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

Responding to

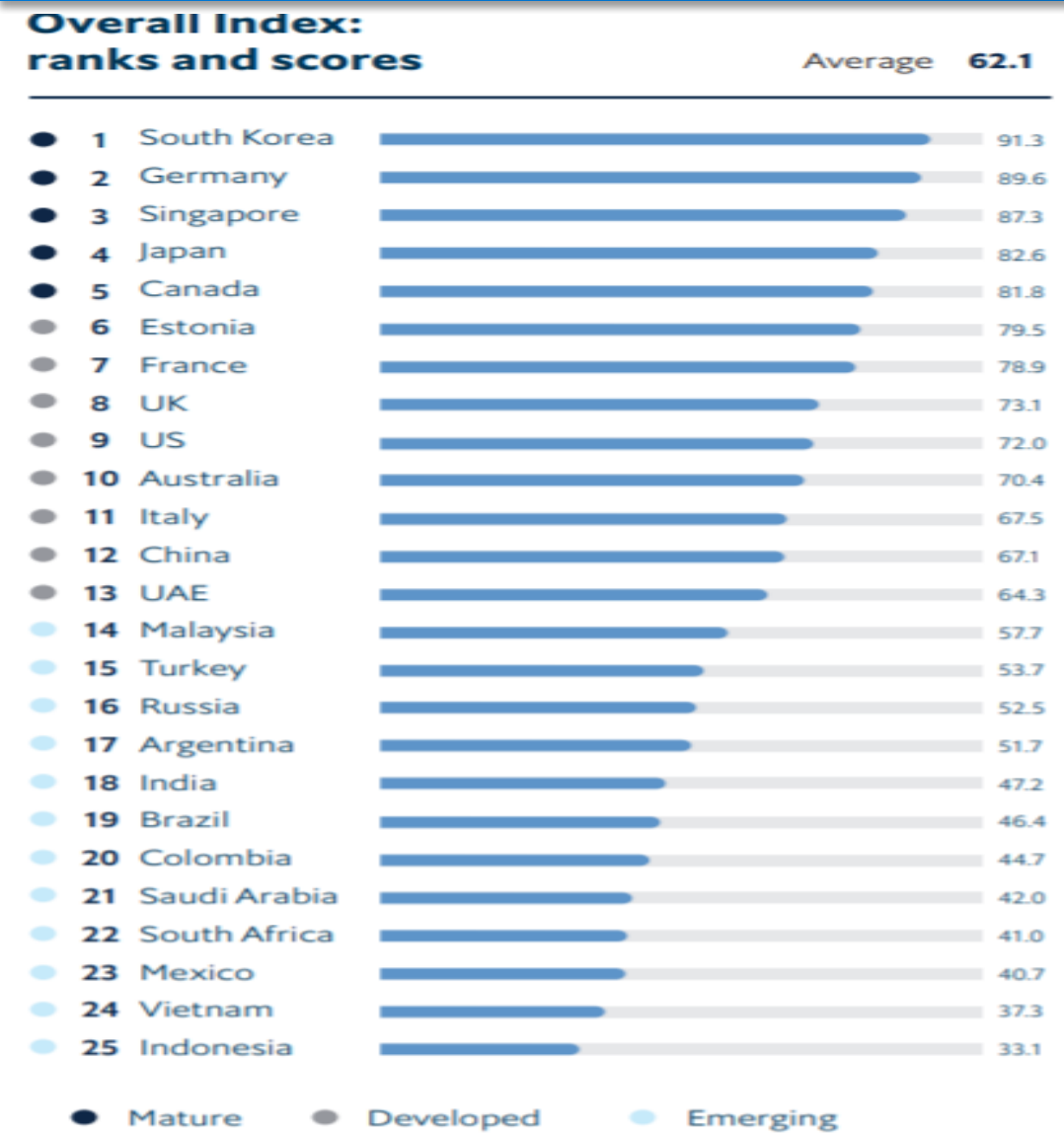
Climate change

Digital Transformation

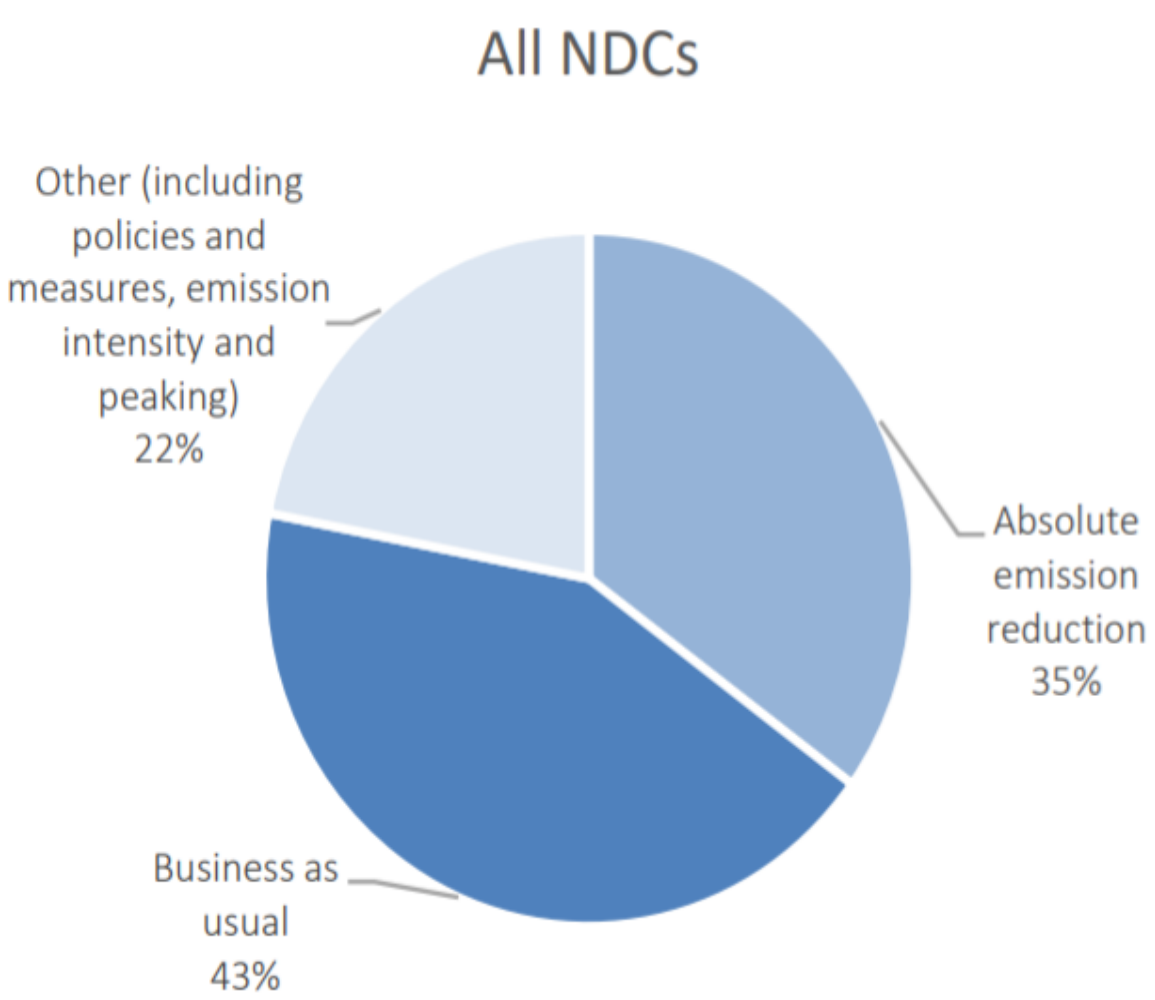
WHO IS READY FOR DIGITAL AND GREEN TRANSFORMATION?

Are Macro-economic policies ready?

The Policy environment readiness for automation



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

Industry (12 indicators): **72**, weighted based on 26 percent share

Agriculture, land use and forestry (29 indicators): **48**, weighted based on 11 percent share

Weighted average of five sectors: 60

The sector indicators are comprised of three groups paralleling three aspects of transition — decarbonization status, government action and delivery capability.

The weight distribution among the scores for the three groups for a country is based on decarbonization progress of that country for those sectors.

If a country's percentage reduction in emissions from a sector between 1990 and 2018 is better than the median emissions reduction for that sector among NZRI countries during the same period, then decarbonization status, government action and delivery capability receive 50 percent, 25 percent and 25 percent weights, respectively.

For countries that did not make significant progress, the same weight (1/3) applies for the three aspects.

NZRI score

82 x 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

Source: KPMG International (2021)

