The Quality of Education in Indonesia: Weighed, Measured, and Found Wanting

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Let’s start with a test

Think of a fraction that is smaller than \( \frac{4}{9} \)
How did 8\textsuperscript{th} graders (kelas 2 SMP) perform?

- Singapore (top performer): 84% correct
- Korea and Japan: 81%
- Australia: 71%
- United States: 69%
- Malaysia: 43%
- South Africa: 30%
- Indonesia: 26%
- Ghana (bottom performer): 21%

Source: TIMSS 8\textsuperscript{th} grade test
Should we be worried?

• Yes.

• Student performance in a standardised test is an indicator of school quality.

• Countries with high quality schools have higher economic growth (Hanushek & Woessmann, 08).
  – Most of the effect go through higher skills in the labour market.
  – The rest probably go through social benefits, like lower crime.

• With growth comes lower poverty, higher support for democracy, and a healthier population.
Outline

I. The quality of education in Indonesia
   • Measured using student performance in international mathematics, science, and reading assessments.

II. Some challenges
   • Curriculum
   • Teacher absence, distribution
   • Teacher qualification

III. Efforts to improve education quality
TIMSS 2007

• Tests mathematics and science aptitude of 4\textsuperscript{th} and 8\textsuperscript{th} grade students in 50 countries and 7 states in Spain, Canada, US, UAE.
• Indonesia participated since 1999, only 8\textsuperscript{th} grade.
  – In 2007, about 4000 students participated.
• Grading: mean 500, standard deviation 100.
• Benchmark scores:
  – 625 (Advanced): students can organise and draw conclusions from information, make generalizations, and solve non-routine problems.
  – 550 (High): students can apply their understanding and knowledge in a variety of relatively complex situations.
  – 400 (Low): students have some knowledge of whole numbers and decimals, operations, and basic graphs.
Indonesia’s Mathematics Performance (1)

TIMSS Mathematics Performance

- Indonesia
- Singapore
- Malaysia
- Thailand

Score

- 1999
- 2003
- 2007
## Benchmark Achievement

- **Share children scoring above 550**
- **Share children scoring below 400**

<table>
<thead>
<tr>
<th>Year</th>
<th>Malaysia</th>
<th>Singapore</th>
<th>Thailand</th>
<th>Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>36</td>
<td>7</td>
<td>17</td>
<td>50</td>
</tr>
<tr>
<td>2007</td>
<td>1818</td>
<td>1</td>
<td>21</td>
<td>52</td>
</tr>
</tbody>
</table>

**Number per 100 students**
Indonesia’s Science Performance

**TIMSS Science Performance**

- Indonesia
- Singapore
- Malaysia
- Thailand

Score vs. Years (1999, 2003, 2007)
Indonesia’s Reading Performance

PISA Reading Performance

- Indonesia
- Thailand
- Brazil
- Russia
We live in a globalised world, where a person competes with others around the world.

– Football analogy: one can be a very good footballer in Indonesia, but he would likely be mediocre in England. So, you need to be competitive *globally*.

– Message: It is important to know where you are in the world, not just in your own corner of the world.
Pritchett & Viarengo (08): “Economic Mundial” (2)

• A country’s competitiveness in the world does not depend on the average skills, but on the number of the best individuals.
  – Football analogy: a country with 11 average players would lose against a country with 6 very good players and 5 mediocre players. Note that the average skills of the two teams would be about the same.
  – Message: a country’s competitiveness directly depends on the number of superstars that the country can produce.
Pritchett & Viarengo (08): “Economic Mundial” (3)

• We don’t really think like that in education.
  – We care about those who fail the national examination.
  – We care about the average skills of the students.
  – We care about those who drop out of school.

• We should start worrying about the number of superstars that the education system produces.
Superstar Production (1)

• How many superstars does the Indonesian education system produce?
  – TIMSS 2007 Math: the upper bound of the share of Indonesian 8\textsuperscript{th} graders who scored 625 or higher is 0.4%.
  – From Susenas 2007: the number of students in 8\textsuperscript{th} grade is 3.7 million students.
  – So, Indonesia produces less than 15 thousand superstars per cohort.
Superstar Production (2)

Share 8th graders scoring 625 or more

- Mexico: 0.29
- USA: 6.52
- Korea: 18.2
- India: 0.83
- Thailand: 1.51
- Indonesia: 0.4

Superstars per 100 students
Some Factors that Affect School Quality
Figure 4. School Instructional Hours

- **Instructional hours per week (hours)**
  - Average Malaysia, Singapore, Thailand
  - Indonesia

- **Share spent on math per week (%)**

- **Math instruction per month (hours)**

The diagram compares the instructional hours and content of schools in average Malaysia, Singapore, Thailand, and Indonesia.
Figure 5. Mathematics Content in School

- Taught to all students
- Not taught
- Only taught to more able students
Teacher Absence

• 19% (SMERU’s studies)
  – Excludes anticipated absences.
  – Higher than Bangladesh, Ecuador, Peru.

