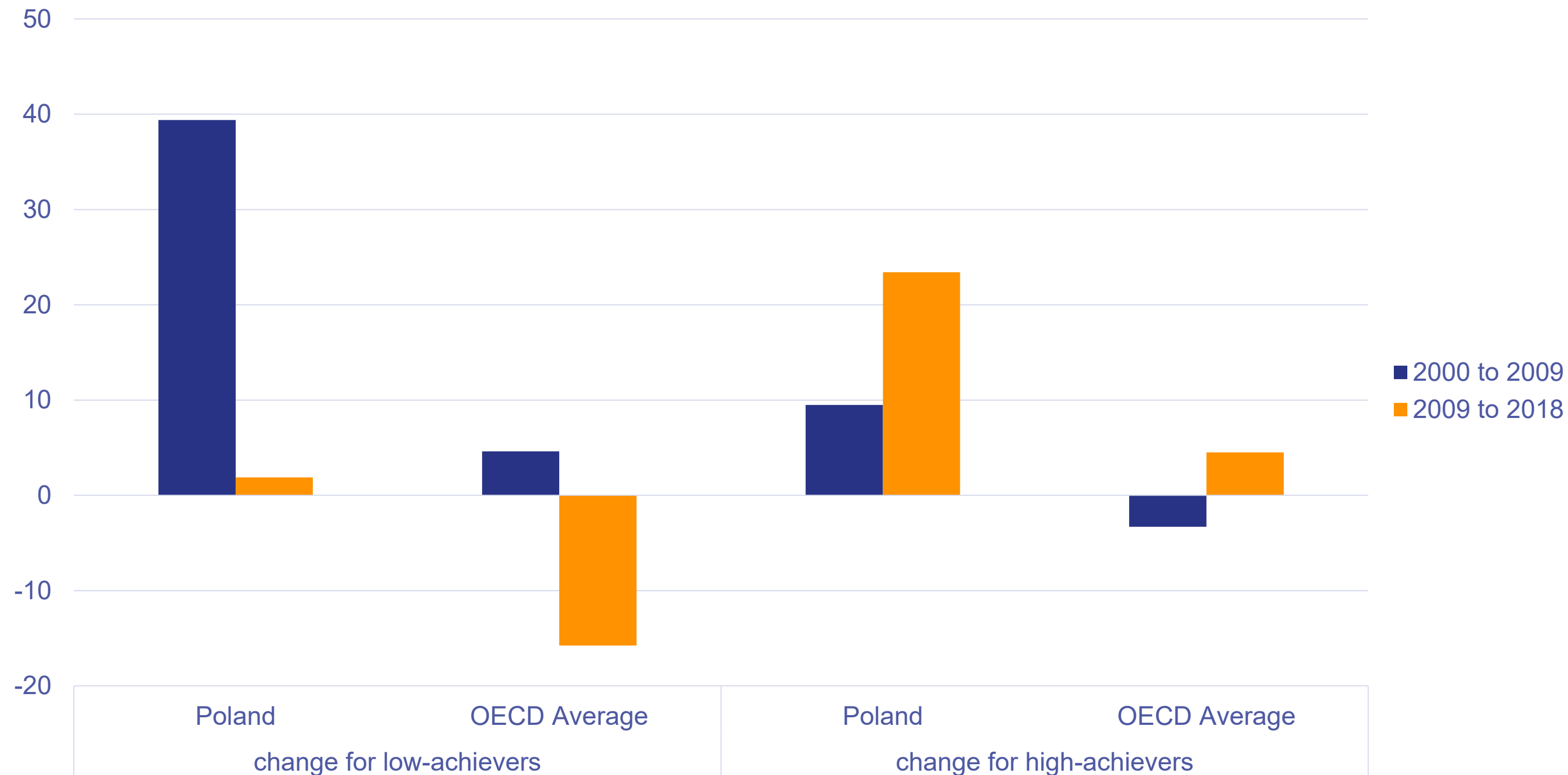
Distribution of real wages in 2005 PLN of treatment and control group



Source: evaluation of the long-term labour-market effects of the 1999 reform (Figure 3); treated vs control cohorts.

Who gained: PISA score change by achievement level

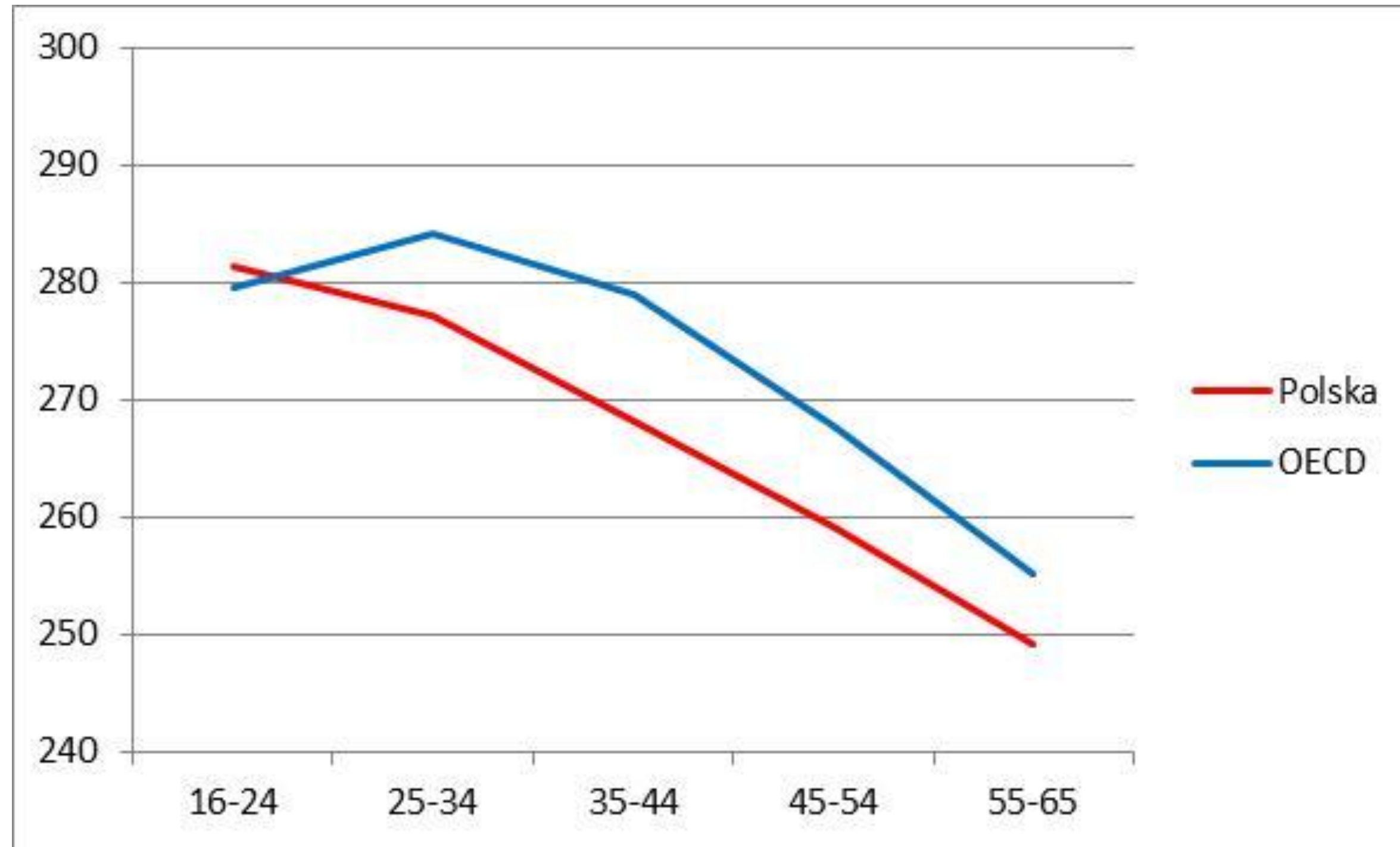
Change in mean score for low and high achievers – Poland vs OECD average, 2000→2009 and 2009→2018



Source: OECD, PISA.

Adult skills: only the youngest cohort matches the OECD

Mean reading proficiency by age group, Poland vs OECD average – PIAAC 2012



Source: OECD, Survey of Adult Skills (PIAAC) 2012.

Rebuilding on evidence

Poland's education reform and the evidence system behind it

01

Where do we stand after PISA 2025?

02

What does Reform change – and why this way?

03

How will we know whether it works?



Why this reform is different: diagnose, test, monitor

Every month of progress won in a classroom is future wages and health – so the method must be clinical, not fashionable

THE STAKES

3.4 × GDP

value for Poland of a 25-point PISA improvement by 2035 – present value to 2100 ($\approx 7.3\%$ of future GDP; +0.5 pp annual growth).

1.2 × GDP

value of bringing all students to Level 2 (basic skills). Today 26% are below Level 2 in mathematics.