NZRI countries to watch

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

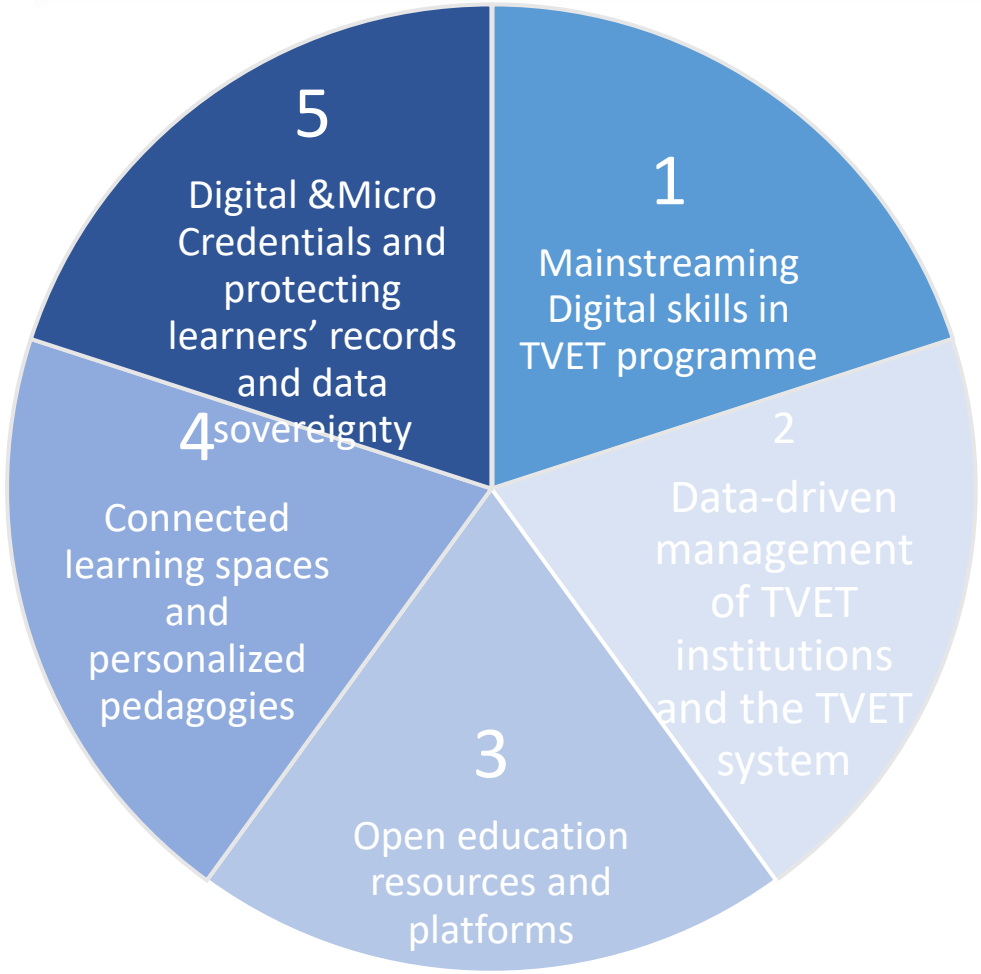
South Africa
Electricity sector has started its decarbonization journey with other sectors expected to follow suit.

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

What are the pillars of digital and green transformation?

