THE IDENTIFICATION AND INTEGRATION OF 21ST CENTURY SKILLS into TVET Systems FOR SUSTAINABILITY AND EMPLOYABILITY

Training Course on
"Strengthening Institutional Capacity on Vocational Qualifications

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Dr. Ziad Said

UNESCO Chair on TVET and Sustainable Development

SESRIC

State of Qatar
Qatar National Commission for Education, Culture and Science

COLLEGE OF THE NORTH ATLANTIC QATAR

Session Outlines

1. Challenges to TVET – Responses from Participants
2. OIC-TVET STRATEGIC ROADMAP 2020-2025
3. Overview of 1st Century Skills (different Models)
4. Educational Shift Towards a 21st Century Skills Agenda
5. Components of TVET Eco-System and Skills Ecosystem
6. Sustainable Development Goals Concepts as a context for 21st century skills development
7. Integration of 21st Century Skills Agenda Into an Education Delivery System
8. Conclusions
9. Q & A

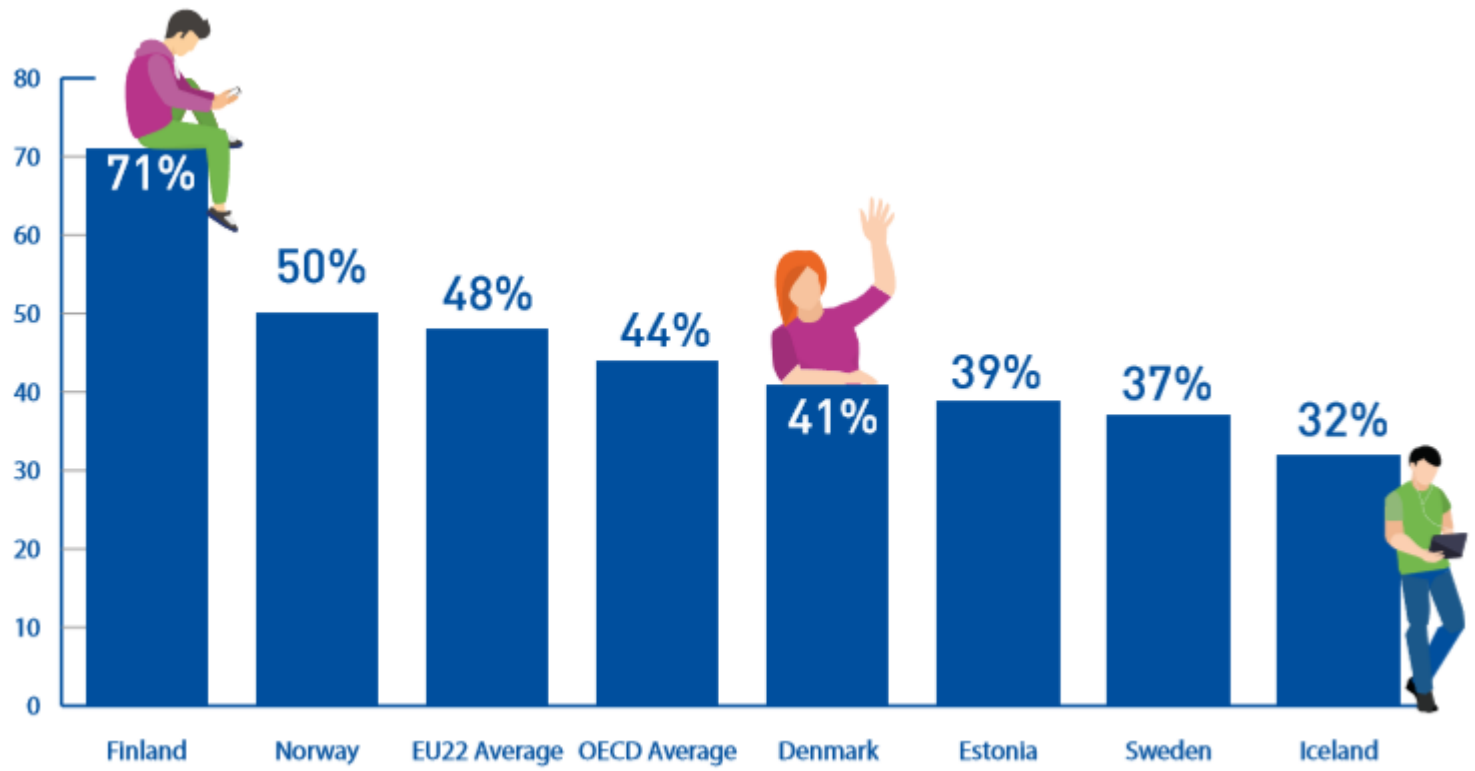
Challenges to TVET

a. TVET does not respond to the demands of the market and the needs of industry.
b. TVET curriculum does not promote the priorities of the Government especially its economic policy
c. Government put less value to TVET than university or college tertiary education.
d. Resources for TVET are very limited
e. Barriers to the integration of ICT in TVET such as; teacher skills (knowledge about ICT)
f. Lack of transfer across streams in the education system.
g. Low enrollment rate in education of students after primary school.
h. Low perception of parents and community towards TVET education.
i. Weak participation from other stakeholders (e.g. weak link with industry).
j. Lack of industry experience for many TVET teachers and instructors.
k. Lack of motivation for students to invest (enroll) in TVET education.
L. Lack of career counselling.

Why Developed countries attract more TVET students than developing countries? An Example from Finland

- In Finland 70% of secondary school students are taking vocational track
- In 2016 approximately 40% of the Finnish labor force had a vocational qualification as their highest qualification
- Teachers working as guidance counsellors in Finnish schools must have a teacher training qualification at master level, supplemented by studies in guidance and counselling.
- Each School has a qualified counselor in addition to training programs for teachers on counseling as part of their tasks.
- Several information sessions for parents with regular communications with parents on careers and labor market and decent future jobs

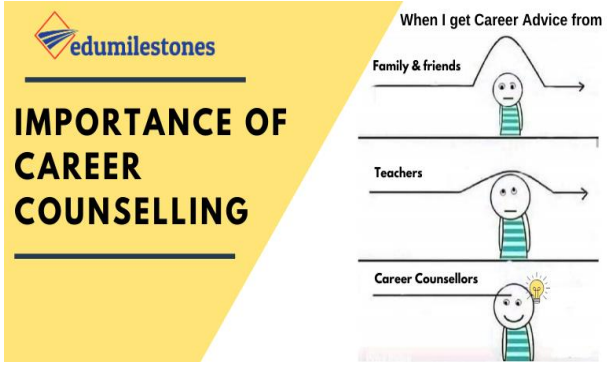
% of Vocational Secondary School Students In Some Northern Europe Countries



Source: European Centre for the Development of Vocational Training Cedefop: 2019

Career Counseling Services

- These services will be provided by trained and qualified career teachers and counselors, who can share information on the world of work, types of careers and their roles, duties and responsibilities, earning potential, and labor market demand.
- guide students toward potential careers; provide information on qualifications required for entry as well as on the courses leading to these qualifications, their location, length, content, mode of delivery, cost, among others.