• Suryadarma et al (06):
  Teacher absence has a significant and negative relationship with mathematics performance.
Class Size and Teacher Distribution (1)

- Suryadarma et al (06): The ideal class size for primary schools in Indonesia is 25.

![Figure 8. Class Size and TIMSS 2007 Score, Indonesia](image)
Figure 7. Student-Teacher Ratio, 2008

- Mozambique
- Nicaragua
- Colombia
- Mali
- Vietnam
- Mexico
- Guatemala
- Peru
- Tunisia
- United States
- Slovak Republic
- Israel
- Saudi Arabia
- Serbia
- Luxembourg
- Slovenia
- Monaco
Class size and teacher distribution (3)

• The issue in Indonesia is not class size/student-teacher ratio.
• It is an imbalance in teacher distribution.
  – Related to teacher absence.
• del Granado et al (07)
  – Urban areas: 68% of schools have too many teachers; 21% have too few.
  – Remote areas: 17% of school have too many teachers; 66% of schools have too few.
• However, Indonesia needs more qualified teachers.
  – 75% of SMP teachers have an S1.
  – Malaysia: 82%; Thailand: 99%; Singapore: 95%.
  – Education attainment is only a rough indicator of quality.
Efforts for Improvement
Interventions around the world

• Recap
  – In 2007, Indonesia was 80 points behind Malaysia; 200 points behind Singapore in mathematics.
• There is no panacea for improving education quality.
• Various interventions and their impact (from Wai-Poi, 2009; Pradhan et al, 2011).

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Country</th>
<th>Effect (points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving community participation</td>
<td>Indonesia</td>
<td>17 - 22</td>
</tr>
<tr>
<td>Merit-based scholarships</td>
<td>Kenya</td>
<td>12</td>
</tr>
<tr>
<td>Teacher performance pay</td>
<td>Kenya</td>
<td>14 - 34</td>
</tr>
<tr>
<td>Teacher performance pay</td>
<td>India</td>
<td>12 - 19</td>
</tr>
<tr>
<td>Camera-based monitoring</td>
<td>India</td>
<td>17 - 21</td>
</tr>
<tr>
<td>Class-size reduction</td>
<td>Israel</td>
<td>10 - 50</td>
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</tbody>
</table>
Current efforts in Indonesia (1)

• Central Government’s efforts:
  – Teacher certification.
  – Teacher professional development.
  – To my knowledge, there is yet to be a quantitative impact evaluation on these efforts.

• Not much is known on local governments’ efforts.
Current efforts in Indonesia (2)

- Private sector efforts:
  - Some interesting ideas:
    - Abolishing education streaming in senior secondary schools.
    - Boarding school model.
    - Indonesia Mengajar.
    - Improving the quality of teacher education institutions.
  - Lessons from successful endeavors:
    - International-standard education is expensive.
    - Risk of failure remains high.
  - Most have no rigorous impact evaluation either.
Summary (1)

• On average, school quality in Indonesia is low compared to its neighbours and other comparable countries.
  – The skills gap between Indonesia and its neighbours is staggering.
  – Most education interventions do not have large enough effects to bring Indonesia to parity.

• Superstar production is also low in Indonesia.

• Helping only the low performers is insufficient for Indonesia to be globally competitive.

• Highly talented individuals must also be nurtured.
Summary (2)

• Have we focused too much on piecemeal approaches?
  – We need many groundbreaking ideas that are tailored to the Indonesian culture.
  – We need the freedom to test these ideas in the field (subject to passing ethical standards).
  – Some ideas (from Finland):
    • matching students with the same teachers throughout SD.
    • Rather than 3 classes of 12 students each, what about a class of 36 students with 3 teachers?

• Every education intervention needs to be rigorously evaluated.
  – To identify ideas that really work.
  – The evaluation framework should be designed from the ground up.

• In 2015, the ASEAN Economic Community will begin.
  – Free movement of goods and capital.
  – And labour.