TVET Digital Transformation Readiness

5 Dimensions & 4 Key Steps



- **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

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

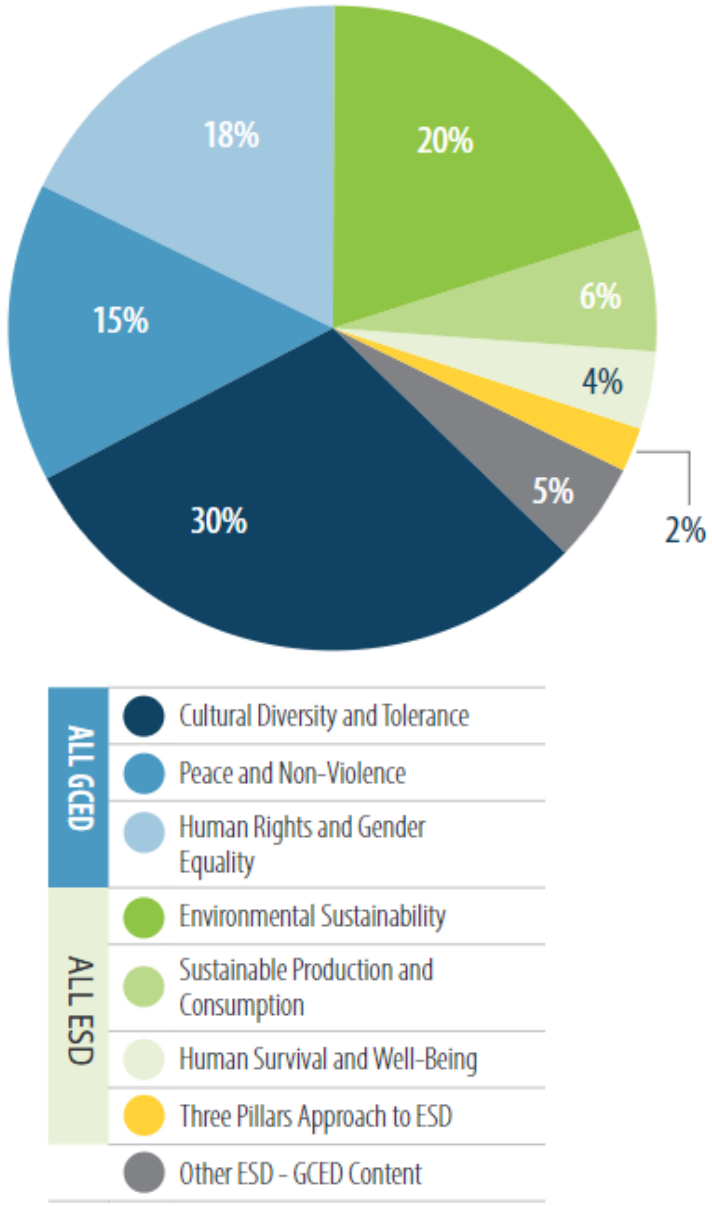
19%

Included in pre-service teacher training only

15%

Included in in-service teacher training only

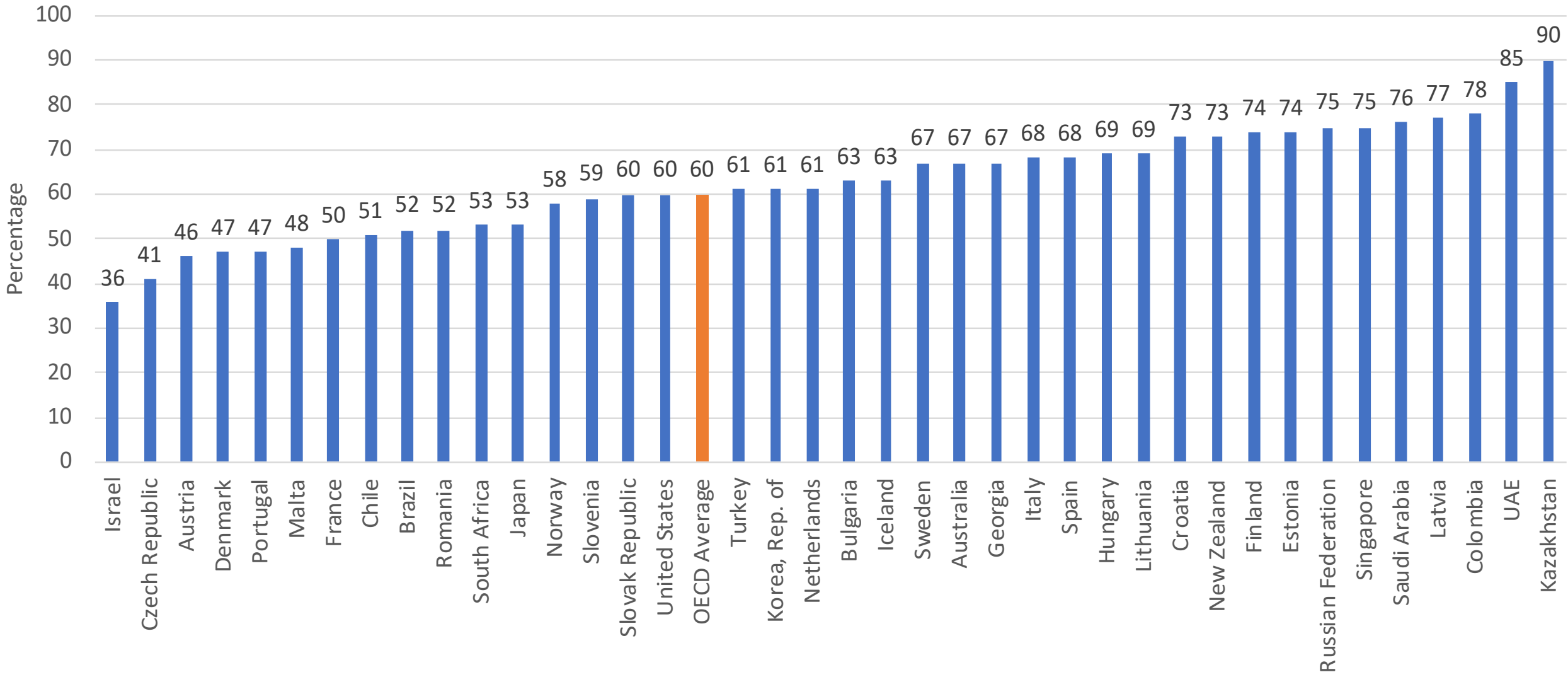
Percentage of references in different ESD and GCED themes



Source: UNESCO (2019b), p.24.