+19% pay

for an adult in Poland whose numeracy is one SD higher (PIAAC; 23-country average +18%). Skills, not years of schooling, predict growth.

THE METHOD



1 Diagnose before prescribing

PISA, TIMSS, PIRLS, national examinations, teacher surveys – what students know, how they feel, what teachers need.



2 Co-design with the profession

Graduate profile consulted with $\approx 2,900$ participants; 200+ experts recruited through an open call; every curriculum reviewed by at least four people.



3 Test before scaling up

Mini-pilots of reform elements in ≈ 200 schools with monitoring sheets and reform ambassadors; randomized trials of tools and methods.



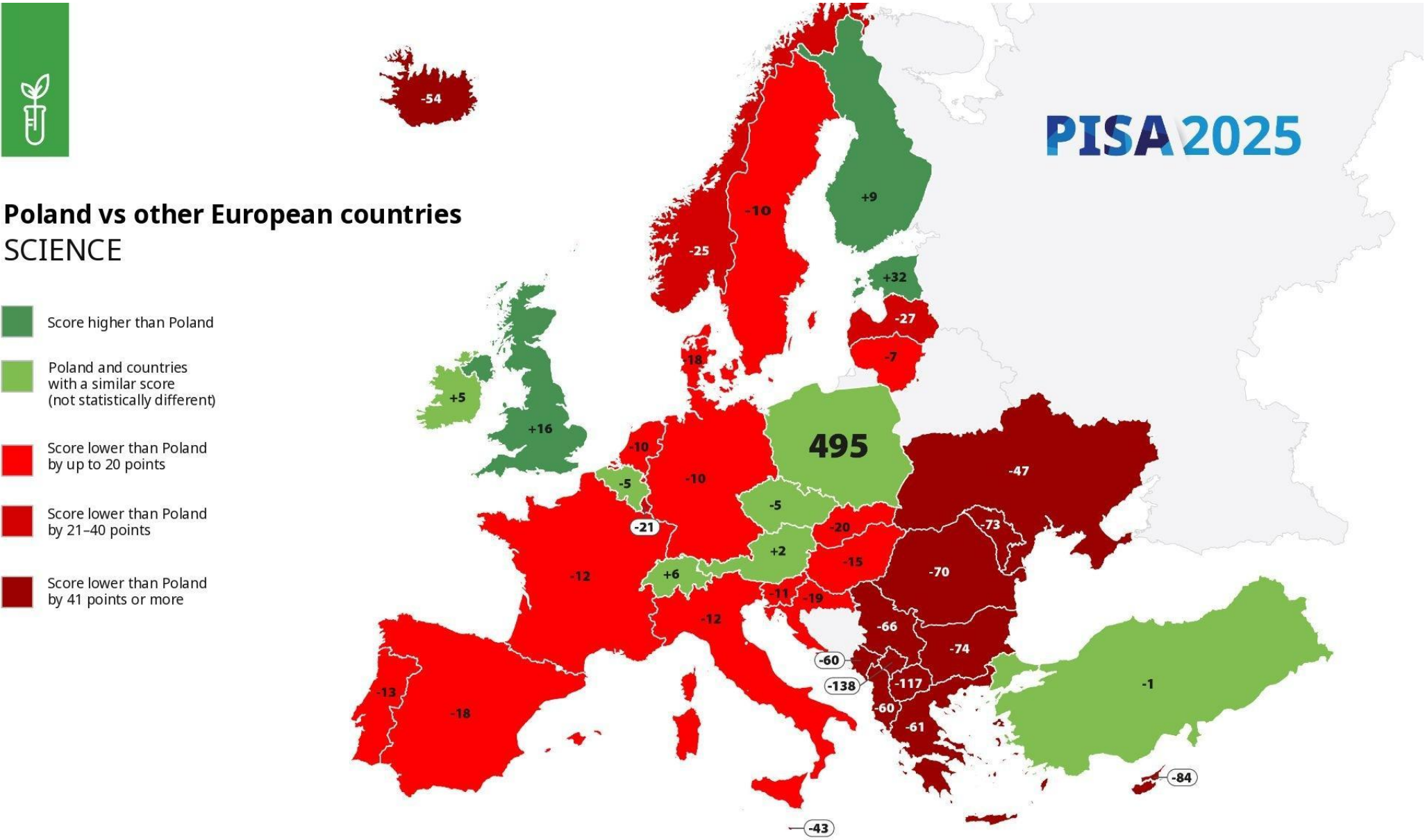
4 Monitor and publish

Fixed external checkpoints: PIRLS 2026, TIMSS 2027, PISA 2029 – read against the same scales, whatever the result.

Poland rebuilt its school structure twice in one generation (1999, 2017) – neither time with a designed evaluation. This time, evaluation is built in from the start.

A green island: Poland in PISA 2025

Poland compared with other European countries – difference in points relative to Poland's score (science)



“Compared with the rest of Europe, we are a green island.”
Barbara Nowacka, Minister of Education, 8 September 2026

495

SCIENCE · EU 476 · OECD 482

Within the EU, only Estonia (527) and Finland (504) score significantly higher.

484

MATHEMATICS · EU 460 · OECD 463

Only Estonia (508) scores significantly higher. 2nd in the EU, 12th in the world.

482

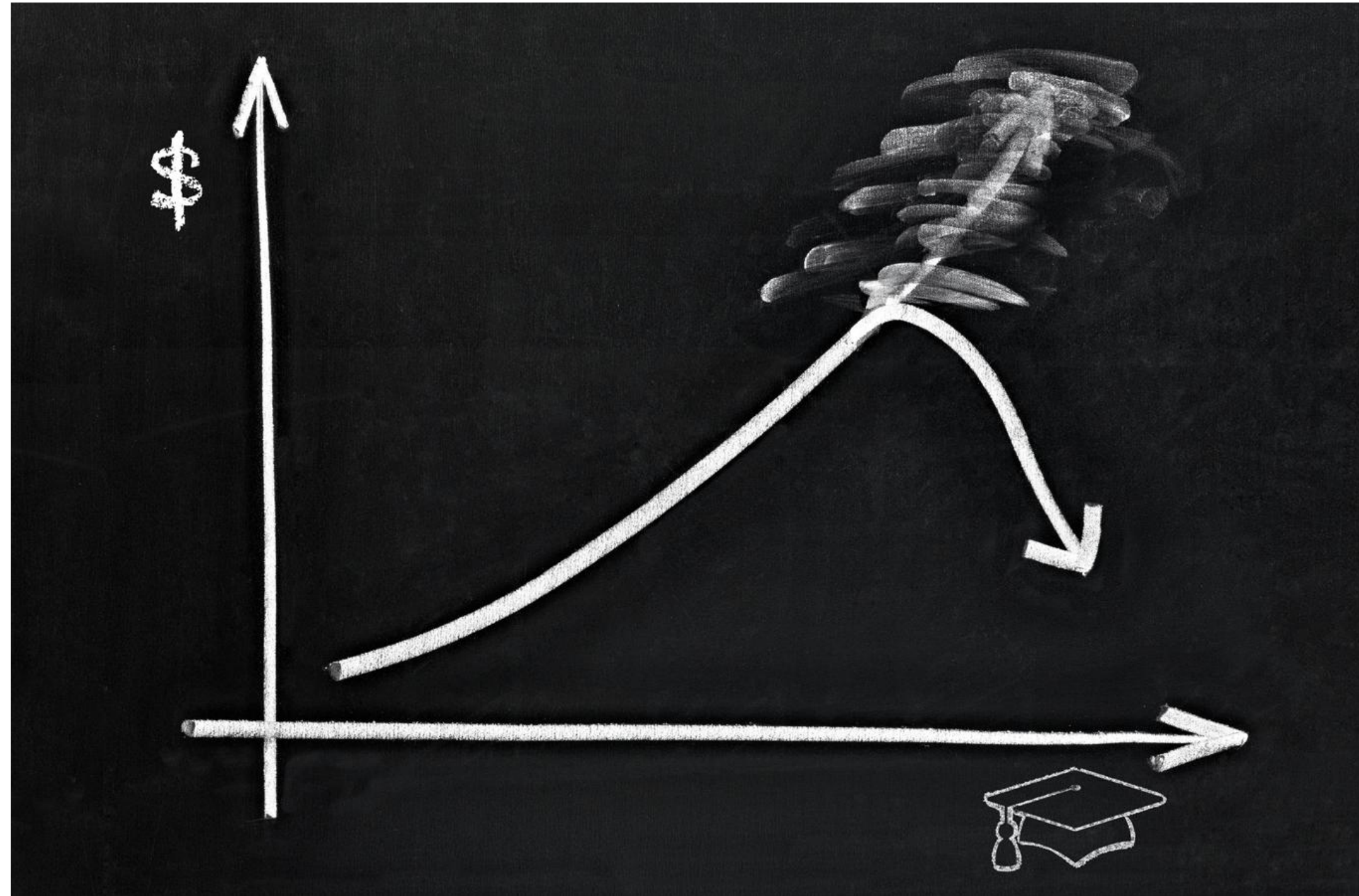
READING · EU 451 · OECD 461

Only Ireland (500) and Estonia (499) score significantly higher. 3rd in the EU, 14th in the world.