OIC-TVET STRATEGIC ROADMAP 2020-2025

Priority Issues

1. Legislative Framework, Governance and Promotion

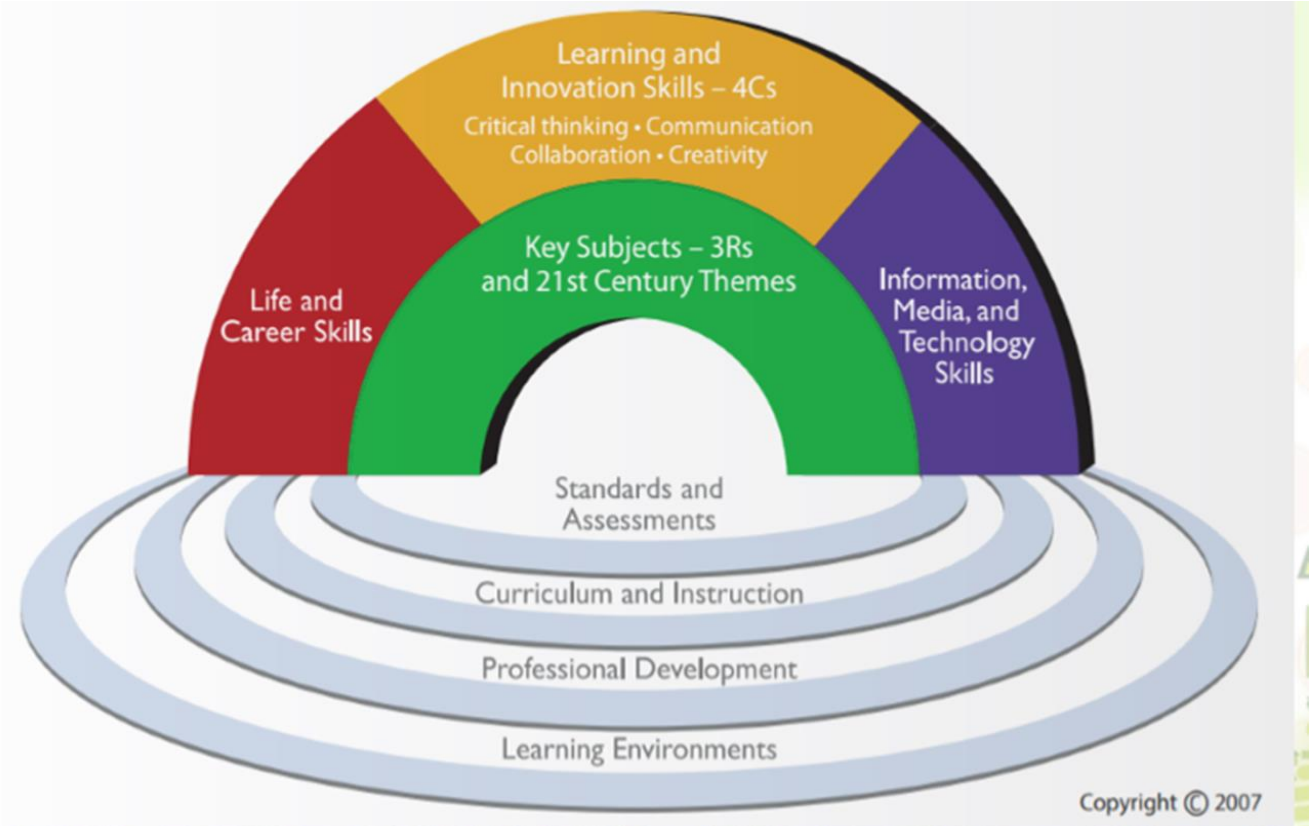
Ex. Objective 1.3 Improve the perception of TVET and attracting more trainees for vocational and technical training

2. TVET Teacher Education : Obj. 2.1.1 Develop TVET teacher capacities, quality & continuous education
3. Certification and Modular Training Programs Priority 3.1: Developing collaboration between TVET institutions and industry to design the TVET curriculum
4. Occupational Standards and Qualification & Quality Assurance System objective 4.4.1 Develop curricula in new and emerging areas with strong stakeholder participation

Global Framework for Core skills (ILO2021)

What are 21st Century Skills?

"21st-Century Skills" is a term frequently used to define what students should know and be able to do to enter the workforce and make decisions in the modern world.



Source: Framework for 21st century learning
http://www.p21.org/storage/documents/docs/P21_framework_0816.pdf

Employers Skills for a sustainable and inclusive knowledge economy in Qatar
CNAQ Research - Framework

HIGHER ORDER THINKING

- Learning to learn
- Creativity and innovation
- Critical thinking, problem solving, decision making
- Mathematical reasoning

PERSONAL AND SOCIAL SKILLS

- Personal presentation and self-awareness
- Conscientiousness and perseverance
- Communication
- Collaboration (teamwork)
- Leadership

TECHNOLOGICAL SKILLS

- Digital literacy
- Use of monitoring equipment and interpretation of data
- Adapt to new technologies

CIVIC RESPONSIBILITY SKILLS

- Citizenship - local and global
- Cultural awareness and competence
- Perspective taking and fair-mindedness
- Environmental awareness

Said et al. (2020)

Identify the most important 4 skills (1 is most important) you think are most important for a TVET Student to learn and develop high level competency in:

a. Communication and collaboration
b. Mathematical Reasoning
c. Critical thinking and problem solving
d. Creativity and imagination
e. Citizenship
f. Digital Literacy
g. Environmental awareness
h. Cultural Awareness

IMPROVING AND ENRICHING THE HUMAN CAPITAL OF QATAR THROUGH THE IDENTIFICATION AND DEVELOPMENT OF 21ST CENTURY SKILLS FOR SUSTAINABILITY AND EMPLOYABILITY