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



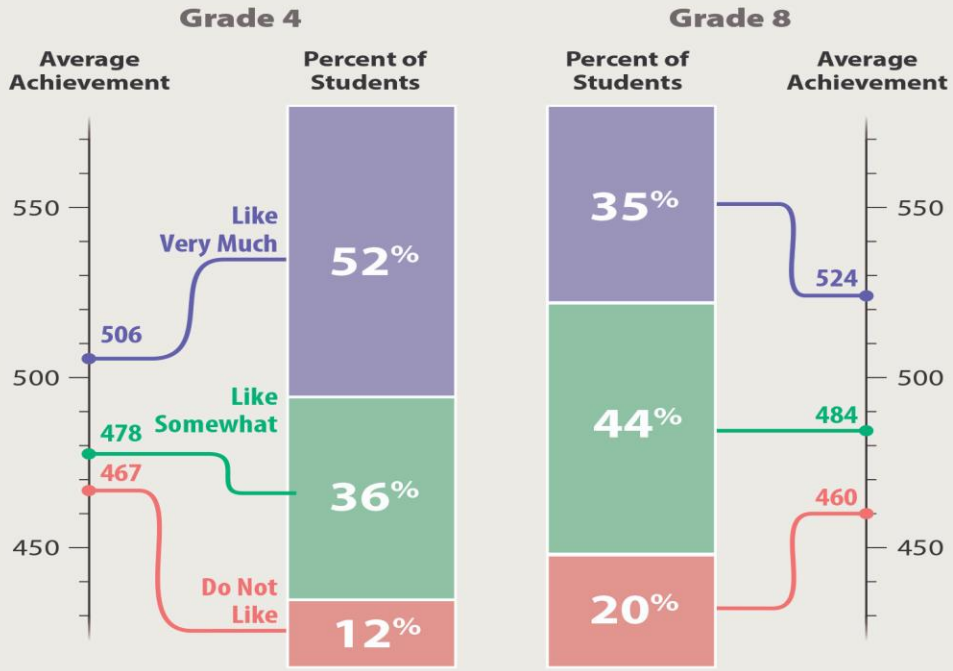
Are Learners Ready?

SCIENCE–FOURTH & EIGHTH GRADE

Students Like Learning Science*

IEA TIMSS 2019

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.

IEA TIMSS & PIRLS International Study Center BOSTON COLLEGE

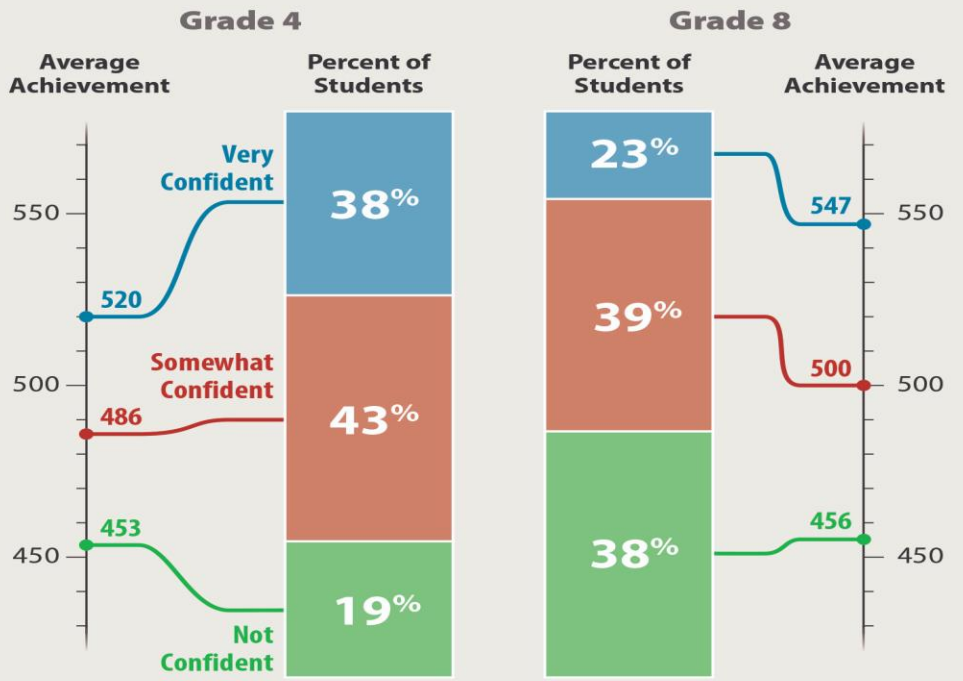
SOURCE: IEA's TIMSS 2019
http://timss2019.org/download

SCIENCE–FOURTH & EIGHTH GRADE

Student Confidence in Science*

IEA TIMSS 2019

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.



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IEA TIMSS & PIRLS International Study Center BOSTON COLLEGE