Source: IBE PIB, Gotowi na przyszłość? Wyniki badania PISA 2025 (2026); OECD, PISA 2025 Results, Vol. I. Map: green – score higher than or similar to Poland's; red – lower (the darker, the lower).

The pandemic's lifetime tax

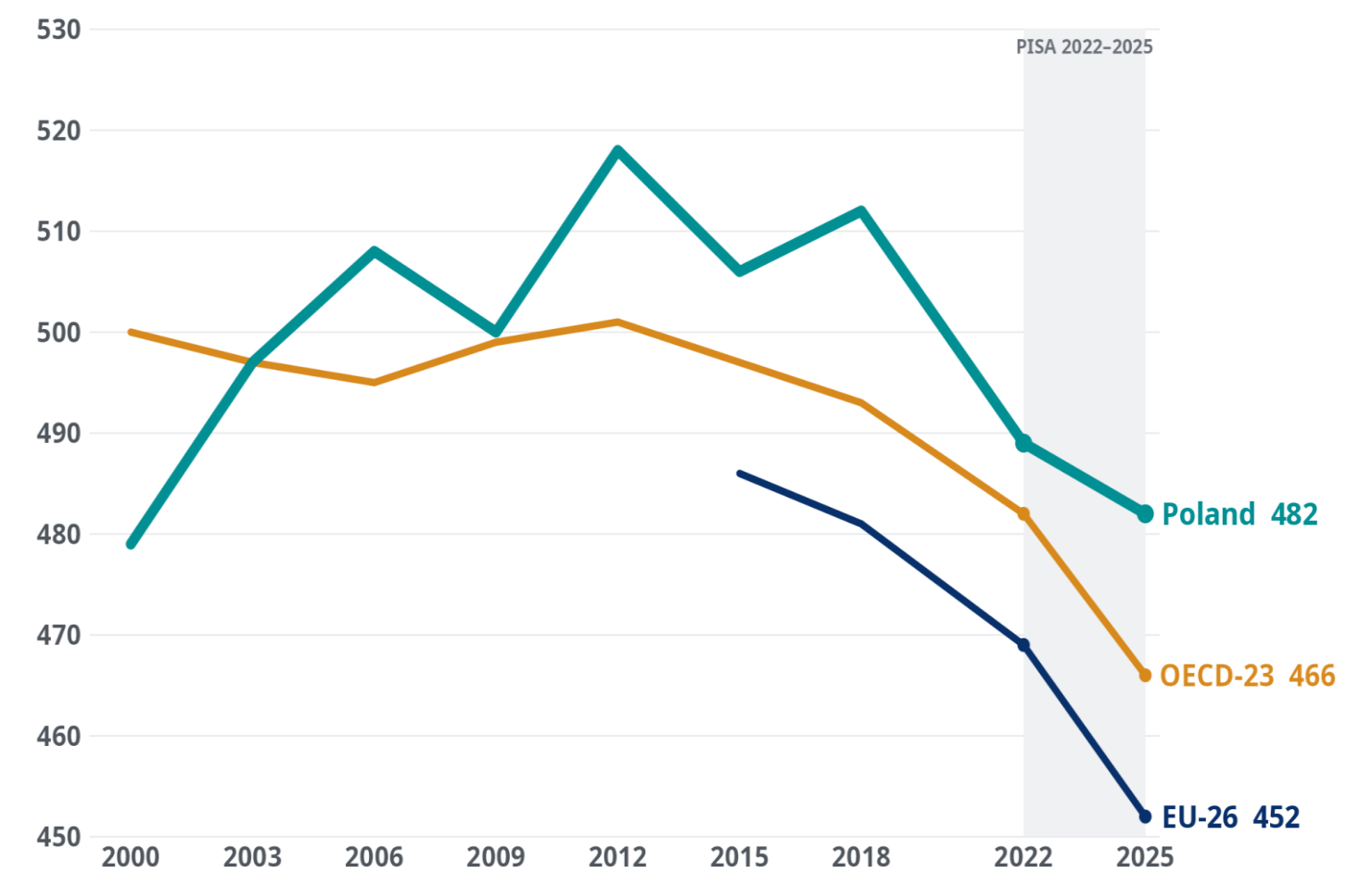
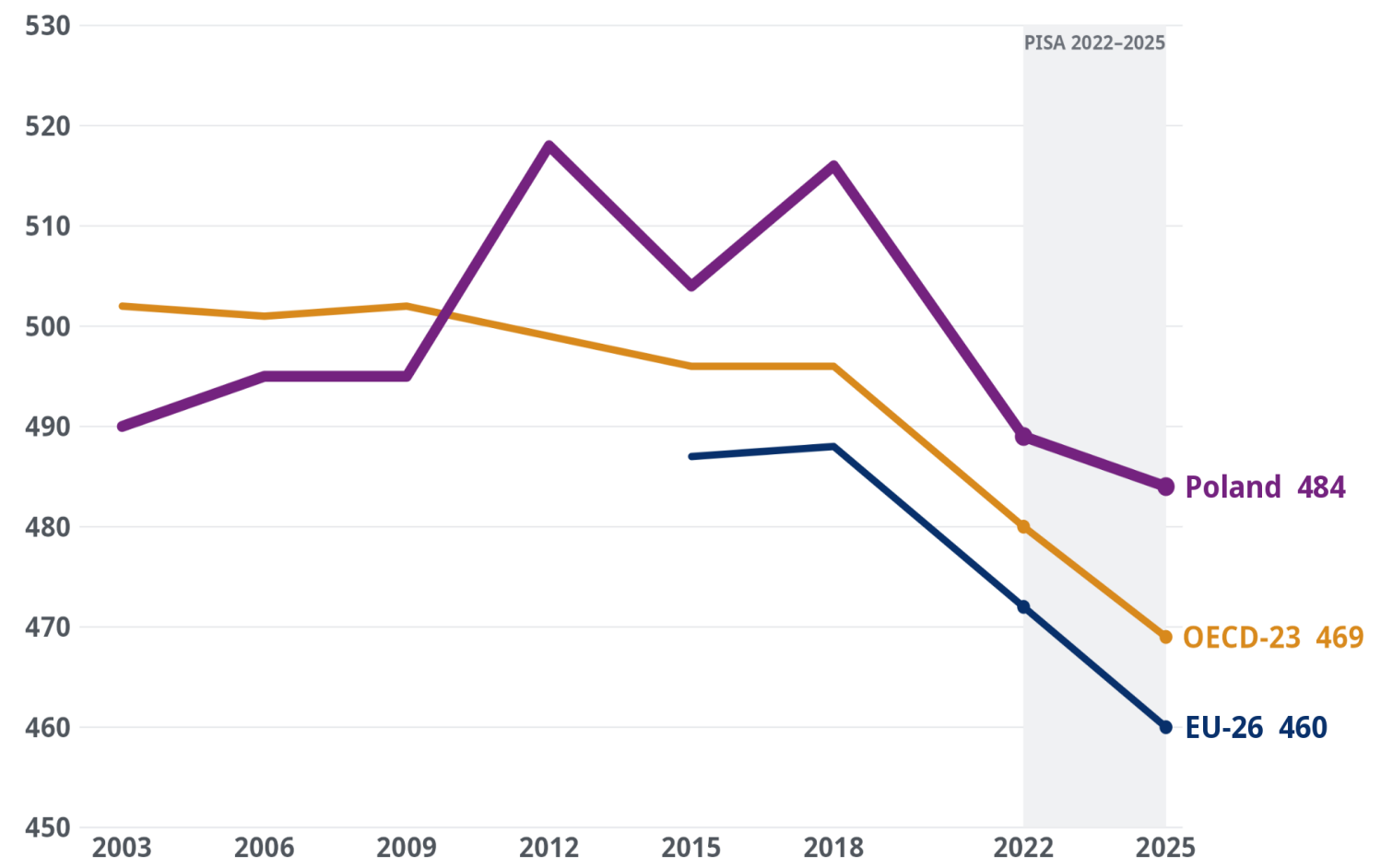
Learning lost in 2020–2022 does not come back by itself – it compounds into lower earnings over a whole working life



Source: Hanushek, E. A. (2023). Generation Lost: The Pandemic's Lifetime Tax. Education Next.

But the island sits on a sinking continent

Score trends across PISA cycles – mathematics and reading (Poland, OECD-23, EU-26)



MATHEMATICS

OECD 2022 → 2025: lowest averages in PISA history
reading -14 · mathematics -9 · science -3 (n.s.). 20 points ≈ one year of schooling.

