Richard Deiss,
European Commission, DG for Education and Culture

Indicators for EU education policy making

EIPPEE conference, The Hague, 9-10 May 2012
From Lisbon to Europe 2020

GDP growth

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>3.8</td>
</tr>
<tr>
<td>2001</td>
<td>2.0</td>
</tr>
<tr>
<td>2002</td>
<td>1.2</td>
</tr>
<tr>
<td>2003</td>
<td>1.3</td>
</tr>
<tr>
<td>2004</td>
<td>2.5</td>
</tr>
<tr>
<td>2005</td>
<td>2.0</td>
</tr>
<tr>
<td>2006</td>
<td>3.4</td>
</tr>
<tr>
<td>2007</td>
<td>3.1</td>
</tr>
<tr>
<td>2008</td>
<td>0.5</td>
</tr>
<tr>
<td>2009</td>
<td>-4.3</td>
</tr>
<tr>
<td>2010</td>
<td>1.9</td>
</tr>
<tr>
<td>2011</td>
<td>1.6</td>
</tr>
</tbody>
</table>

March 2000:
- Lisbon Strategy: Most competitive knowledge based economy in the world with better jobs and more social inclusion

March 2002:
- Barcelona European Council with goals for RTD, languages, pre-school

Council conclusions on ET benchmarks

Council and Parl. Recommendations on key comp.

Council conclusions on coherent framework for indicators

March 2010:
- Europe 2020 Strategy
- Smart, sustainable and inclusive growth

1999: Bologna Declaration

1st PISA study published

Later ET 2010

Bologna Leuven meeting

New programme generation
There is an interaction between policy development and indicator development.

Indicators are used for monitoring existing policies but also for developing new ones.

(Politicians) use statistics as a drunken man uses lamp posts— for support rather than for illumination. Andrew Lang
Data as a basis for indicators

Indicators used to compare performance and progress of countries. Units mostly %.

Data is a lot like humans. It is born. Matures. Gets married to other data, divorced. Gets old. One thing it doesn’t do is die. It has to be killed. Arthur Miller
## Comparing two countries

<table>
<thead>
<tr>
<th>Data set/ Indicator</th>
<th>Problem</th>
<th>France</th>
<th>Bulgaria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute amount of spending</td>
<td>Does not take into account differences in population size</td>
<td>80.5 bn Euro</td>
<td>3.7 bn Leva</td>
</tr>
<tr>
<td>Spending per capita, national currencies</td>
<td>Does not take into account different currencies</td>
<td>1341 Euro</td>
<td>486 Leva</td>
</tr>
<tr>
<td>Spending per capita in Euro</td>
<td>Does not take into account differences in price levels.</td>
<td>1341</td>
<td>249</td>
</tr>
<tr>
<td>Spending per capita in Euro PPS</td>
<td>Does not take into account differences in per capita GDP</td>
<td>1219</td>
<td>623</td>
</tr>
<tr>
<td>Spending per capita in Euro PPS relative to GDP per capita</td>
<td>Does not take into account differences in population structure</td>
<td>5 %</td>
<td>7%</td>
</tr>
<tr>
<td>Spending per pupil in Euro PPS relative to GDP per capita</td>
<td>Ok, but difficult to understand meaning of data</td>
<td>20%</td>
<td>35%</td>
</tr>
<tr>
<td>Spending per pupil in Euro PPS relative to GDP per capita, EU = 100</td>
<td></td>
<td>100%</td>
<td>175%</td>
</tr>
</tbody>
</table>

**Final indicator**

International comparisons are useful, as long as they are not taken too seriously. Ben Levin
1. Definition of key issues of policy area

2. Identifying indicators needed to monitor the key policy issues

3. Prioritising within data needs and indicators

4. Assessing what data is available

5. Bringing proposed indicators closer together with what is available (via iteration/operationalisation)

6. Identification of desired status of indicators

7. Developing strategy on how to obtain missing data

- Collect administrative data
- Use existing survey vehicles
- Developing new survey vehicles

Priority needs

Available but not needed

Needed but not available

Indicators needed

Key issues and objectives

Whole policy field

Data needed and available

Benchmark

Key indicators

Other indicators used in reports
There is a time lag between policy development and the development of indicators for monitoring policies.