SOURCE: IEA's TIMSS 2019
http://timss2019.org/download

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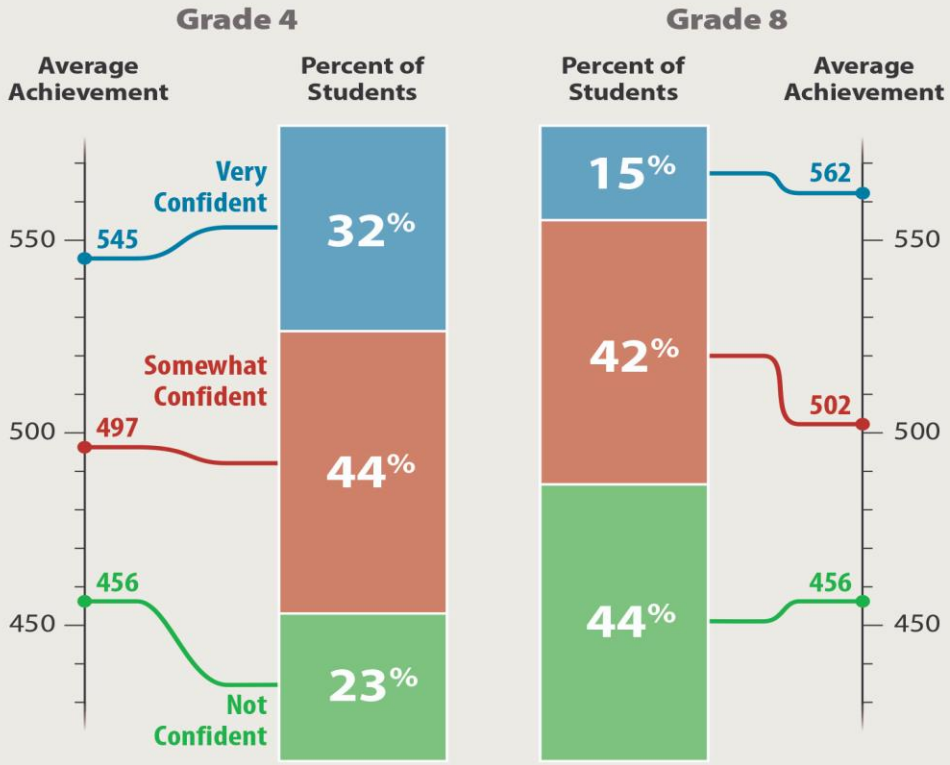
Education 2030

MATHEMATICS–FOURTH & EIGHTH GRADE

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.



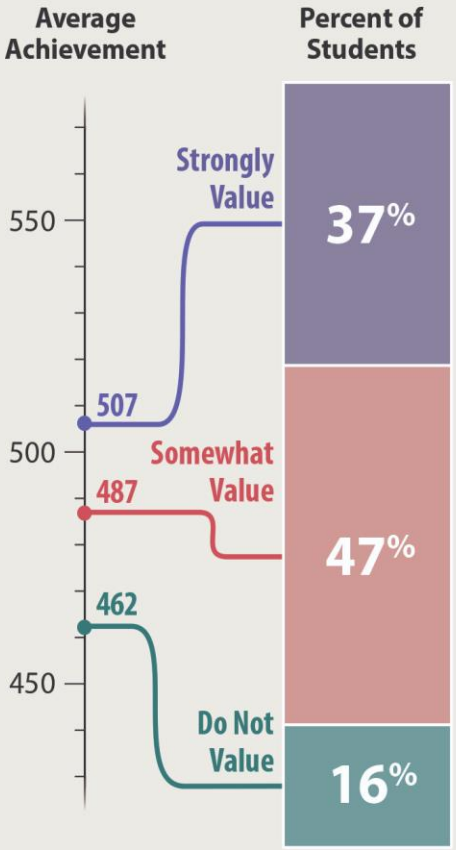
IEA TIMSS & PIRLS International Study Center BOSTON COLLEGE

SOURCE: IEA's TIMSS 2019
http://timss2019.org/download

MATHEMATICS–EIGHTH GRADE

Students Value Mathematics

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



IEA TIMSS & PIRLS International Study Center BOSTON COLLEGE

SOURCE: IEA's TIMSS 2019
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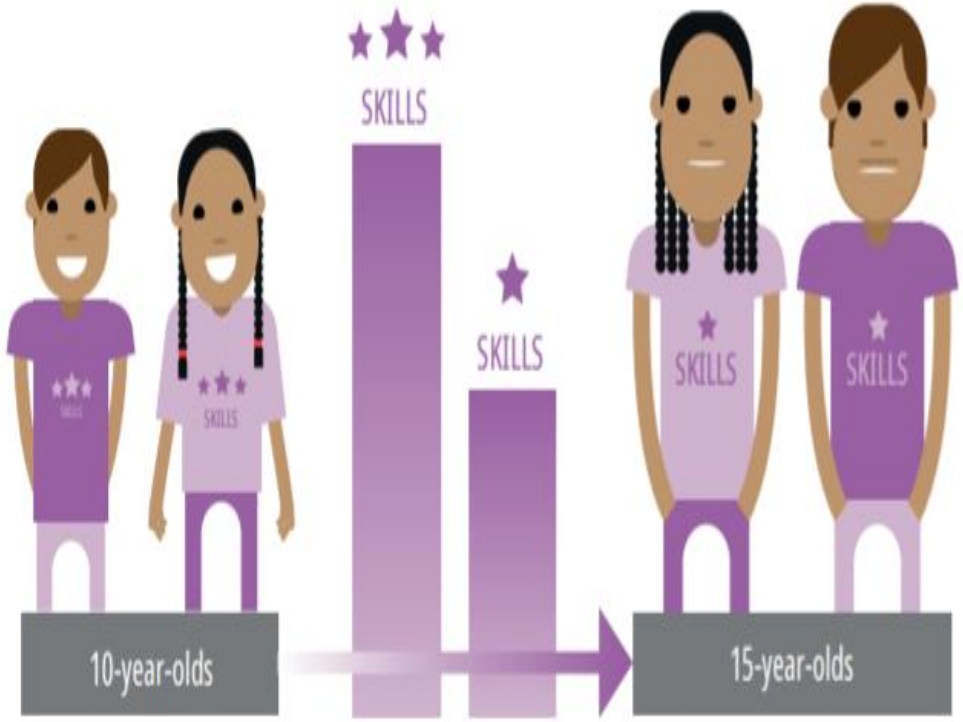
Education 2030