Not a pandemic dip
OECD reading and mathematics stopped improving around 2012; the decline continued after schools reopened. One in five 15-year-olds is now a low performer in all three domains (16% in 2022).

Poland: -5 / -7 / -4
Not significant – but still below 2018 (516 / 512 / 511); in mathematics the gap is over 30 points ≈ 1.5 years. These 15-year-olds are the cohort that started Grade 4 in lockdown.

Source: IBE PIB, PISA 2025; OECD, PISA 2025 Results Vol. I. OECD-23: OECD countries taking part since the first cycle; EU-26: EU countries excluding Luxembourg.

Why the reform started: the well-being crisis

Six indicators from PISA 2022, TIMSS 2023 and PIRLS 2021 that opened the debate – before PISA 2025 confirmed them

40%



FOURTH GRADERS

DOES NOT LIKE GOING TO SCHOOL

In 2015, it was 75% (TIMSS 2023)

58%



OF FIFTEEN-YEAR-OLDS

say that
**SCHOOL DOES NOT
PREPARE**

for adult life
69th out of 76 countries (PISA 2022)

69.

PLACE

OF FIFTEEN-YEAR-OLDS

in terms of
**sense of SATISFACTION
WITH LIFE**

(PISA 2022)

57%



FOURTH GRADERS

feels a moderate or low
SENSE OF BELONGING TO SCHOOL

4th from the bottom among 58 surveyed countries (PIRLS 2021)

26%



FIFTEEN-YEAR-OLDS

ENJOYS LEARNING

new things at school

Lowest score among EU countries (PISA 2022)

73.

PLACE

FIFTEEN-YEAR-OLDS

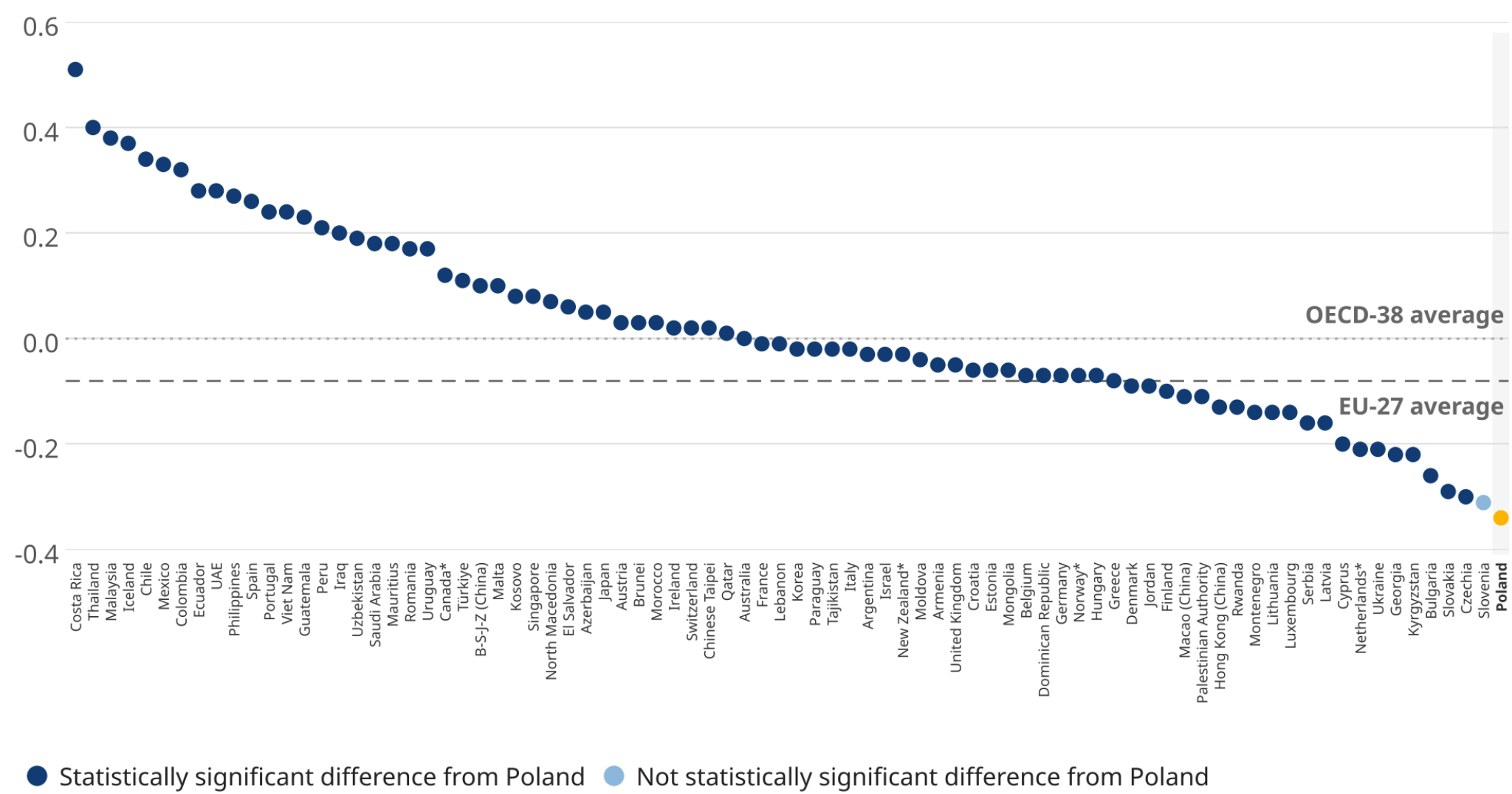
in terms of
**A SENSE OF BELONGING
TO SCHOOL**

(PISA 2022)

Sources: OECD, PISA 2022; IEA, TIMSS 2023 and PIRLS 2021.

Skills at the top of Europe, well-being at the bottom

Perseverance index across PISA 2025 systems – Poland is the last dot (orange; dark dots = significantly different from Poland)



Perseverance is not a character trait – it is the experience that effort pays off. Our students have lost that experience. A school can give it back.

6.9

life satisfaction (0–10) – among the lowest in the EU (average 7.2). In 2022: 6.3.

64%

feel they belong at school (EU 75%, OECD 76%).

50%

“when things get hard, I try harder” – last place in the EU (EU 56%).

63%

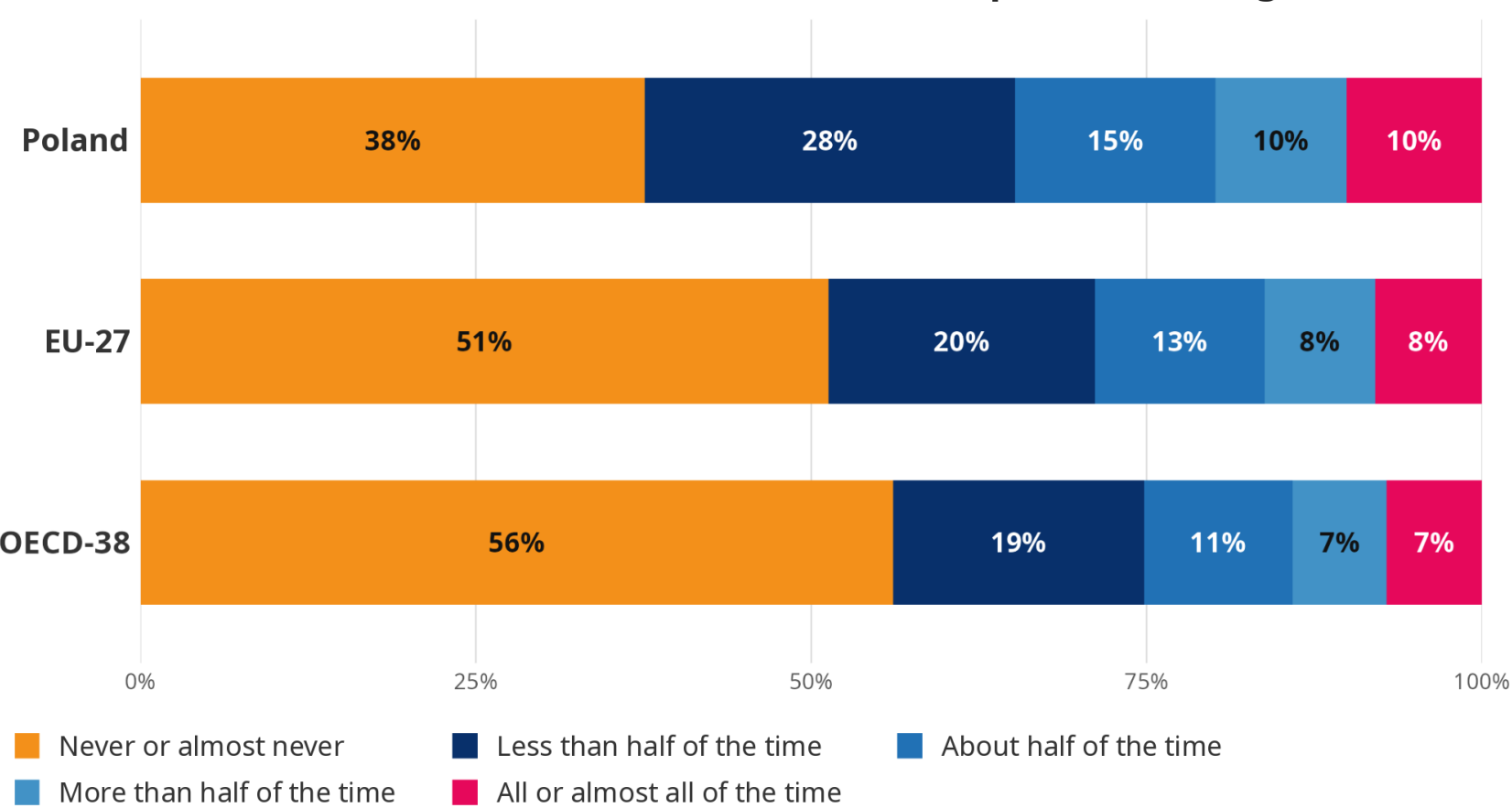
“school has done little to prepare me for adult life” – 14 pp above the OECD average.