QNRF Project NPRP-10-1212-160022

Stakeholder Perceptions of Human Capital Development Needs in Qatar

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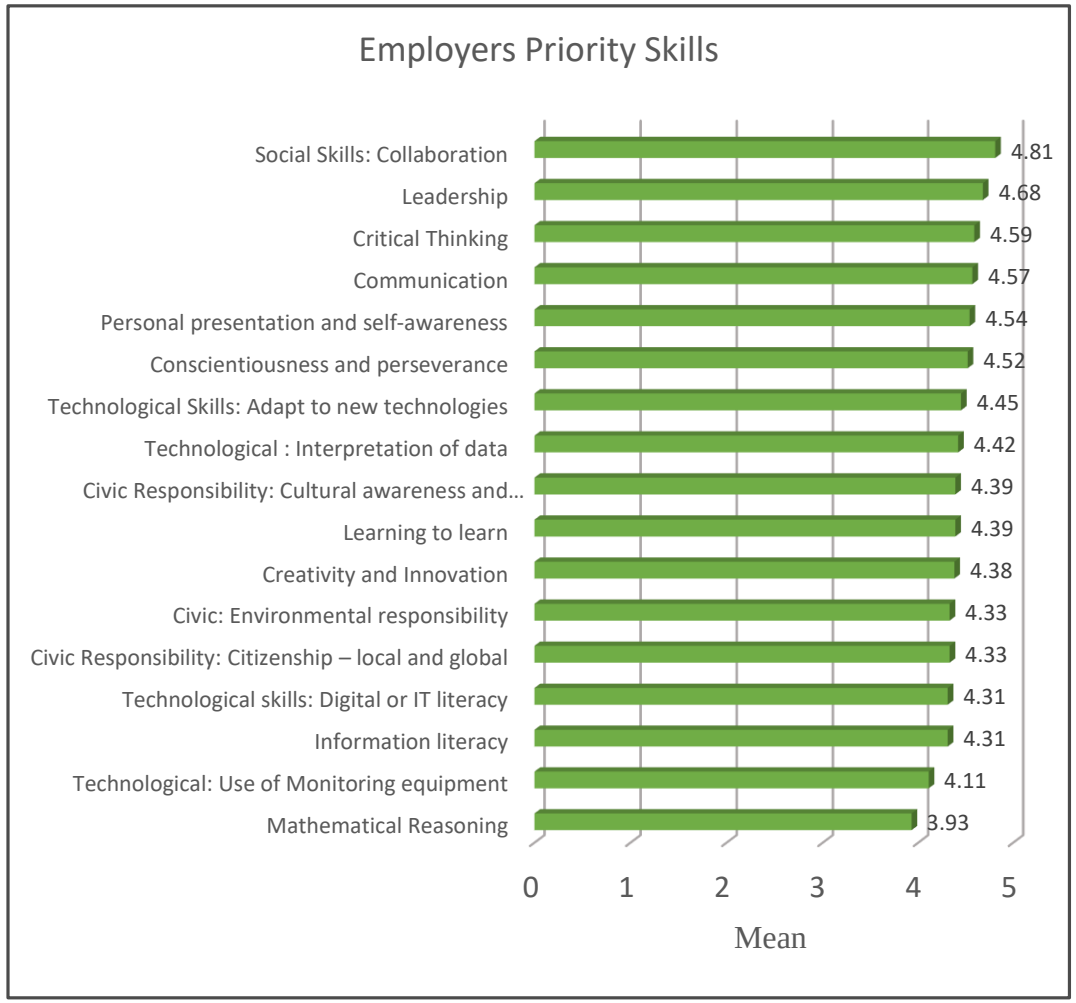
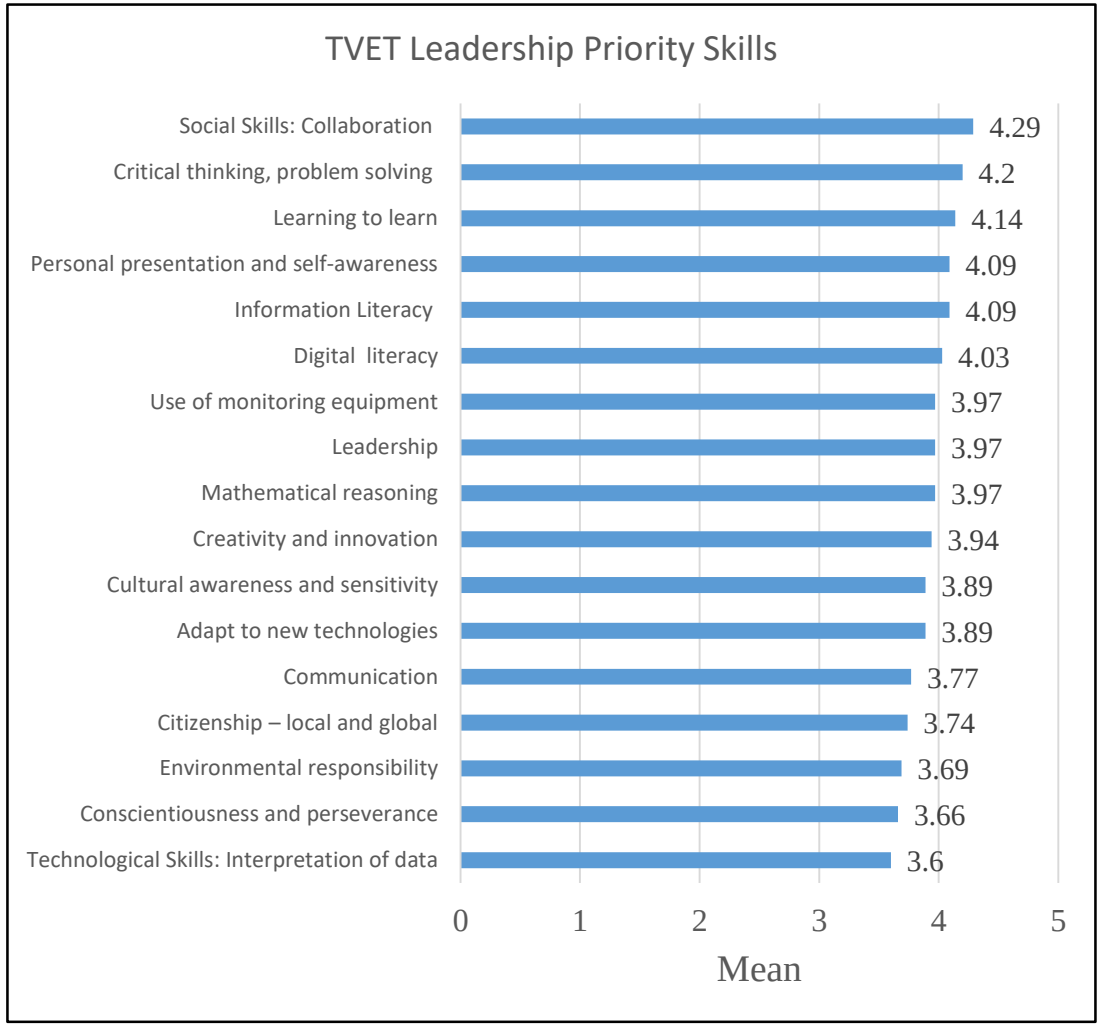
Required Skills: Perceived Ranking- Clear Gap



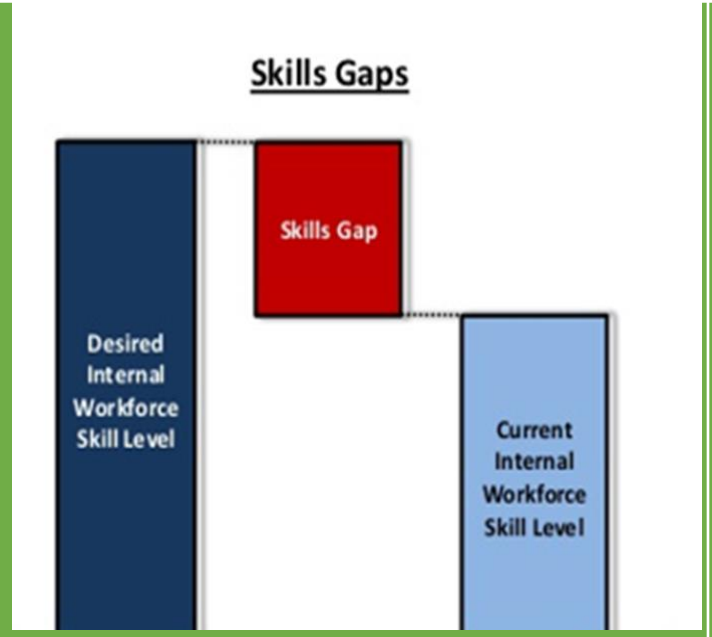


Said et al. 2021

How different Sectors Perceive the importance of 21st Century Skills (summary based on Statistical Factor Analysis)

