ASEM LLL FORUM 2016

EDUCATION 2030

REDEFINING OECD KEY COMPETENCIES

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Reflection on Day 1: 
by Prof. Jorgen Orstrom Moller “asking questions”

2 of the 3 questions set out on the cover page of the Conference brochure

- **Defining 21st century skills:**
  What are the skills needed for lifelong learning in Europe and Asia in the 21st century?

- **Drivers for change:**
  What drivers for change are creating a revolution of the educational landscape in the 21st century?
Questions about the ASEM questions

• What is the difference between 21st century skills and 21st century competencies?

• What are the 21st century skills?

• What about “knowledge”? Don’t we need to revisit “21st century knowledge”?

• What are the other aspects that are important for today & future?

21st century competencies

21st century
ICT literacy  
Financial literacy
Cogni

Media literacy

Health literacy

Media

Non-cognitive

Environmental literacy

Soft

ESD (SDG 4.7) & COP 21

Social and emotional

OECD PISA 2018

Global competency Taxonomy/ terminology – Mess!

Taxonomy/policymakers get confused!

More & More demands on students

Curriculum Overloads!

Disp

Chal
OECD questions (Examples)

• How can we clean up the taxonomy/mess so that we can speak the same language about 21st century competencies, in order to discuss these issues among different stakeholders within and across countries as well as advance research on 21st century competencies across different fields of research.

  Development of the OECD 2030 Learning Framework: Updating the OECD DeSeCo (Definition and Selection of Key Competencies)

• How can curriculum/learning standards/content framework be redesigned and implemented effectively, in order to ensure that students have sufficient time to learn deep, not more....?

• What are the key aspects (constructs) of competencies today’s students should learn to thrive in as well as shape the future of their world? --- What will remain? What will be new?

International Comparative Analysis on Curriculum
The kind of things that are easy to teach are now easy to automate, digitize or outsource.
Changes in the nature of work
Trends in different tasks in occupations (United States)

Mean task input in percentiles of 1960 task distribution

A lot more to come

- Google autonomous cars
- 3D printing
- Synthetic biology
- Brain enhancements
- Nanomaterials
- Etc.

Inspired by: Center for curriculum redesign (CCR)
Rate of Change
Race between Technology & Education
(Goldin, 2008)
Key trends in the VUCA world

- Technology
- Migration
- Environment
- Citizenship
- Modern Family

- Peace & Security
- Health
- Employment
- Inequality

What kind of competencies will today’s students need in 2030 to find solutions to the complex challenges as well as take the opportunities to shape the future they will live in?
Increasing migration towards the developed world

Net migration (in millions of people) into regions, with countries grouped by income level and OECD members, 1960-2010.

Source: OECD (2013), Trends Shaping Education.
Growing carbon dioxide emissions

CO₂ emissions from fuel combustion (million tonnes), 1971-2007

OECD AI (23% in 2050)
Russia & rest of AI (7%)
Rest of BRIICS (44%)
RoW (26%)

Source: OECD (2012), Environmental Outlook to 2050
Growing income inequality in many countries


Fewer people are engaged in their democracies

Parliamentary voter turnout, in 1950, 1980 and 2010 (or nearest available year)

Source: OECD (2013), Trends Shaping Education
Primary source: International IDEA (2011), Voter Turnout Database.
Aging population across all OECD countries

Median age of the population, in 1950, 2010 and 2100

Source: OECD (2013), Trends Shaping Education.
Overweight and obesity among children

Measured overweight (including obesity) among children, 2013 (or latest year)

% of children at various ages

Rising health expenditure

Total public and private expenditure on health as a percentage of GDP, in 1960, 1985 and 2010

Global increase of terrorist incidents

In 2013, 60 per cent of all terrorist attacks occurred in five countries; Iraq, Afghanistan, Pakistan, Nigeria and Syria. However the rest of the world suffered a 54 per cent increase in terrorist incidents in 2013.