Source: IBE PIB, PISA 2025 (report and press release); OECD, PISA 2025 Results Vol. I; OECD Education GPS.

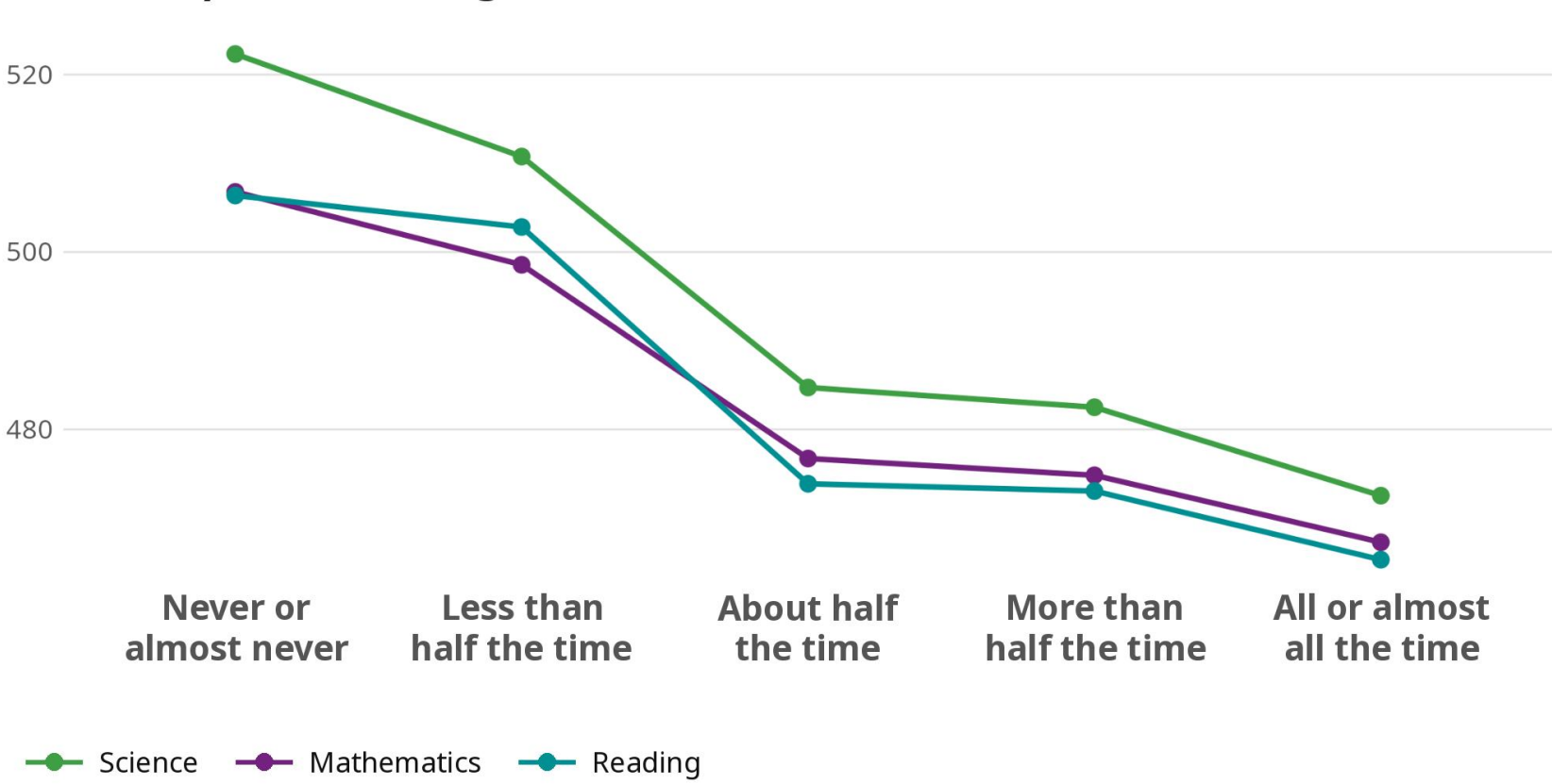
Attention: the currency of learning we are losing

“In class, I feel the need to be online and respond to messages” – frequency (left) and performance in Poland by frequency (right)

When I am in class, I feel the need to be online and respond to messages.



When I am in class, I feel the need to be online and respond to messages.



62%

of students in Poland feel the need to be online during lessons at least some of the time (EU 49%, OECD 44%). Gap between the extreme groups ≈ 40–50 points – about two years of schooling. 74% say devices distract them in science lessons (EU 59%).

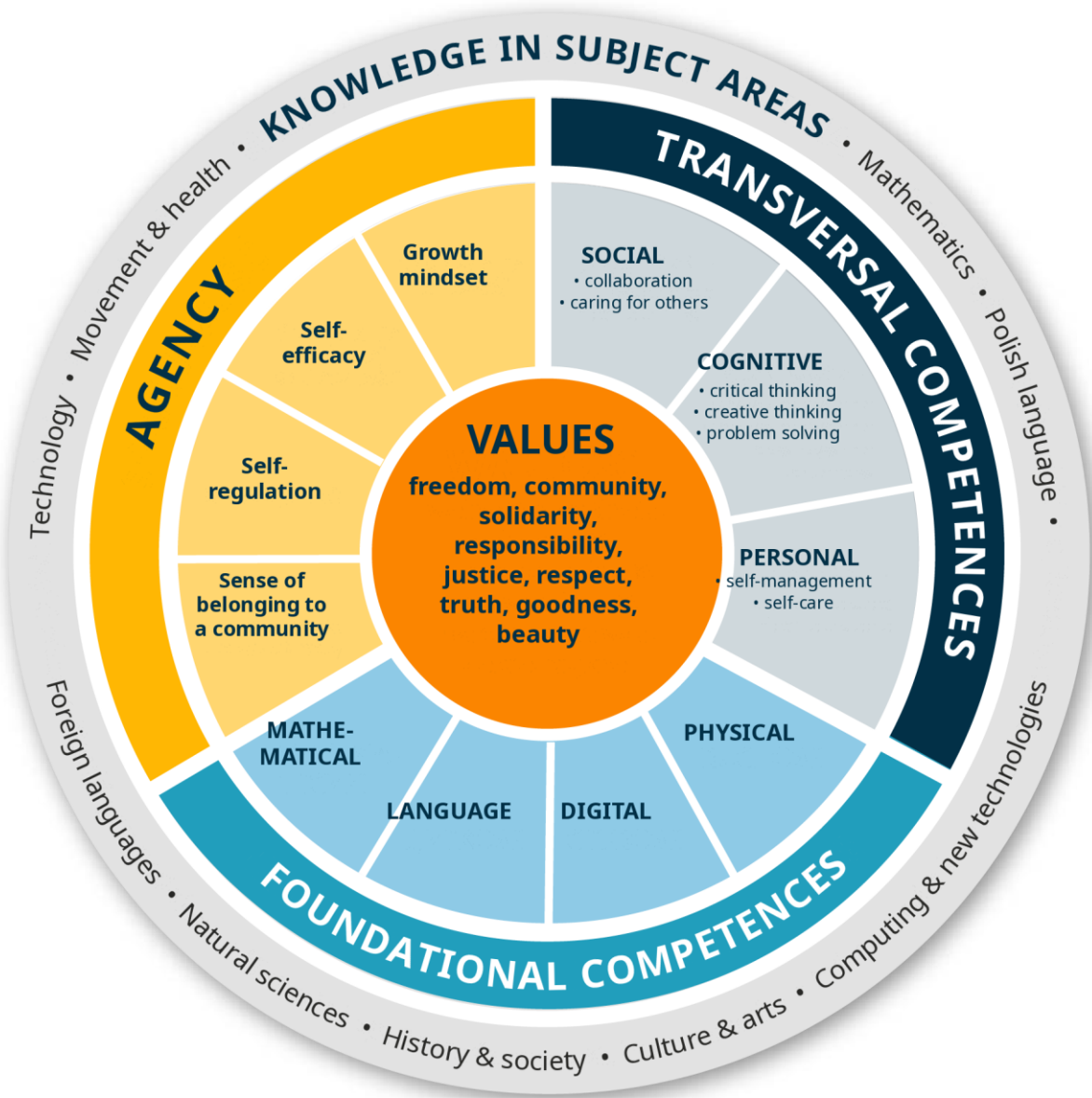
A correlation, not a causal estimate

But consistent across all three domains and with OECD-wide data: performance falls beyond ≈ 3 hours of device use a day. Leisure screen time on school days in Poland: 3.2 h (EU 2.5); at weekends 4.5 h (EU 3.7). The mechanism – working memory and divided attention – is well documented.