	Built Environment	**Finance**	**Hydrocarbon & Energy**	**TVET**
Cognitive	Important	Fairly Important	Very Important	Important
Technological	Very Important	Important	Very Important	Fairly Important
Social & Interpersonal	Very Important	Very Important	Very Important	Fairly Important
Civic and Awareness	Important	Very Important	Very Important	Fairly Important

Addressing the Skills Gaps and Shortages



Bridging the Gaps

- Facilitate collaboration around a strategic vision for skills development, involving employers, education systems, and Government institutions.
- TVET Program Alignment With Labor Market Demand
- Underlying the reform is a continued need for more and better information on the availability of skills, the skills needed in labor markets, and the reward to skills.

Question

1. What does "innovation" mean?

a. To develop new ideas;

b. To use old ideas in a new way;

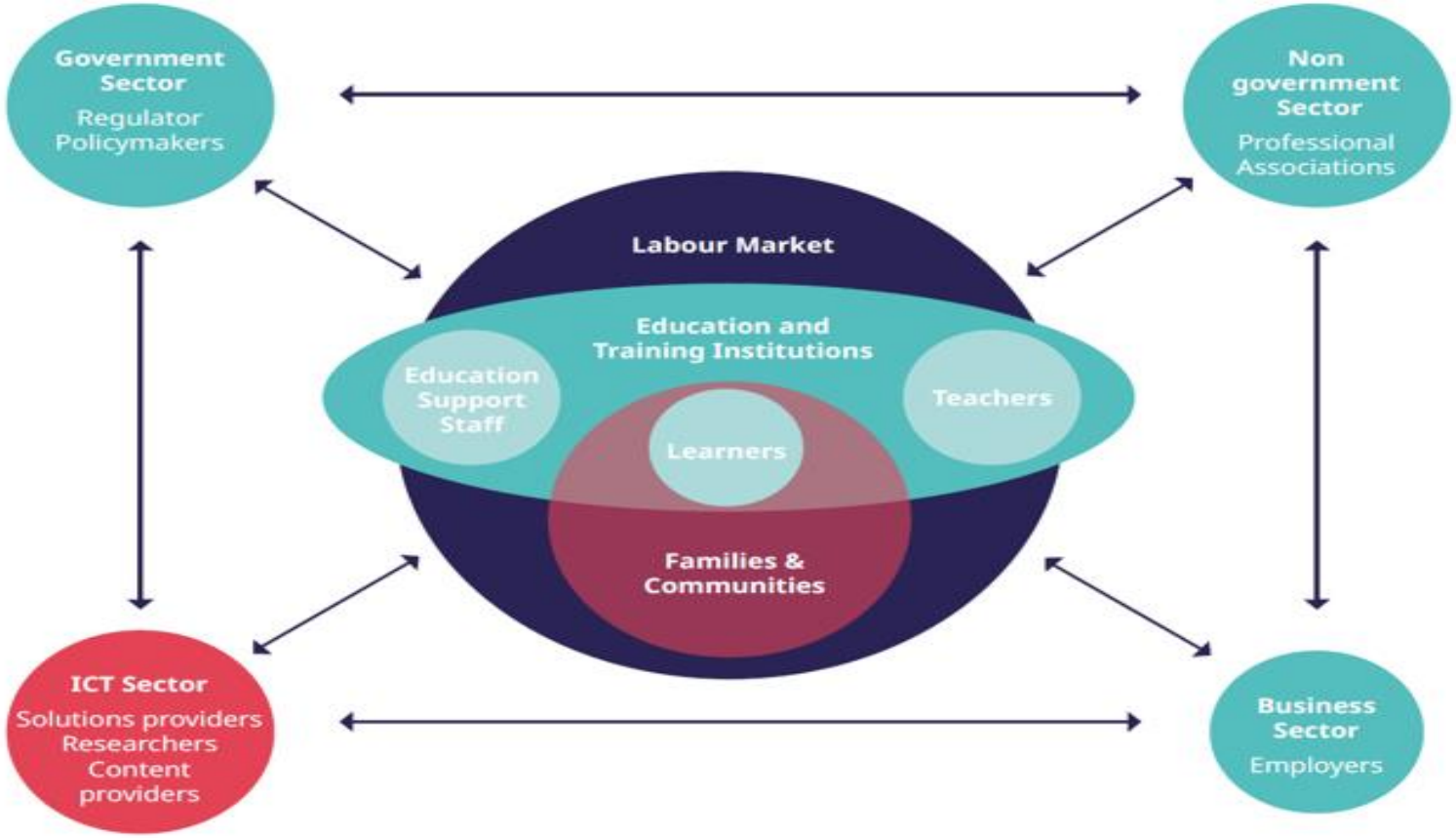
c. To study new Inventions;

d. To remain at the status quo.

2. What does the word "adaptability" mean?

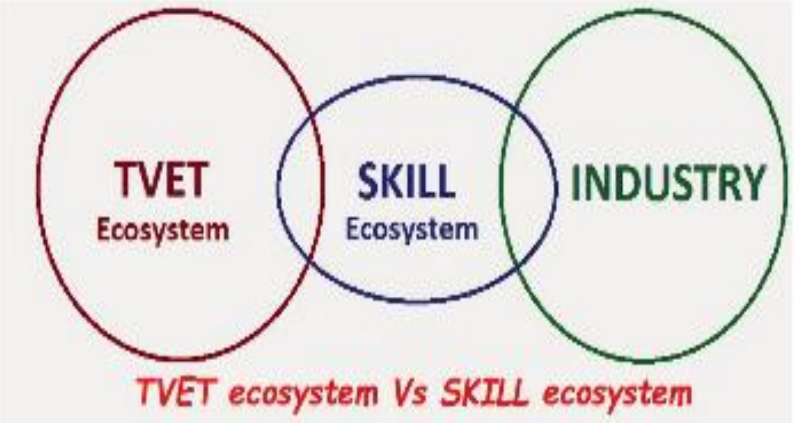
a. To be able to understand something new
b. To be able to adjust to something new
c. To take control of a situation
d. To take control.

TVET Ecosystem



Source: adapted from Keevy et al. (2019).

TVET Ecosystem Vs Skills Ecosystem



Why Skill Ecosystem?

Skill ecosystem evolved out of the failure of TVET system in addressing Industry need, in order to bridge the gap between the TVET and the Industry.

