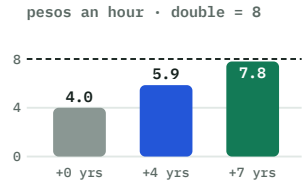
Why are schools full but learning empty?

Why a year of school pays, why nine in ten children are in school yet seven in ten ten-year-olds cannot read, the days with no teacher, how a child falls behind, and what randomized trials found raised learning.

1 Why school pays

human capital

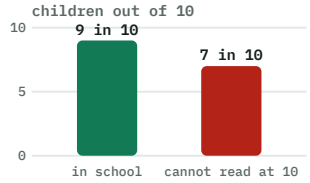
- **Human capital** = what a person knows and can do, and their health → earns over a lifetime, like a machine
- Each extra year of school → pay ≈ **+9%** (139 countries · **George Psacharopoulos & Harry Patrinos**, economists, World Bank, **2018**) · lesson: **+10%**
- 4 pesos an hour (4 years) · +2 years `1.1 × 1.1 = 1.21` · +4 years `1.21 × 1.21 ≈ 1.46` → `4 × 1.46 ≈ 6`
- Double the pay → **rule of 70** (Macro 10): years to double ≈ `70 ÷ growth %` → `70 ÷ 10 = 7` extra years
- Practice · **opportunity cost** = what you give up · Esi: 5 → 5.50 an hour × 2,000 h = **+1,000** a year · cost 5 × 2,000 = **10,000** → paid back in **10 years**



2 Seats ≠ learning

learning poverty

- ≈ **9 in 10** children of primary age in school (**UNESCO**, the UN agency for education: 78 million out, 2023)
- **Learning poverty** = a ten-year-old who cannot read and understand a simple text
- ≈ **7 in 10** ten-year-olds in low- and middle-income countries (**World Bank**, founded 1944, Washington · **2022**; ≈ 6 in 10 in 2019, before school closures) → only `10 − 7 = 3` can read
- Both true · out-of-school children count as unable to read
- Practice · breakfast trial: attendance 82% vs 74% → **+8 points** (4 came anyway) · reading 31 vs 30 → **+1** (toy numbers)



3 The missing days

teacher absence

- Surprise visits, six countries (Bangladesh, Ecuador, India, Indonesia, Peru, Uganda) · **Nazmul Chaudhury** and others, World Bank, **2006** → ≈ **1 teacher in 5** absent
- 200 days open · `200 ÷ 5 = 40` absent → **160** taught · 6 years → `6 × 40 = 240` days lost, more than a school year
- Practice · 180 days, 135 taught → 45 = **1 in 4** · 6 × 45 = 270 · at 1 in 10 → 162 taught, **+27** days a year

4 Falling behind

constraints, not the child

- Sick or hungry → misses days → falls behind → class of 60 moves on at the book's level, above hers → understands little → falls further behind
- Three constraints · **teacher away** · child **sick or hungry** (worms, Lesson 4) · lesson **above her level**
- The problem = how the school works, not Lina

5 What the trials found

no verdict on which first

- **Raised scores** · **teaching at the right level** (group by what children can do now): **Pratham**, Indian charity, local tutors, India 2001-04 (**Abhijit Banerjee**, **Esther Duflo**, economists, Nobel 2019, with Cole & Linden, 2007) → weakest +**0.6 SD** in 2 years, ≈ **$2.25** a child a year · classes by starting level, Kenya +0.14 SD · teacher bonus, Andhra Pradesh (Indian state) +0.27 math
- **No average gain** · extra textbooks (Kenya) · a laptop each (319 schools, Peru, 15 months)
- **SD** = standard deviation = typical gap between a pupil and the class average · **cost-effectiveness** = what a program achieves per dollar · 100 × $2.25 = **$225** · practice: $9,000 → laptops at $300 = 30 children, tutors at $3 = 3,000
- Seats first (a child out of school cannot learn) ⟷ teaching first (a seat without teaching costs years) · one trial = a clue, not a law

Watch out: in school ≠ learning · trial effect = treatment − control, not the rise from "before" · +10% a year: 4 years ≈ +46%, not double · cost of school = fees + the pay given up · equipment alone ≠ better teaching