Source: IBE PIB, PISA 2025; OECD, PISA 2025 Results Vol. I.

Agency: what the reform teaches, what ILSA measured

Graduate Profile (IBE PIB, 2025) – four components of agency against four indicators for Poland



“Agency: taking action that has a positive impact on oneself and others, and taking responsibility for it.”

Graduate Profile, IBE PIB (2025)

Sense of belonging to a community

64% feel they belong at school (EU 75%, OECD 76%)

Growth mindset

Perseverance: 50% “try harder when things get hard” – last place in the EU

Self-efficacy

38% “school has been a waste of time” (EU 26%); 63% “it did little to prepare me for adult life”

Self-regulation

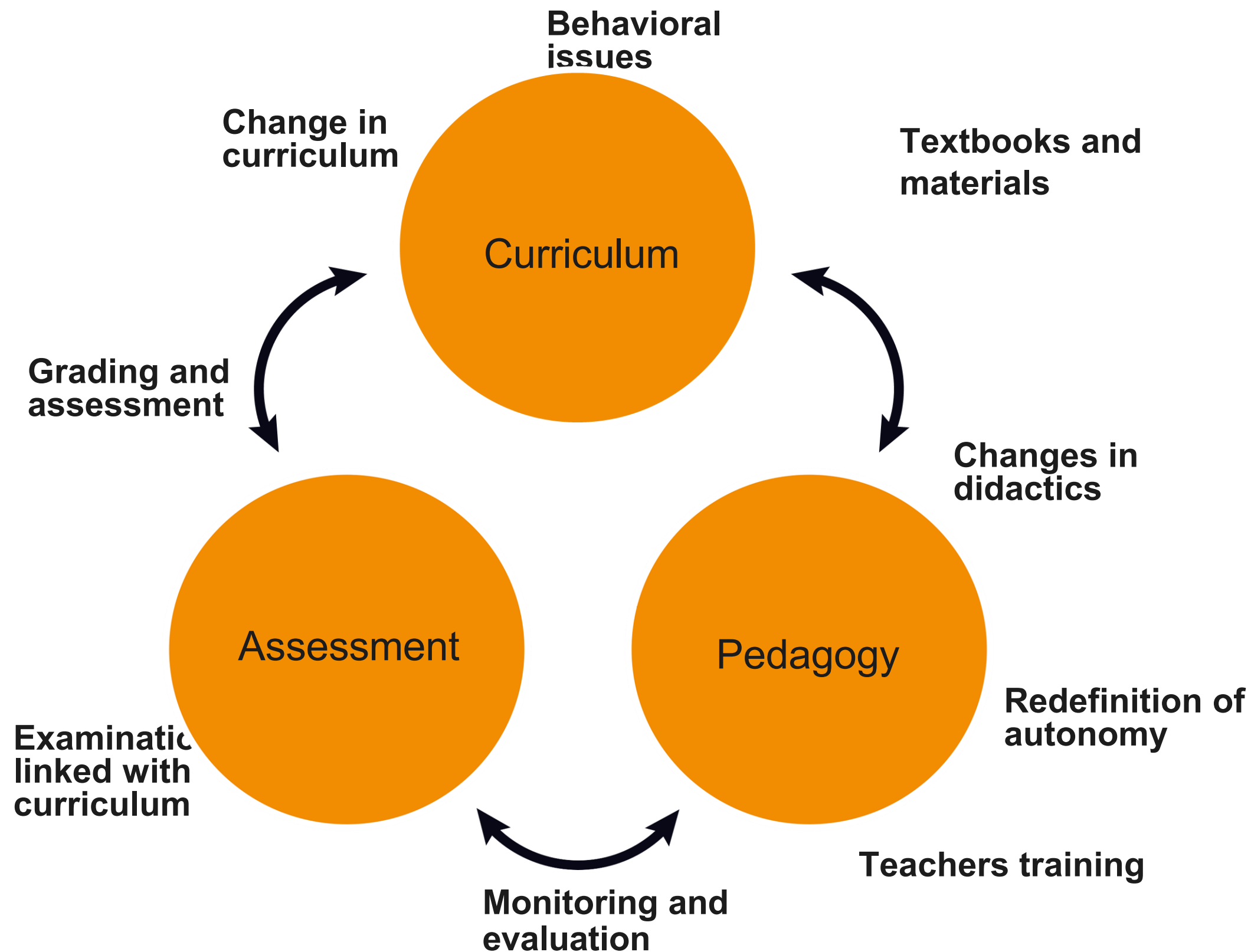
62% feel the need to be online during lessons (EU 49%, OECD 44%)

The indicators that give the reform a measurable baseline

Graduate Profile – IBE PIB (2025), consulted with ≈ 2,900 participants

Change in practice: three parts that move together

A curriculum reform only changes students' experience if assessment, pedagogy and the system around them move with it



Translating what works: the Guide for teachers

Guide to Educational Strategies – Polish adaptation of the EEF Teaching & Learning Toolkit, implemented by IBE PIB

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AKTUALNOŚCI

INSTYTUT

ZMIANY W SZKOŁACH

PROJEKTY

WYDARZENIA

BADANIA MIĘDZYNARODOWE

Co działa w edukacji?

Przewodnik po strategiach edukacyjnych

Czym jest Przewodnik i jak z niego korzystać?

Najczęściej zadawane pytania (FAQ)

“What works in education?” – the Guide's public platform for teachers and principals (ibe.edu.pl)

Four ratings for every strategy – and a Polish column

Effectiveness (months of progress) · implementation cost · strength of evidence · benefit-to-cost. Every trial from the 400-school network adds a Polish effect size next to the EEF estimate: the Guide becomes a living record of what works here.

Leaders: highest effectiveness, low cost

Months of additional progress per school year · evidence base

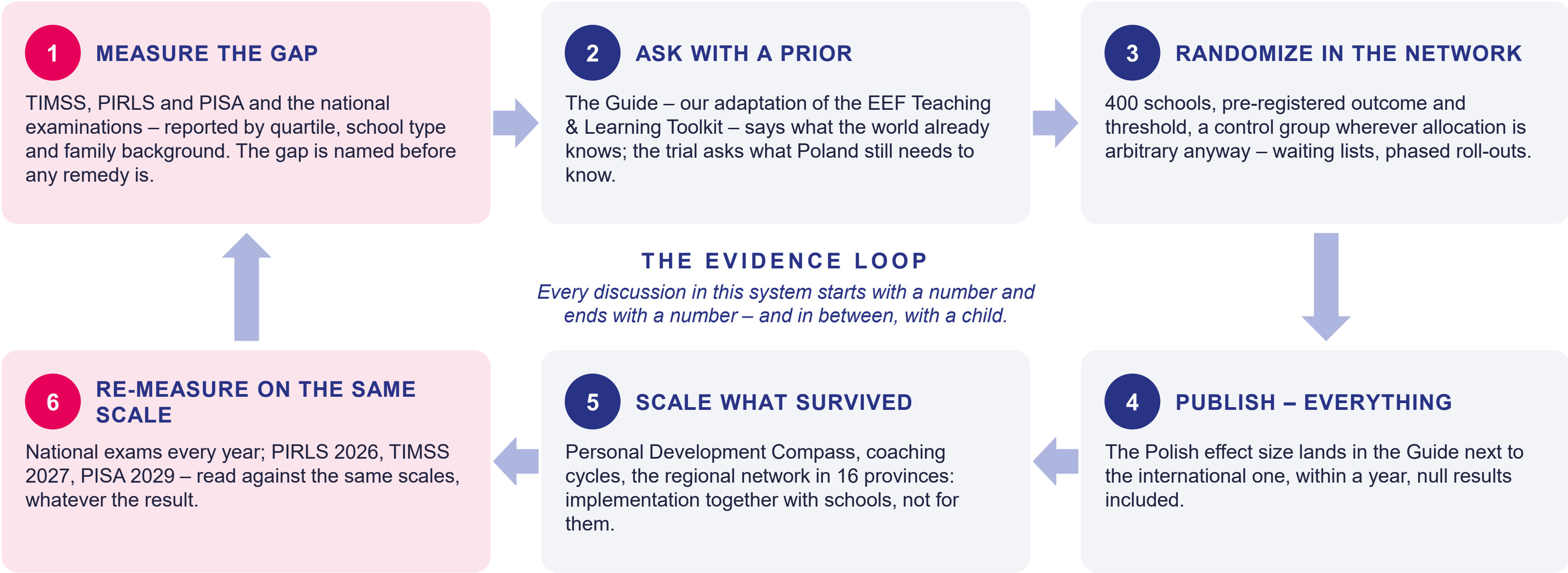
Metacognition and self-regulation		+8	Extensive
Reading comprehension strategies		+7	Moderate
Feedback		+6	Extensive
Peer tutoring		+6	Extensive
Oral language interventions		+6	Extensive

Teachers do not need more advice. They need to know which advice is true – and the Guide now records what proved true in Polish classrooms, next to the international evidence.