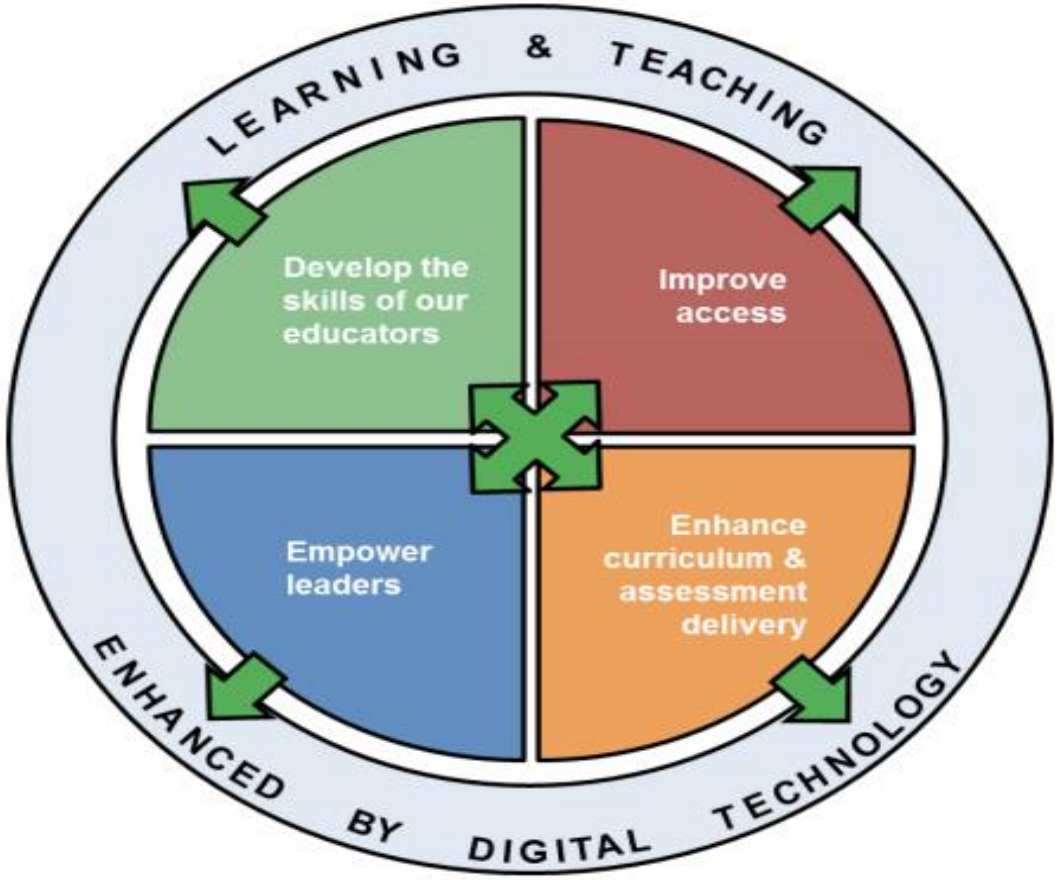
Skill ecosystem can be explained as a subsystem of TVET ecosystem that grows out of the TVET and extended to the industry.

- Industry changes very frequently;
- New technologies come in fast pace;
- Learners must be exposed to the latest technologies and training patterns;
- Skill Ecosystem reduces the skill gap, for which the industry must be linked intensely with the help of government

Digital literacy education

In order to:

- **Equip learners with the competencies** (knowledge, skills and attitudes) in the use of digital technology needed
- **Access learning opportunities**, to pursue their chosen careers and to contribute to society as active citizens.
- **Develop the skills and confidence** of students in the appropriate and effective use of digital technology to support learning and teaching.



Barrier to to ICT integration into TVET

1. Teachers' lack of ICT competencies
2. Teachers' reluctance to change their roles and instruction styles
3. Inadequate IT infrastructure and Insufficient computing Devices
4. Lack of relevant and well-designed digital content suitable for TVET
5. High cost of system hardware and software
6. Inadequate technical support and services

How can institutions overcome these barriers?

Question

3. What is "information literacy?

a. Managing time;
b. Being able to read;
c. Knowing how to find information;
d. Being able to access and evaluate information from a wide array of sources.

Q.4 What is Critical Thinking?

1. The ability to analyze information objectively and make a reasoned judgment
2. Evaluation of data, facts and observable phenomena
3. Answer 1 only.
4. All the above

Disappearing Jobs

- Estimated 60% of current occupations will be replaced by automation within 10 years.
- 85% of the jobs that will be available in 2030 have not been invented yet.
- one out of three people think machines could take over their jobs.

Question: Which job you think will disappear or be reduced from the following list? Postman, Cashier, Travel Agent, Bank Teller, Scientist, Sport referee, Fishers, medical aid worker (Medic), Artist (designer) Plumber; Physiotherapist.

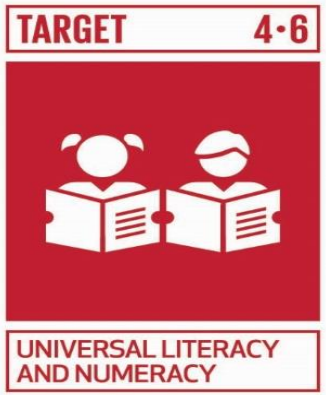
The Sustainable Development Goals (SDGs)