There are short, medium and long term data needs and their life cycles are different.
More data normally needed than available. However, not all data available known and not all data known used.

Most efficient measure is always making better use of existing data.

*Without data you are just another person with an opinion.* Andreas Schleicher.
# Development of missing data: Eurostat

<table>
<thead>
<tr>
<th>Key surveys</th>
<th>Current data</th>
<th>New developments</th>
</tr>
</thead>
<tbody>
<tr>
<td>UOE (UNESCO-OECD-Eurostat collection)</td>
<td>Administrative data collection on students, teachers and spending</td>
<td>More data on short term mobility in HE</td>
</tr>
<tr>
<td>Labour Force Survey (LFS)</td>
<td>Educational attainment and LLL participation</td>
<td>Possible merging of household surveys</td>
</tr>
<tr>
<td>Adult Education Survey (AES)</td>
<td>Educational participation of adults (25-64)</td>
<td>Widening to younger age groups 18-64. Integration of iVET and general youth mobility variables</td>
</tr>
<tr>
<td>Continuing Vocational Training Survey (CVTS)</td>
<td>Continuing vocational training in enterprises</td>
<td>Revision of data collection at enterprise level</td>
</tr>
</tbody>
</table>

Uncollected information is available. Eurostat has 3 million education data points.

Smoking is one of the leading causes of statistics. *Liza Minelli*
## Development of missing data: skills

### Surveys co-financed by the Commission

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Skills data (assessment)</th>
<th>Other data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commission, DG EAC</strong></td>
<td>Language Survey (ESLC 2011)</td>
<td>Ad-hoc studies (Mobility, others)</td>
</tr>
<tr>
<td><strong>OECD</strong></td>
<td>Adult skills (PIAAC 2011)</td>
<td>Teachers (TALIS 2013)</td>
</tr>
<tr>
<td><strong>IEA</strong></td>
<td>Civic skills (ICCS 2009)</td>
<td>(pupil, teacher and school questionnaires provide additional data)</td>
</tr>
<tr>
<td></td>
<td>ICT skills (ICILS 2013)</td>
<td></td>
</tr>
</tbody>
</table>

IEA: oldest producer of international skills data (> 50 years).  
OECD: largest internat. collector or socio-economic data, >3 billion data.
Quality criteria

<table>
<thead>
<tr>
<th>Graph</th>
<th>Rule</th>
<th>Graph</th>
<th>Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>useful</td>
<td>Precision</td>
<td>Usefulness of data</td>
<td>Comprehensiveness</td>
</tr>
</tbody>
</table>
| harmfu | *The more precise the data the more useful they are.*  
Data should be at least precise enough to mirror trends over time correctly. If data do not show the direction of change correctly, they can be even harmful. | | *The better the coverage of data the more useful they are.*  
In the EU context data should cover as many countries as possible, at least the large majority of Member States. |

<table>
<thead>
<tr>
<th>Rule</th>
<th>Graph</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Precision</strong></td>
<td><img src="image" alt="Graph" /></td>
</tr>
<tr>
<td><strong>Usefulness of data</strong></td>
<td><img src="image" alt="Graph" /></td>
</tr>
<tr>
<td><strong>Comparability</strong></td>
<td><img src="image" alt="Graph" /></td>
</tr>
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</table>

Quality criteria for indicators

- Underlying data: to be precise, timely, comparable, comprehensive
- Analytical soundness, relevance, elasticity (malleability)

*Not everything that can be counted counts and not everything that counts can be counted.* Albert Einstein
### Data quality

In many surveys (PISA, LFS ESL data) only changes larger than 1 percentage point statistically significant.

Population data not very precise, EU population smaller?