Socio-emotional skills are predictors of scholls performance and career choices

Young people's social and emotional skills drop as they enter adolescence.



Fifteen-year-olds, regardless of their gender or socio-economic background, reported lower skills than 10-year-olds – this decline is larger for girls than for boys in most skills.

Among students with similar socio-economic backgrounds, differences in post-secondary education expectations

are related to social and emotional skills such as intellectual curiosity.

TVET Qualifications lack transversal skills: Case of Bricklayer Job

KSC preferred title	AL	KR	PH	NZ	ZA	ZM	NA	MU	BB	CR	CL	TN	AT	BG	DK	ES	FI	FR	LT	NL	UK-EN
motivate others	■		■		■	■	■	■	■	■		■			■	■	■		■	■	■
recognise opportunities	■		■		■	■	■	■	■	■		■	■		■	■	■	■		■	
think creatively	■		■	■	■	■	■	■	■	■		■			■	■	■		■	■	
follow environmentally-sustainable work practices	■	■	■	■	■	■	■	■	■	■	■	■							■		■
support cultural diversity	■		■	■		■		■	■	■		■			■	■	■			■	■
instruct others			■		■	■	■	■	■	■		■			■	■	■		■	■	■
demonstrate intercultural competence	■		■	■	■	■	■	■		■		■	■		■		■			■	
give advice to others	■		■		■	■	■	■	■	■		■			■		■		■		■
negotiate compromise	■		■		■	■	■	■		■		■			■	■	■			■	■
persuade others	■		■		■	■	■	■		■		■			■	■	■			■	■
use body language	■		■		■	■	■	■				■			■	■	■	■		■	■
address an audience	■		■	■	■	■	■	■				■	■		■		■		■		
use questioning techniques	■		■	■	■	■	■	■	■			■			■		■				■
support gender equality	■		■			■	■	■	■	■		■					■	■			■
mother tongue	■		■				■	■	■	■		■	■				■		■		■
foreign language	■		■				■					■				■	■	■		■	

Do we have the resources for TVET Change?

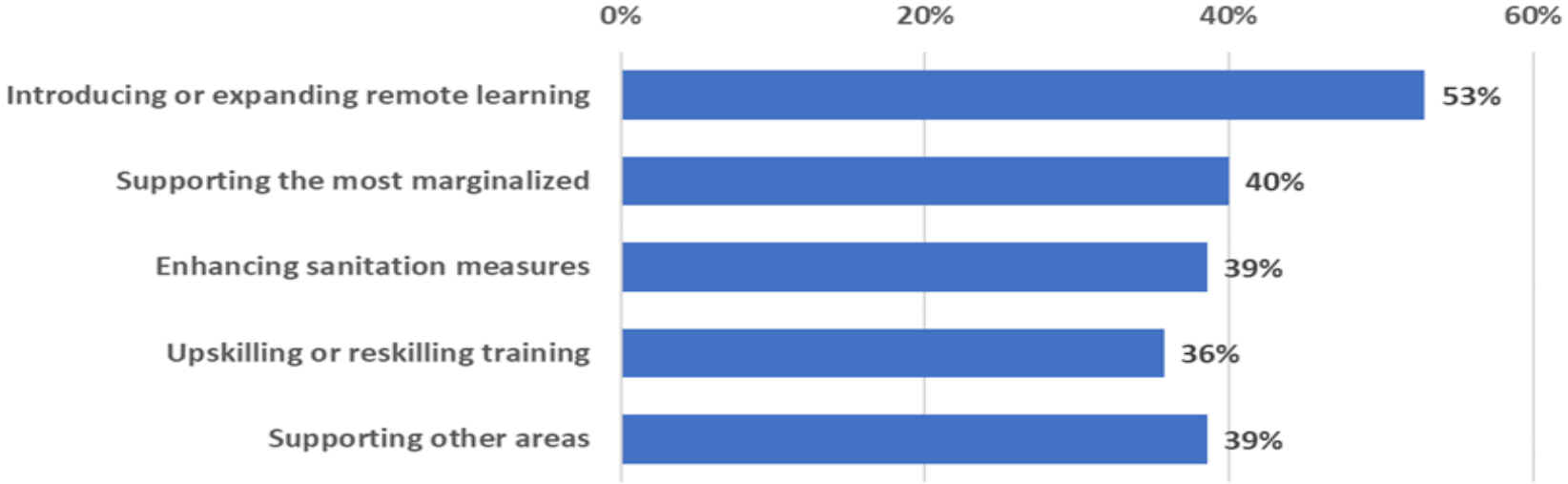
Although a total of US$ 16 trillion was invested in stimulus worldwide,

