UNESCO-UNEVOC Conference

Bridging Innovation and Learning in TVET

The dual transition ‘Greening and Digitalization’ as a priority for TVET

Borhene Chakroun, Director, Policy and Lifelong Learning Systems
TVET for change
2 interconnected challenges

Climate change
Digital Transformation

Responding to
WHO IS READY FOR DIGITAL
AND GREEN TRANSFORMATION?
Are Macro-economic policies ready?
### Overall Index: ranks and scores

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<tr>
<th>Rank</th>
<th>Country</th>
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**Average:** 62.1

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**Innovation Environment**

**Labour Market Policies**

**Education Policies**

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**unesco**

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**Education 2030**
The Policy environment readiness for Net-Zero Growth

Illustrative example: How the NZRI is calculated for Norway

**National preparedness score**
Contribution to global Net Zero (based on four indicators): 99%
This is the weighted average of 100 (Norway has the lowest level of greenhouse gas emissions of the 32 countries) — 50 percent weighting factor; 94 (Norway’s score for emissions reduction between 2005 and 2018) — 50 percent weighting factor; 100 (it will have the lowest level of emissions in 2030 based on NDC targets) — 50 percent weighting factor; and 100 (Norway has a Net Zero target) — 100 percent weighting factor.
Performance in reducing emissions intensity of GDP (two indicators): 67%
Policies and enabling environment (11 indicators): 81%
Average of three sub-groups: 82%

**Sector score**
Electricity and heat (based on 17 indicators): 57%, weighted based on 32 percent share of national emissions
Transport (16 indicators): 57%, weighted based on 27 percent share
Buildings (12 indicators): 58%, weighted based on 3 percent share

*NZRI score*
\[
82 \times 0.60 + 100 = 49
\]
The Policy environment readiness for Net-Zero Growth

NZRI top 25 countries

1. Norway
2. United Kingdom
3. Sweden
4. Denmark
5. Germany
6. France
7. Japan
8. Canada
9. New Zealand
10. Italy
11. South Korea
12. Spain
13. Hungary
14. United States
15. Singapore
16. Chile
17. Australia
18. Brazil
19. Poland
20. China
21. Malaysia
22. Argentina
23. Mexico
24. Turkey
25. United Arab Emirates

NZRI countries to watch

India
Heavily investing in renewables with 100 gigawatts (GW) installed to date, and strong government action in industry, agriculture, and forestry.

Indonesia
Strong potential for renewable energy, particularly in geothermal generation.

Nigeria
Investing efforts to tie emission reduction initiatives into economic recovery plans.

Russia
Large areas of forest cover provide significant opportunity to create natural carbon sinks.

Saudi Arabia
Leveraging economic opportunity to drive energy transition through mega projects.

South Africa
Electricity sector has started its decarbonization journey with other sectors expected to follow suit.

Thailand
Started sector level intervention, including green industry standards, public transport and electric vehicle (EV) manufacturing capacity.

Source: KPMG International (2021)
What are the pillars of digital and green transformation?
TVET Digital Transformation Readiness

5 Dimensions & 4 Key Steps

1. Mainstreaming Digital skills in TVET programme
2. Data-driven management of TVET institutions and the TVET system
3. Open education resources and platforms
4. Connected learning spaces and personalized pedagogies
5. Digital & Micro Credentials and protecting learners’ records and data

COLLABORATE: Promote cooperation with the business sector (Regulate and adopt a conducive legal framework)

Develop: Capacity Development of Teaching Staff

CREATE: Develop Digital Skills Framework and support open education resources

SHARE: Use networks and platforms
Institutional Level Readiness

**Green Campus**
- Managing Campus
  - Resource Mg
  - Technology deployment
  - Monitoring

**Green Curriculum**
- Promoting SD
  - Cleaner technology
  - Defining learning outcome
  - Integrating ESD
  - Teacher PD

**Green Community**
- Adapting Community
  - Capacity Building
  - Renewable Tech
  - Resource Support
  - Unique Practices

**Green Research**
- Fostering Research
  - Renewable Energy
  - Water Treatment
  - Green Innovations
  - Waste Recycling

**Green Culture**
- Promoting Culture
  - Green Values
  - Green Attitude
  - Green Ethics
  - Green Practices
Are Teachers Ready?
Greening Education and Training: Unfinished agenda

Environmental themes and teacher training

- **36%** Not included in any teacher training
- **30%** Included in both pre-service and in-service teacher training
- **19%** Included in pre-service teacher training only
- **15%** Included in in-service teacher training only

Percentage of teachers for whom use of ICT for teaching has been part of recent professional development activities in OECD countries, 2018
Source: OECD, 2019. TALIS 2018 Results TEACHERS AND SCHOOL LEADERS AS LIFEONG LEARNERS
**Students Like Learning Science**

In both grades, liking learning science was strongly associated with higher average achievement. Eighth grade students were less positive about learning science than fourth grade students.

*Results for eighth grade based on students' reports about liking integrated science; in countries teaching separate science subjects, students were much less positive about learning chemistry and physics and somewhat less positive about learning biology and Earth science.

**Student Confidence in Science**

In both grades, being very confident in science was strongly associated with higher average achievement. Eighth grade students were less confident in science than fourth grade students.

*Results for eighth grade based on students' reports about their confidence in integrated science; in countries teaching separate science subjects, students were less confident in chemistry and physics and somewhat more confident in biology and Earth science.
Student Confidence in Mathematics

In both grades, being very confident in mathematics was strongly associated with higher average achievement. Eighth grade students were less confident in mathematics than fourth grade students.

Grade 4
- Average Achievement: 545
- Percent of Students: 32% Very Confident, 44% Somewhat Confident, 23% Not Confident

Grade 8
- Percent of Students: 15% Very Confident, 42% Somewhat Confident, 44% Not Confident

Students Value Mathematics

In eighth grade, most students said they value mathematics at least somewhat. Valuing mathematics was associated with higher average achievement.

- Average Achievement
  - Strongly Value: 507
  - Somewhat Value: 487
  - Do Not Value: 462

- Percent of Students
  - Strongly Value: 37%
  - Somewhat Value: 47%
  - Do Not Value: 16%
Socio-emotional skills are predictors of school performance and career choices.
TVET Qualifications lack transversal skills: Case of Bricklayer Job

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Do we have the resources for TVET Change?
Although a total of US$ 16 trillion was invested in stimulus worldwide, $468 billion was invested in education stimulus, of that spending, US$ 453.5 billion occurred in high-income countries corresponding to 97 per cent.

Globally only 2.9 per cent of the total global stimulus package amount is allocated to Education and Training.

Source: UNESCO, 2021
Where do we go from here?
Do we have a vision? A New Social Contract for Education

Future of Learning

Common Denominators:

- Human-Centered
- Lifelong Learning for all
- Sustainable Economies and Societies

Five Dimensions of Social Contract

1. Pedagogy
2. Curricula
3. Teaching
4. Schools
5. Learning in all areas of life

Future of Work
TVET Agenda

Knowledge, Skills, Value and Attitudes for **individuals** to learn, work and live

Knowledge, Skills, Value and Attitudes for **economies** to transition towards sustainable development

Knowledge, Skills, Value and Attitudes for inclusive and resilient **societies**
Thank you

Learn more: www.unesco.org/education

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Borhene Chakroun
Director, Division for Policies and Lifelong Learning Systems, Education Sector, UNESCO