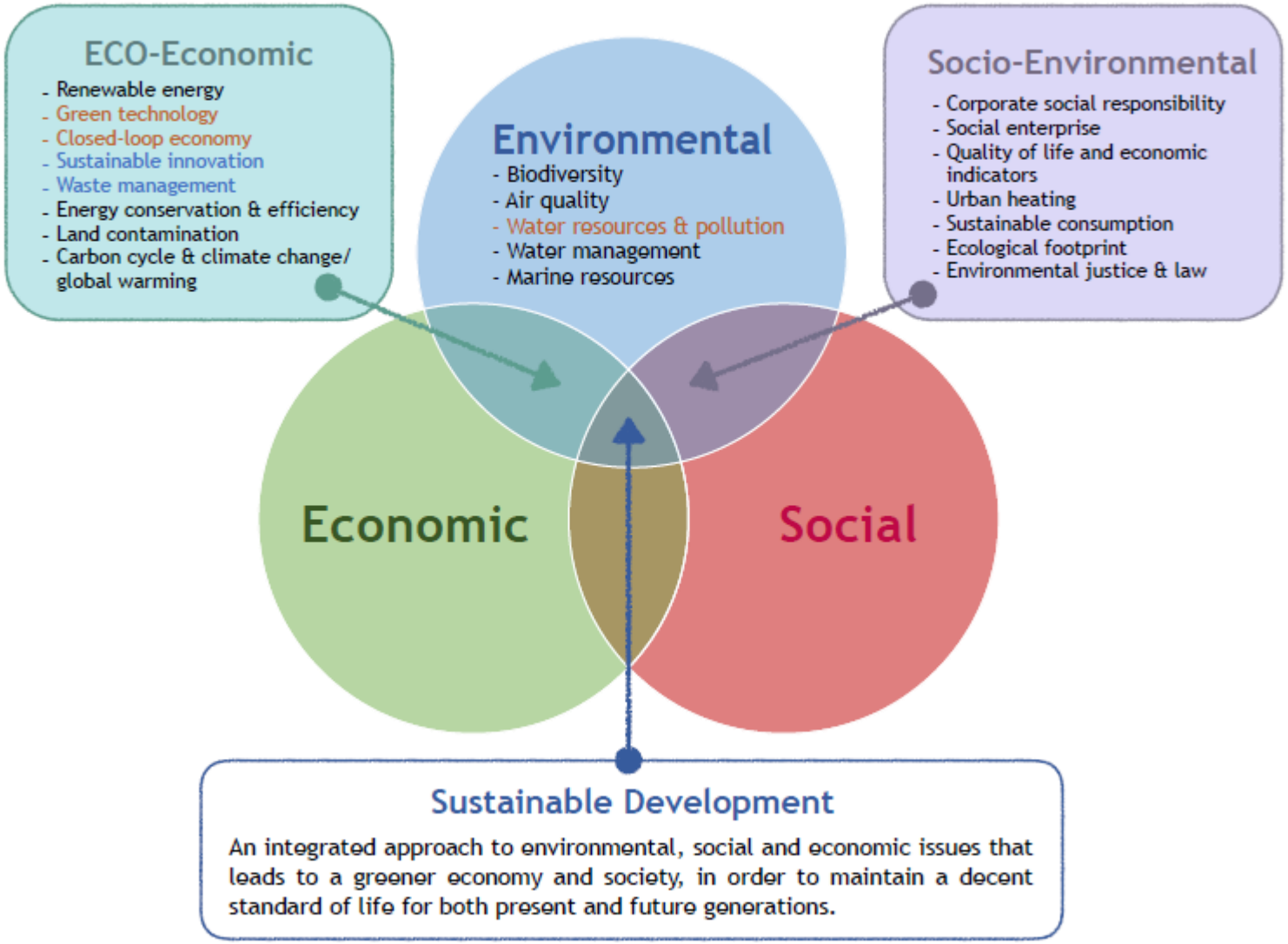
- Over the next 10 years, with these new Goals that universally apply to all, countries will mobilize efforts to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind.
- SDGs set out quantitative objectives across the social, economic, and environmental dimensions of sustainable development — all to be achieved by 2030.

SDG 4. Quality Education

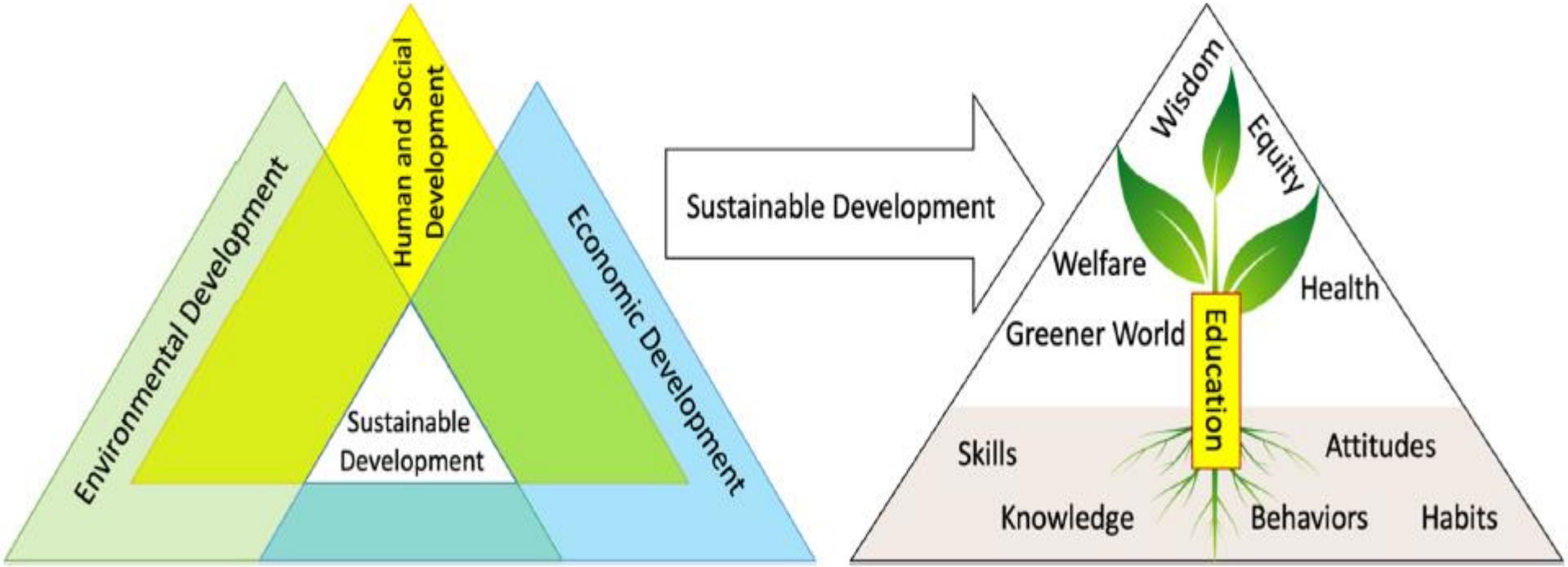
- Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- Target 4.3 Equal Access to Affordable Technical , Vocational and Higher Education
- Target 4.6 Universal Literacy and Numercy
- Target 4.7 Education for Sustainable Development

& Global Citizenship




ECO-Economic
- Renewable energy
- Green technology
- Closed-loop economy
- Sustainable innovation
- Waste management
- Energy conservation & efficiency
- Land contamination
- Carbon cycle & climate change/ global warming
Environmental
- Biodiversity
- Air quality
- Water resources & pollution
- Water management
- Marine resources
Socio-Environmental
- Corporate social responsibility
- Social enterprise
- Quality of life and economic indicators
- Urban heating
- Sustainable consumption
- Ecological footprint
- Environmental justice & law
Economic
Social
Sustainable Development
An integrated approach to environmental, social and economic issues that leads to a greener economy and society, in order to maintain a decent standard of life for both present and future generations.

Desired sustainable future approach
Link of Sustainability to Skills



TVET and SDGs

Target 4.4:

By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent work and entrepreneurship

Targets:

1. Better link TVET with the world of work
2. Develop high level cognitive and non-cognitive skills
3. Evaluate impacts and outcomes of TVET education policies and programs

Indicative Strategy:

1. Gather and use evidence about changing skills to guide skills development.
2. Engage social partners in designing and delivering education and training programs that are evidence-based and holistic.
3. Promote the development of different forms of work-based and classroom-based training and learning.
4. Ensure transparent and efficient TVET quality assurance systems & Raise the quality of TVET programs.

TVET classroom reality: Implications on developing the conceptual framework

1. Teaching Content

- Campus-based curriculum;
- Generate the learning content based on students' prior learning experience;
- Include local cases as teaching and learning materials.