<table>
<thead>
<tr>
<th>Country</th>
<th>Eurostat data, m 2000</th>
<th>2011 Census result, m</th>
<th>Difference in million</th>
<th>Difference in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyprus</td>
<td>0.69</td>
<td>0.84</td>
<td>+0.04</td>
<td>+5.0</td>
</tr>
<tr>
<td>Ireland</td>
<td>3.78</td>
<td>4.58</td>
<td>+0.10</td>
<td>+2.2</td>
</tr>
<tr>
<td>Portugal</td>
<td>10.20</td>
<td>10.56</td>
<td>-0.07</td>
<td>-0.7</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>8.19</td>
<td>7.36</td>
<td>-0.14</td>
<td>-1.9</td>
</tr>
<tr>
<td>Greece</td>
<td>10.90</td>
<td>10.79</td>
<td>-0.52</td>
<td>-4.6</td>
</tr>
<tr>
<td>Lithuania</td>
<td>3.51</td>
<td>3.05</td>
<td>-0.19</td>
<td>-5.9</td>
</tr>
<tr>
<td>Latvia</td>
<td>2.38</td>
<td>2.07</td>
<td>-0.15</td>
<td>-6.8</td>
</tr>
<tr>
<td>Romania</td>
<td>22.46</td>
<td>19.04</td>
<td>-2.37</td>
<td>-11.1</td>
</tr>
</tbody>
</table>

There are lies, damned lies and statistics. Benjamin Disraeli.
Indicators should reflect the key aspects of an issue, but they should also help to reduce complexity.

For each analytical purpose/target group there is an optimum number of indicators with an optimum information value.

Attention given per indicator:
As the number of indicators grows, attention given to each indicator declines.

Consistency of message:
The consistency of the message risks to decline with the number of indicators used.

Costs:
The costs linked to indicators grow only slowly with their number if existing indicators are used. They grow strongly if new surveys are needed.

Number of countries being compared:
The number of indicators used tends to increase with the number of countries being compared until data availability limits possibilities to compare.

Make it as simple as possible, but not simpler. Albert Einstein
Indicator development and analysis - Partners

Set up in 2005
About 10 researchers
Focus on quantitative analysis.
Hosted at Joint Research Centre (JRC)

Set up in 1980
About 35 people in Executive Agency in Brussels, plus national units

Other bodies
CEDEFOP (Thessaloniki)
ETF (Turin)
Special Needs Agency (Odense)
IPTS (JRC, Seville)
EENEE
NESET

How to analyse results? Background information on education systems, starting points and differences in structures between countries to be considered.
We sometimes know, sometimes don’t…

<table>
<thead>
<tr>
<th>Credibility of data: fact or fiction</th>
<th>Cause and effect: first chicken or egg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparability of systems: apples/oranges</td>
<td>Correlation: covariation or causality</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change over time: trend or stat. noise</th>
<th>Skills: nature or nurture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact: time lags or lack of elasticity</td>
<td>Degrees: Signalling/own value</td>
</tr>
</tbody>
</table>

There are also unknown unknowns - the ones we don’t know we don’t know.

D. Rumsfeld
Europe 2020 Strategy: 2 education targets

- 75% of the population aged 20-64 should be employed.
- 3% of the EU's GDP should be invested in R&D.
- The "20/20/20" climate/energy targets should be met.
- The share of early school leavers (18-24) should be under 10% and at least 40% of 30-34 year olds should have tertiary attainment.
- 20 million less people should be at risk of poverty.
Education and training 2020

5 Benchmarks adopted in May 2009
95% Participation in early childhood education (4+)
15% Low performers in PISA (15; reading, math and science)
10% Early school leavers (18-24)
40% Tertiary completion (30-34)
15% Lifelong learning participation (25-64)

2 more benchmarks adopted November 2011/ May 2012:
20% with mobility experience in higher education, 6 % in VET
82% employment rate 1-3 years after graduation

One more benchmark to be developed in 2012:
-Language skills
Progress on track (if based on past trends), except for adult LLL
ET 2020: adult lifelong learning

If you want to measure change, do not change the measures. Al Beaton
Thank you for your attention!

e-mail: richard.deiss@ec.europa.eu

<table>
<thead>
<tr>
<th>DG EAC</th>
<th><a href="http://ec.europa.eu/dgs/education_culture/index_en.htm">http://ec.europa.eu/dgs/education_culture/index_en.htm</a></th>
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<td>CRELL</td>
<td><a href="http://crell.jrc.ec.europa.eu/">http://crell.jrc.ec.europa.eu/</a></td>
</tr>
</tbody>
</table>

*Our days minutes are counted - by statisticians.* Stanislaw J. Lec