Source: IBE PIB, Przewodnik po strategiach edukacyjnych (Guide to Educational Strategies), adapted from the Education Endowment Foundation Teaching & Learning Toolkit.

The evidence loop

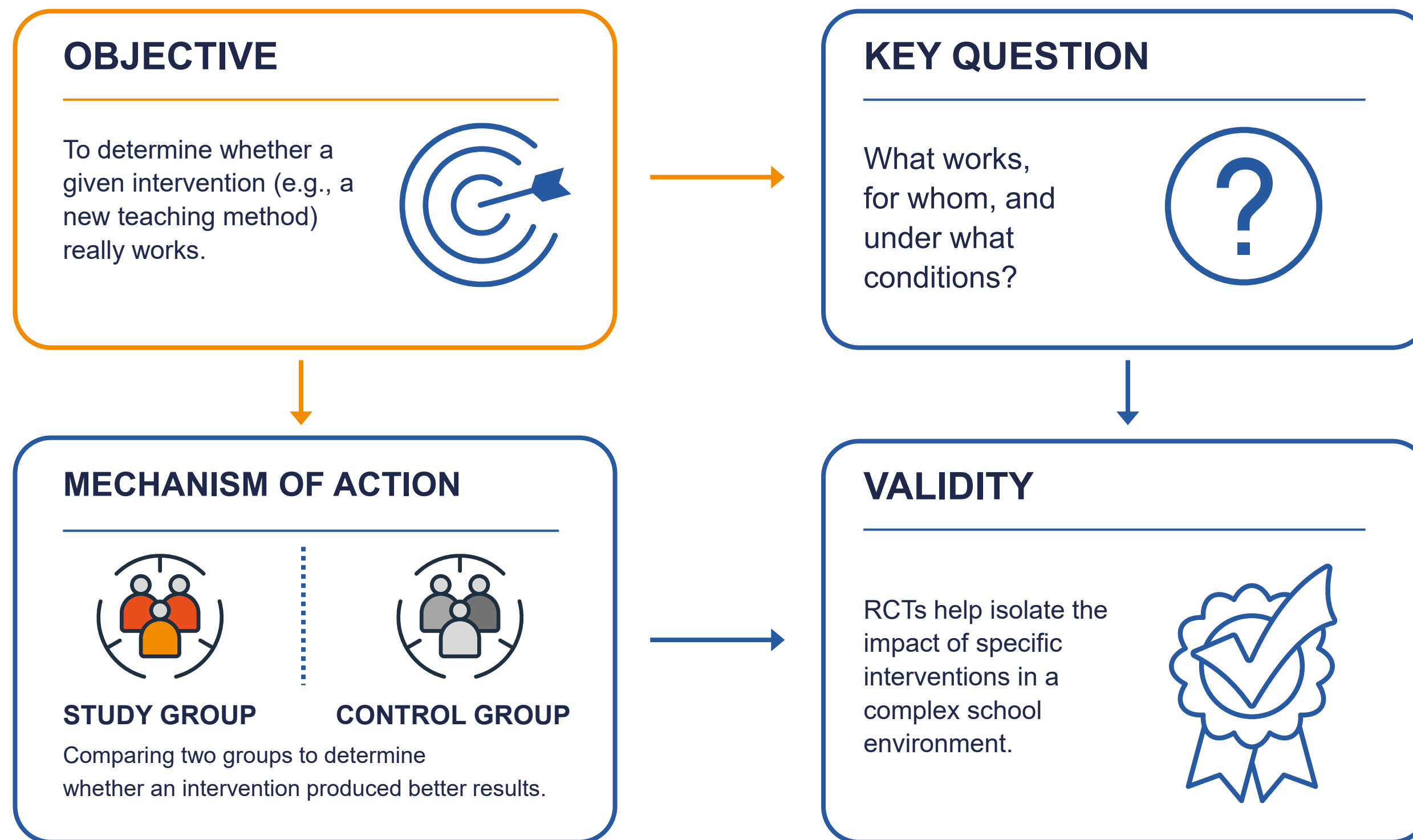
From the thermometer to the classroom and back: assessment at both ends, trials in the middle, the Guide as the memory



Source: IBE PIB – evidence programme around Reform26 (national centre for PISA, TIMSS, PIRLS, ICCS, TALIS; Guide to Educational Strategies; school network; Personal Development Compass; Power of Relationships).

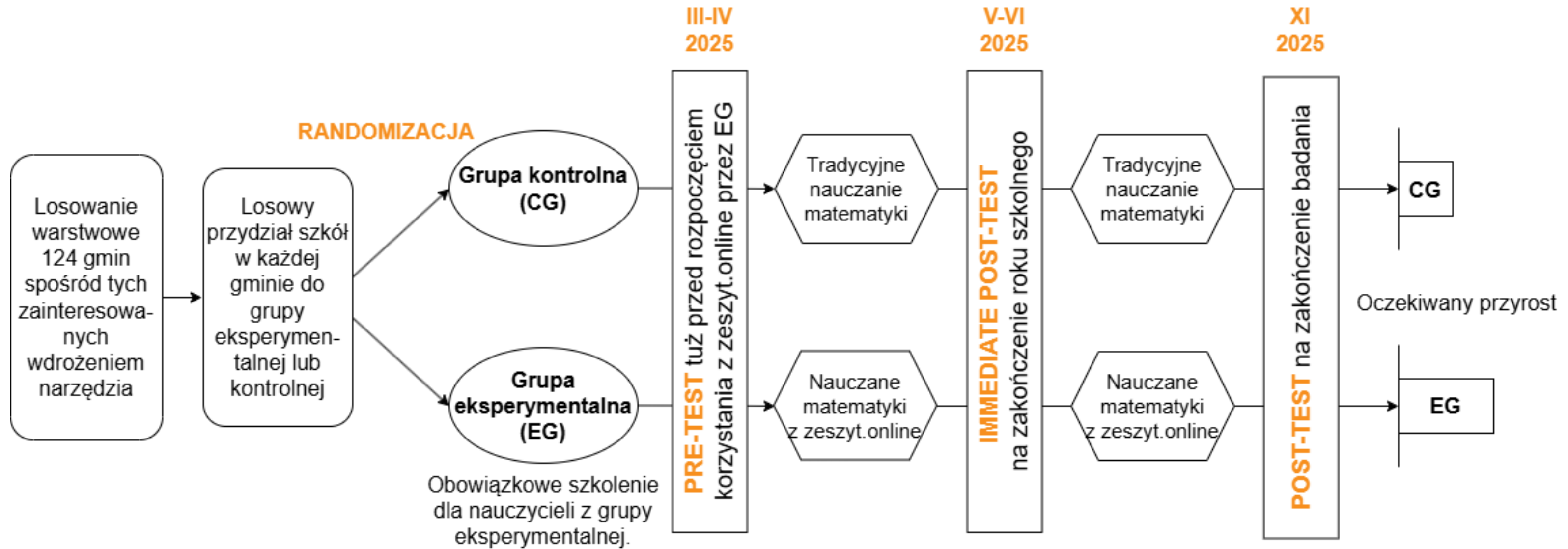
We test what works: randomized controlled trials

The design that separates an intervention's effect from everything else that happens in a school