2. Pedagogy

- Encourage **students' participation**;
- Facilitate the **connection** between identified sustainability issues and students' working/leaning experiences;
- Integrate **ESD learning processes** into the classroom practice;

3. Assessment

- Employ **formative assessment**;
- Develop a **learning portfolio**;
- Evaluate students' learning outcomes based on **a more systemic competence framework**.

Educational Shift Towards a 21st Century Skills Agenda(SDG 4.7)

- The shift concerns recognition of the need for education systems to equip learners with competencies such as problem-solving, collaboration, critical thinking, and communication;
- Any major reform in an educational philosophy shift must ensure alignment across the areas of curriculum, pedagogy, and assessment.

Framework for 21st Century Learning

- Core Subjects and 21st Century Themes
- Learning and Innovation Skills
- Information, Media and Technology Skills
- Life and Career Skills

A common framework for skills development to Meet Skills Needs

- ❑ Matching supply to current demand for skills:

- Requires linking employers with training providers - What is the Role of TVET?

- ❑ Helping workers and enterprises adjust to change;

- Upgrading existing skills to adapt and remain competitive,

- ❑ building and sustaining competencies for future labour market needs:

- Anticipating the skills that will be needed in the future – Who will under take this task?
- Better education and training fuels innovation, investment, technological change, economic diversification and competitiveness, and thus job growth.

The key competences for lifelong learning

(a) digital and technological;
(b) mathematics and science;
(c) competence development;
(d) communication and interaction;
(e) sustainable development;
(f) cultural;
(g) social and citizenship;
(h) entrepreneurial.

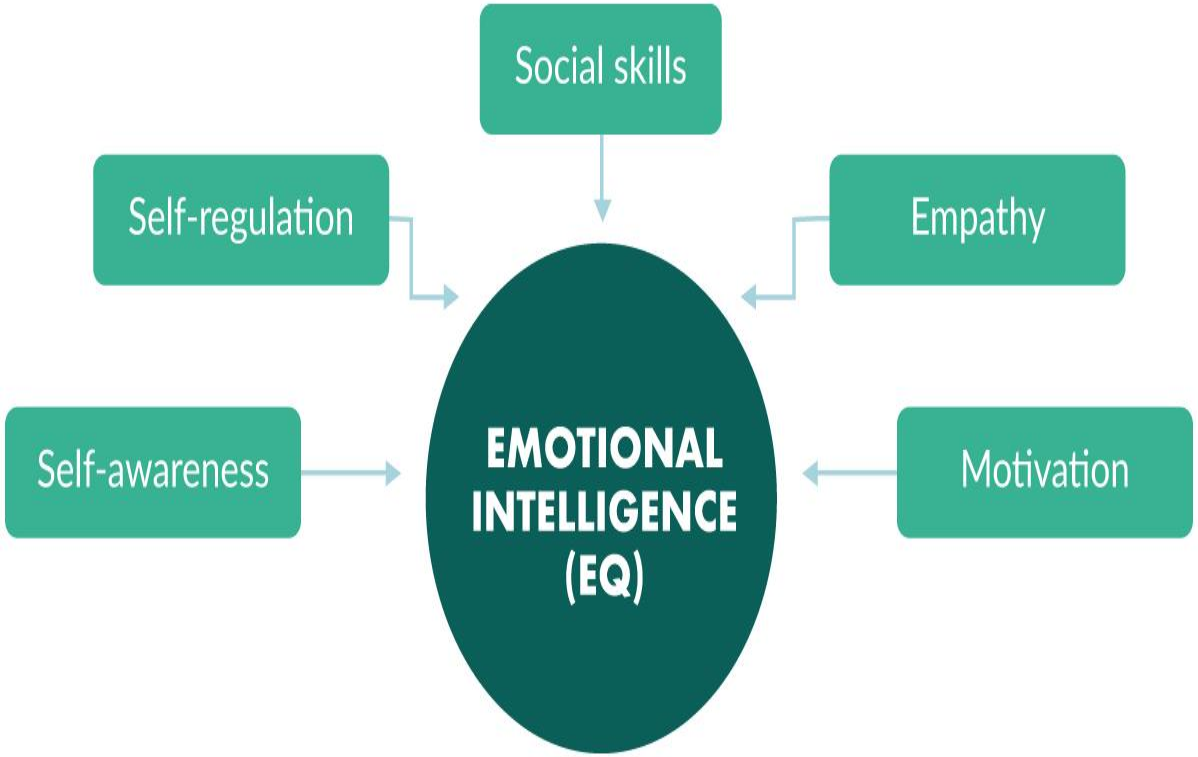
European Centre for the Development of Vocational Training (Cedefop), 2019

Skills and Competencies In The 'New' Workplace

https://www.youtube.com/watch?v=4JL8eI81RA8

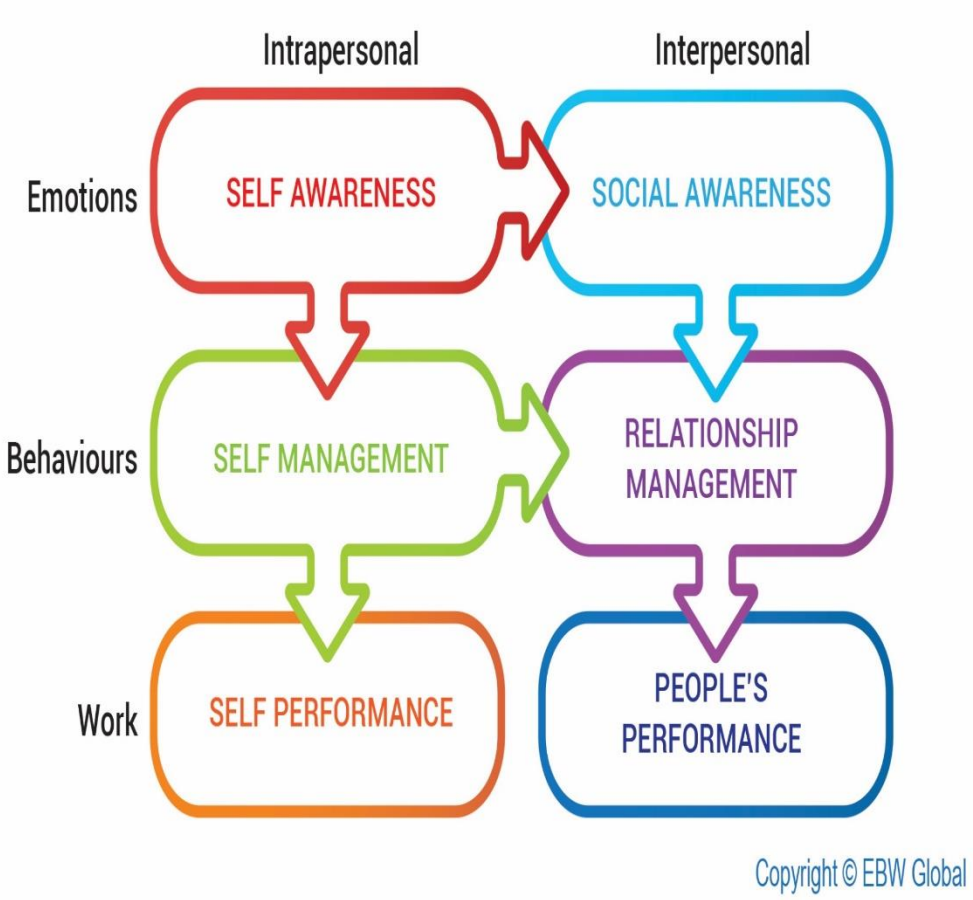
Emotional Intelligence

- The ability to manage your own and respond to other peoples' emotions
- The ability to control your own feelings, listen to other peoples' concerns, appreciate their emotions, be empathetic and honest,



Emotional Intelligence (EI OR EQ)

Refers to a person's ability to work productively with person-to-person emotions. Specifically, EQ defines a person's ability to perceive, manage, understand and reason with emotions.