Terrorist incidents, 2000–2013

Source: Global Terrorism Index, 2014
All of these issues are inter-connected!

Source: WEF 2015 Global Risks

Survey respondents were asked to select between three and six trends and to identify for each the risk they believe is most interconnected.
What does all this mean for education?
Furthered OECD Education 2030 Framework
Work-in-Progress!

Competency: the ability to mobilise knowledge, skills, attitudes and values in a particular context (DeSeCo).

Action: students are agent for change as well as agent to keep the world in balance. Action should drive towards the overarching goal/outcome → well-being (individual and society).
Furthered OECD Education 2030 Framework
Math teaching ≠ math teaching
reason mathematically and understand, formulate, employ
and interpret mathematical concepts, facts and procedures
Focus on word problems

Fig. I.3.1a

Formal math situated in a word problem, where it is *obvious* to students what mathematical knowledge and skills are needed.
Focus on conceptual understanding

Fig I.3.1b

Index of exposure to formal mathematics
Interdisciplinary competency ≠ Creating a course on that subject
Exposure and financial literacy

% of students in schools where the principal reports that financial literacy is available for at least 2 years
Furthered OECD Education 2030 Framework
Examples of cognitive & meta-cognitive skills – currently under review

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<td>Higher order thinking skills</td>
<td>Data gathering</td>
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<td>Etc.</td>
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</table>

Sources: Green - OECD (2015), Lippman, L. et al. (2015), Literature review of 34 empirical studies, Kauz et al. (2014),
Examples of social & emotional skills – currently under review

Communication

Cooperation

Collaboration

Initiative taking

Completing tasks

Emotional control

Empathy

Self-discipline

Etc.

College Completion (USA)

Source: NL SY

Cognitive skills deciles

Social & emotional skills deciles

OECD (2015)
Happy at 20 (New Zealand)

Source: CC

OECD (2015)
Examples of physical & practical skills – currently under review

- **Kinesthetic ability (the ability to coordinate movement)**: dexterity, motor skills
- **Ability to use physical tools, operations, functions including manual skills for professions**: (ICT, new machines, surgery)
- **Ability to use physical tools for life skills**: (e.g. giving first aid, cooking)
- **Etc**
Examples of attitudes & values – currently under review

Respect
Trust
Responsibility
Self-confident
Growth mindset
Etc.

Sources: Green - OECD (2015), Lippman, L. et al. (2015), Literature review of 34 empirical studies, Kauz et al. (2014),
“Responsibility” and “bullying at 15” (Korea)

Source: KYPS
“Math performance” and “Subject-specific responsibility” (perceived self-responsibility for failure in mathematics)

Percentage of students who reported “agree” or “strongly agree” with the following statements:

- Sometimes I am just unlucky
- The teacher did not get students interested in the material
- Sometimes the course material is too hard
- This week I made bad guesses on the quiz
- My teacher did not explain the concepts well this week
- I’m not very good at solving mathematics problems

Fig III.3.6
Core competency

= ? =

Subject-specific competency

key concepts

= ? =

subject-specific contents
Example - British Columbia, Canada:
Core competency + curricular competency (Do)
Content knowledge (Know) + big ideas (Understand)

Core competency:
• Creative thinking
• Critical thinking
• Communication
• Positive personal & cultural identify
• Personal awareness and responsibility
• Social responsibility
OECD Education 2030

How can you get be a partner of the project?

- **International 2030 learning framework (competency)**
  - Governments – Take part in the OECD meetings (twice per year)
  - Experts – constructs analysis (when relevant, meetings)
  - Stakeholders (businesses, school network, student organisations or other relevant networks) – Survey for future competencies in need (when relevant, meetings)

- **Comparative curriculum analysis**
  - Governments, government-related institutes, universities with the government’ approval - curriculum questionnaire
  - Academic experts – comparative curriculum analysis
  - School networks – triangulation by case studies on curriculum implementation