The AI mathematics trial: design

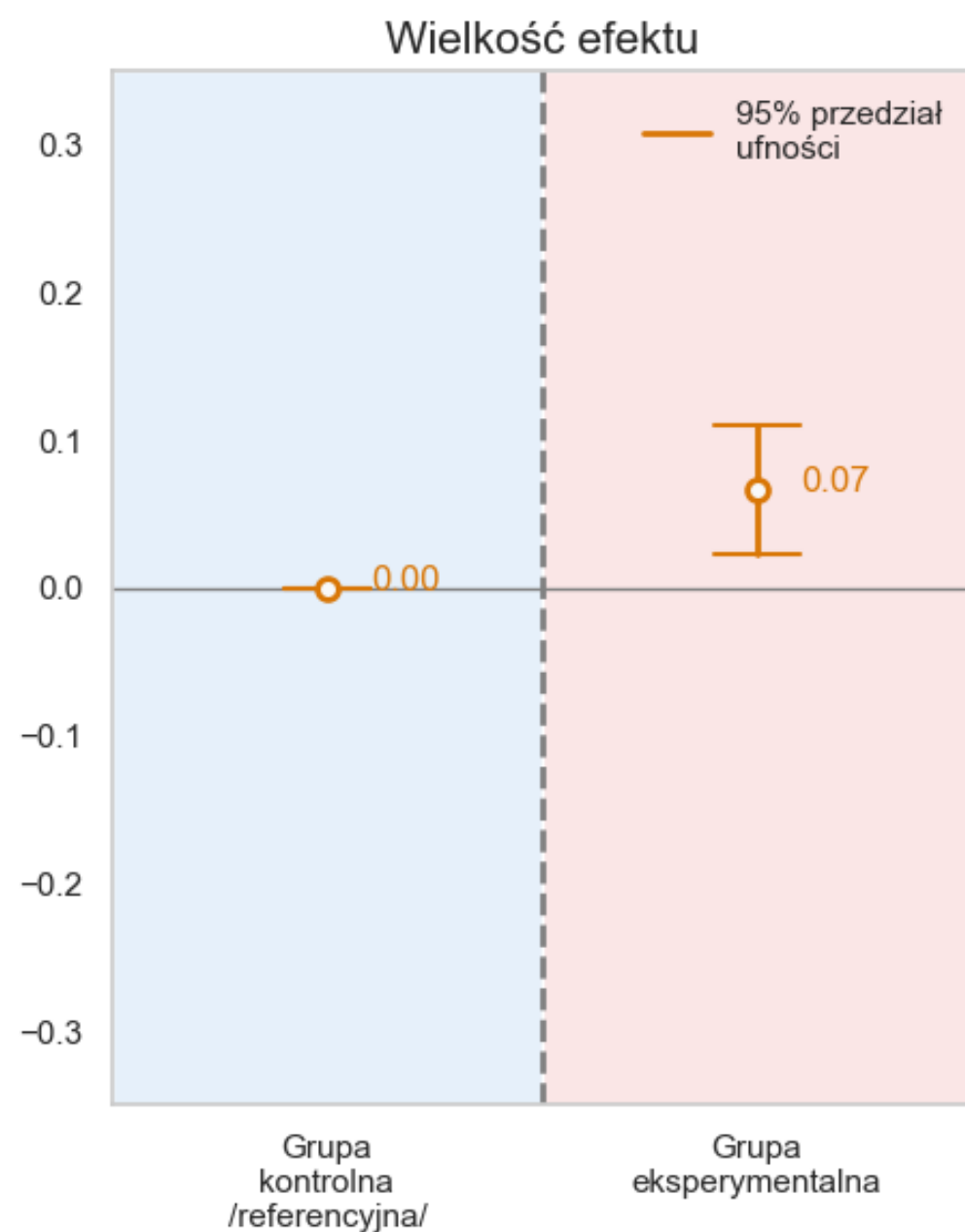
zeszyt.online – effect on mathematics skills and attitudes to learning mathematics, tested in a randomized controlled trial



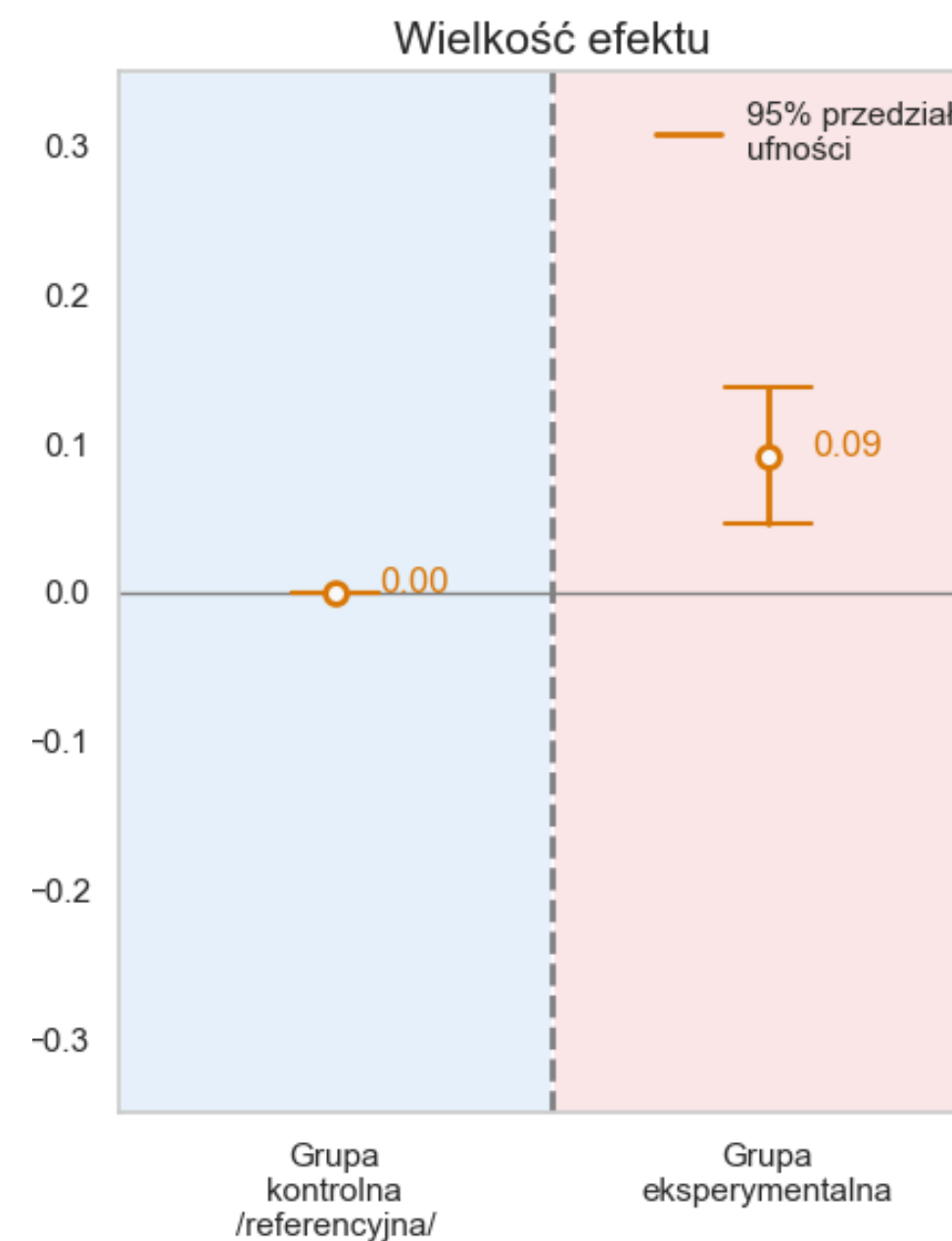
The AI mathematics trial: results

Effect size (regression coefficient) with 95% confidence interval – before the summer break (left) and over the full study period (right)

Before the summer break (measurement 1 → 2)



Full study period (measurement 1 → 3)



Source: IBE PIB – zeszyt.online RCT, initial results: +0.07 SD after one semester (measurement 1 → 2) and +0.09 SD over the full study period (measurement 1 → 3); both 95% CIs exclude zero.

A standing laboratory: the 400-school network

A panel of schools in which several interventions are tested in parallel – the engine of the loop

400

schools network that have agreed to be told the truth about what works in their own classrooms

- Every province and every school type – primary, general secondary, technical, basic vocational – so results travel to the whole system
- Membership means consent to randomization and a common outcome layer; in return each school gets its own results back within a year
- Grows out of the $\approx$ 200 mini-pilot schools

HOW A TRIAL RUNS IN THE NETWORK

1

Pre-register

The question, the test, the cohort and the success threshold are written down first – evaluation never becomes a search for whichever indicator moved.

2

Randomize where allocation is arbitrary anyway

Schools, classes, waiting lists, phased roll-outs. Nobody is denied anything; the order is drawn by lot – and a control group comes free.

3

Several interventions in parallel

Multi-arm and stepped-wedge designs: every school is in a treatment arm of something, nobody is “only control”.

4

Power for the effects that matter

400 schools detect an effect of about 0.1 SD in a two-arm trial – the size that survives scaling. We look for 0.1, not promise 0.5.

5

Disseminate experiences

Results, materials and implementation lessons go back to every member school and into the Guide within a year – the network learns as one system.

Source: IBE PIB – design of the school research network.



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Educational policy

– evidence and implementation