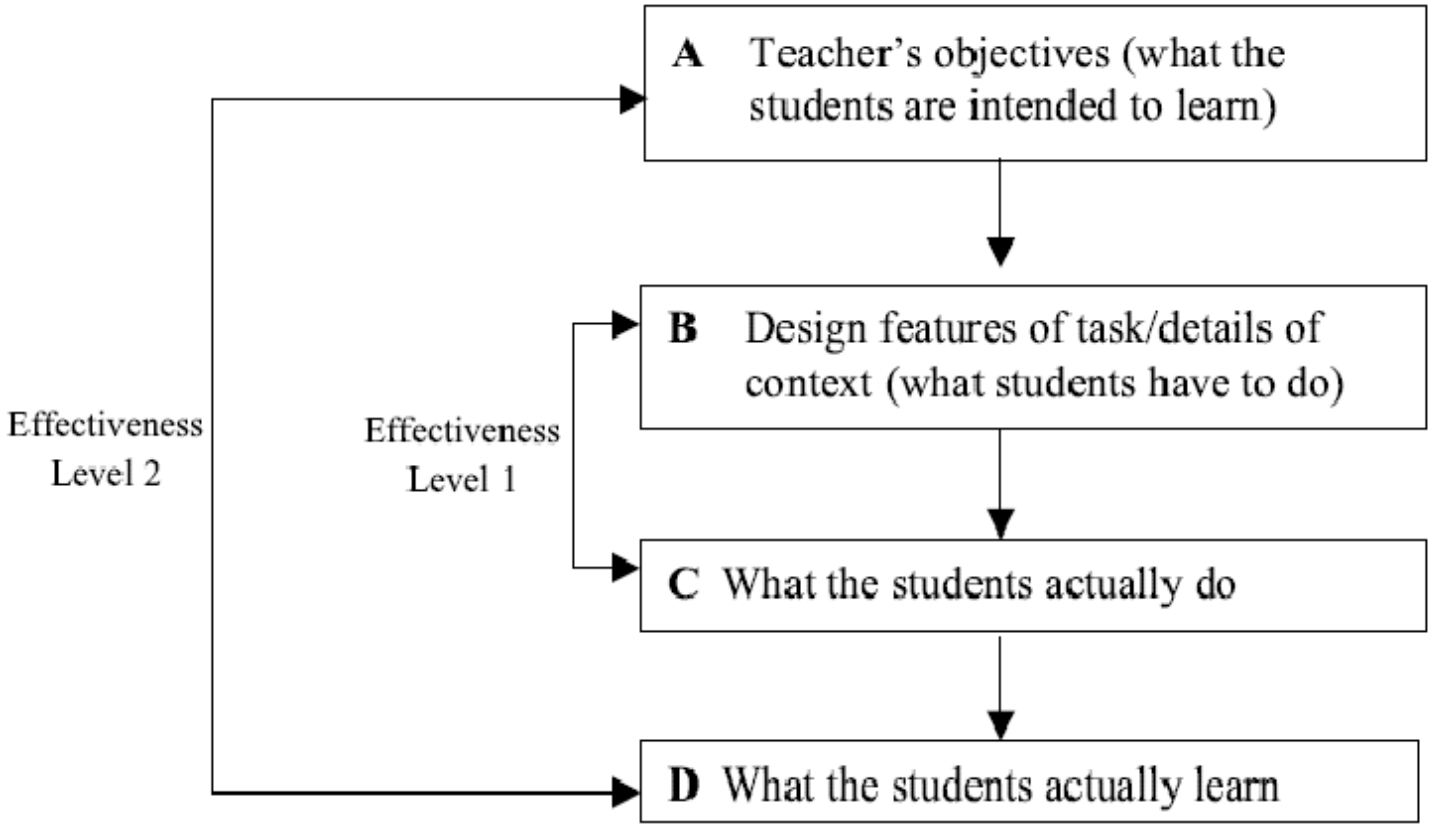


Strategy to implement Integration of 21st Century Skills into Curriculum

- Aim is to support in identifying a strategy for, teaching, learning and assessment of 21st century skills.
- The need to focus on supporting students to develop a broad set of competencies has been acknowledged globally and refers to the knowledge, skills, values and attitudes that are integral to life in the 21st century.
- Three Aims:

1. To identify best practices on the use of classroom-level teaching and assessment strategies of 21st century skills to support learning
2. To build capacity to understand, identify, and observe the skills at classroom level
3. To develop a strategic road map detailing how best the country can engage with 21st century skills initiatives

Model of the Process of Design and Evaluation of a Practical Task – Practical Class Activity



An Example activity

Green Technology on a School Campus

Generic green skills

Cognitive competencies:

- Innovation skills to identify opportunities and create new strategies to respond to green challenges
- Systems and risk analysis, skills to assess, interpret and understand both the need for change and the measures required

Interpersonal competencies: Communication and negotiation skills

Technological competencies: Management systems (waste, energy, water)

Learning objective

You will be able to

1. Identify green technologies used on campus
2. Identify issues that can be solved with the use of green technology
3. Suggest a green technology for any one of the identified issues

Format

Small group work

Resources needed

A3 paper, student worksheet, pens, colored pencils

Time required

2 hours

Assessment will be based on your completed worksheets and group oral report, which will focus on innovative ideas for using green technology/ies to solve a problem.

Summing UP

- Changes are needed because educational institutions are not sufficiently responsive to the needs of industry, There are both skill shortages and skill Gaps in the core needed 21st century skills
- Educational institutions focus on inputs and are supply driven, they offer what they think is important and not what is important to employers,
- Improving skills utilization requires skills to be considered from the demand-side perspective because the traditional (supply-driven) skills policy is limited in terms of its ability to link skills to business operations
- There is a need to review and map the contents of curricula of TVET Institutions with full involvement of enterprise employers to accommodate for the emerging 21st century skills with a focus on a balanced curriculum that combine social soft skills, technological and professional (know-how).

Concluding Remarks

- Multiple impacts on curriculum - different ways to address
- 21st century skills is one possible solution
- 21st century skills are important for educational programs Graduates do not display these competences at the required level
- Need to design student-centered curriculum that is problem-oriented and project based
- Use SDGs concepts as a context for 21st century skills development
- Design resources that are easy to use for teachers & instructors, and are engaging for students

Thank You

Q &A