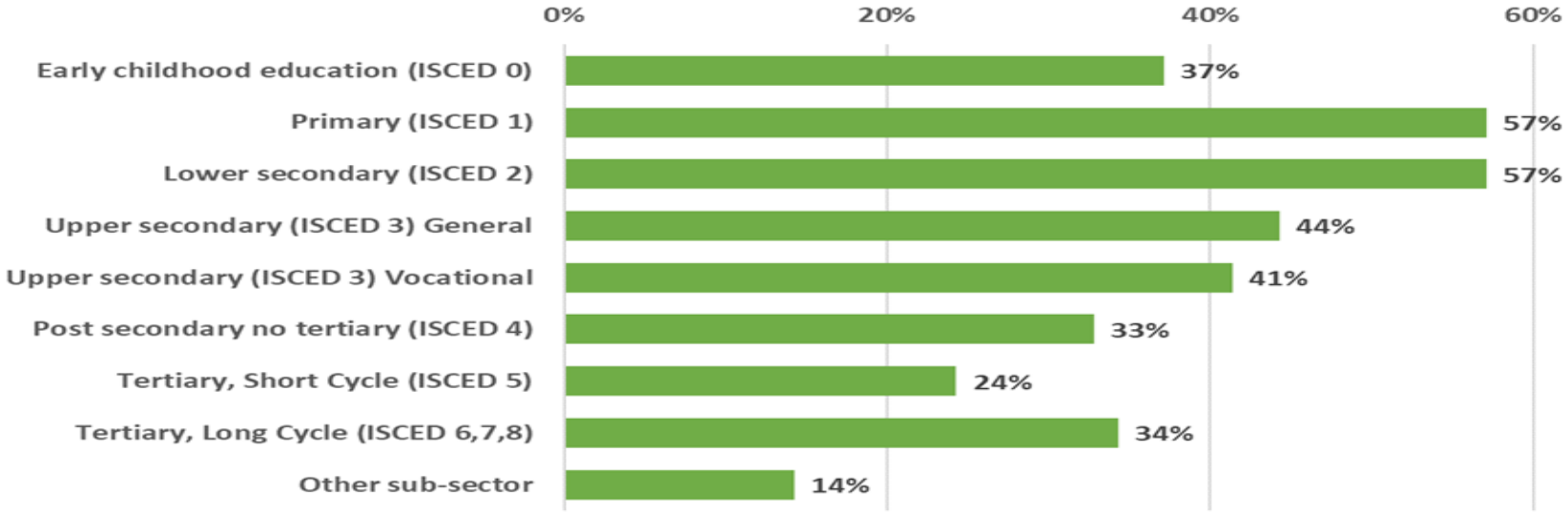
$468 billion was invested in education stimulus, of that spending, US$ 453.5 billion occurred in high-income countries corresponding to 97 per cent.

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

Source: UNESCO, 2021

Uses of Education Stimulus (%participating countries, N=70)





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Education 2030


Where do we go from here?

Do we have a vision? A New Social Contract for Education

Future of Learning

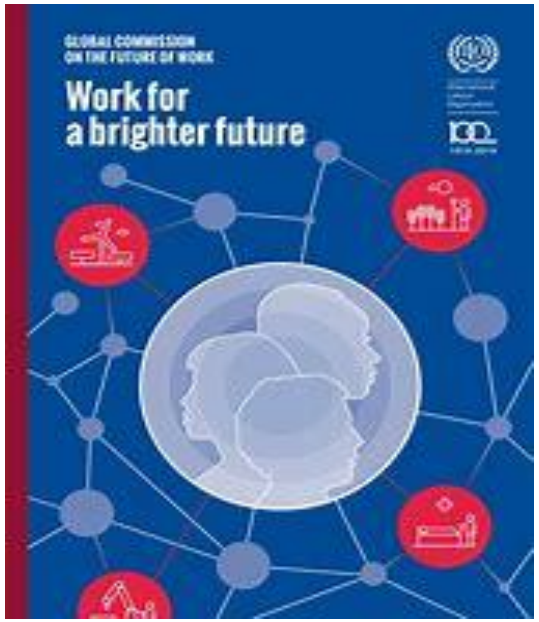
Common Denominators:

- 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

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