Towards New Technical Education

Technical Education 2.0 (TE 2.0)

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Article 20 of The Egyptian Constitution 2014

- The State shall encourage and develop technical and technological education as well as vocational training and expand all their types in accordance with international quality standards and in compliance with labor market needs.

Numbers of students for each sector in MOETE schools in 2017-2018

Industrial Education	Commercial Education	Agriculture Education	Tourism Education
48%	37%	11%	3%
0.91M	0.7M	0.21M	0.06M

Total : 1.9 M students

Numbers of schools and affiliated class in MOETE 2017-2018

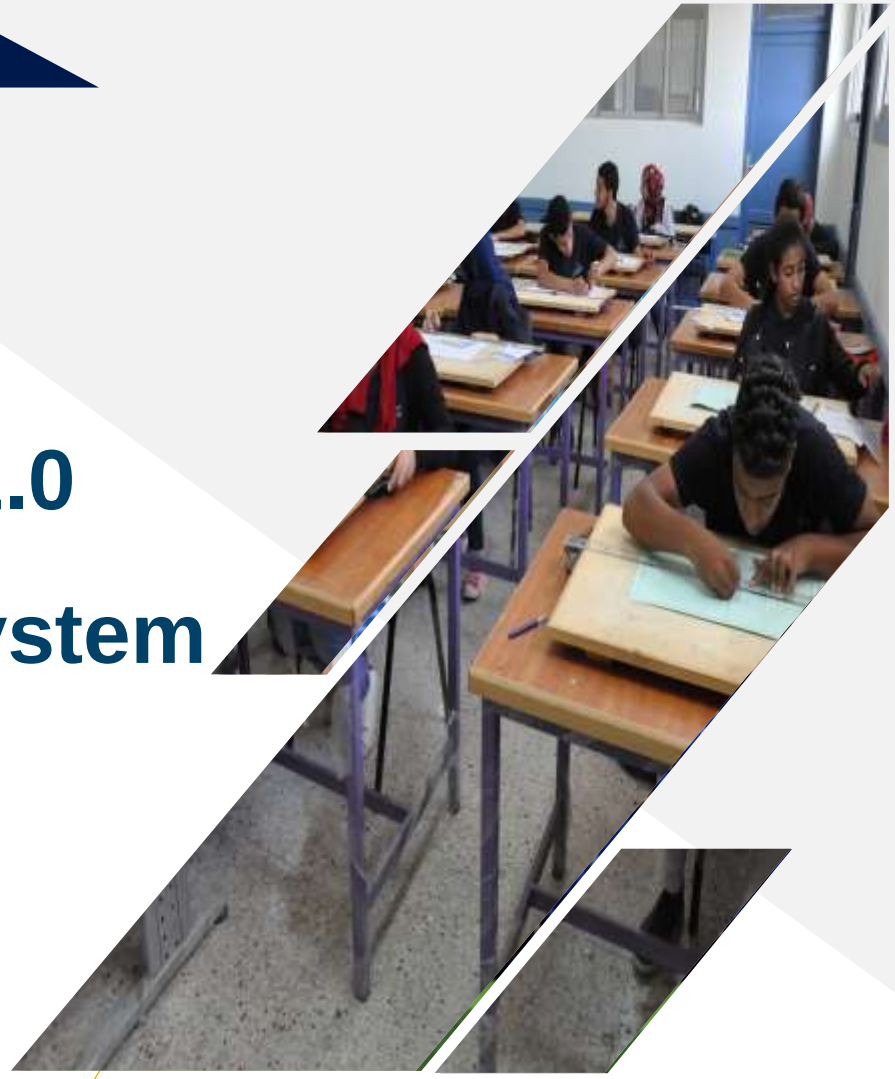
Industrial Education	Commercial Education	Agriculture Education	Tourism Education
52%	33%	10 %	5%
1321	835	244	117

Schools : 1300

Affiliated class : 1200

Technical Education 2.0

Transformation of The System



Background

Technical Education's vision for the transformation to TE 2.0 has been developed through a collaborative and participatory process that included analysis of the present situation, research, first-hand exposure to international best practice as well as actual implementation of some pilot projects. In addition, the process involved consultation with development partners operating in Egypt such as the TVET-Egypt program funded by the EU and the Egyptian Government and the EU, the GIZ programs in development of the Dual System and enhancement of employment, and the WISE program funded by the US aid. The transformation process is lead by MoETE.

TE Vision

A Technical Education system with international standards that addresses labour market demand for a skilled workforce.

Principles of the Transformation

- Transformation .vs. Reform
- Learner-centred TE
- According to National Development Plans
- Employer Engagement
- International Standards of quality
- Inclusiveness and Attractiveness
- Comprehensive Transformation
- Coordinated Egypt-led Transformation

Pillars of Transformation

T1- Transformed Quality of Technical Education

T2- Transformed Relevance of Technical Education by Transferring to Competency-based Curricula (CBC)

T3- Transformed Teachers through Training and Qualification

T4- Transformed Schools through Employer Engagement and Work-based Learning (WBL)

T5- Transformed Image of Technical Education through Changing Social Perception

Technical Education 2.0

Pillars of Transformation

Guiding Principles:

- Transformation Vs. Reform
- Learner-centered
- Employer Engagement
- According to National Development Plans
- International Standards of quality
- Inclusiveness and Attractiveness
- Comprehensive Transformation
- Coordinated Egypt-led Transformation

T1- Transformed Quality of Technical Education

- Establishment of CUQAAS capacity building for CUQAAS staff
- Sustainability strategy for CUQAAS
- Gap analysis
- Internal restructuring of the TE sector,
- Digital Solutions
- dynamic database/system of MoETE resources
- Develop new admission system for students of TE
- Quality control and assurance system within MoE
- monitoring and evaluation system
- Competitions for best students, teachers and schools
- Creation and continuous development of a pool of internal verifiers and assessors
- model of the TE best practices School
- Improve internal school processes structured PPP
- Accreditation of most schools and programmes by ETQAAN-Authority by 2030.

T2-Transformed Relevance of Technical Education by Transitioning to Competency-based Curricula

- Transfer to CBE
- Review exiting specializations in all sectors
- Review and development of Commercial technical education
- Introduce new programmes in all sectors
- Integration of career guidance, entrepreneurship & innovation in all new curricula
- Integration of soft skills, citizenship and languages in the curricula
- inclusion
- More synergies with general education
- Digitalization of material and content
- Train curricula developers
- Train teachers on CBE
- Train assessors on CBE
- Validate new curricula with private sector
- Review Programme names
- Conduct tracer studies

T3-Transformed Teachers through Training & Qualification

- Establishment of TVETA
- Recruitment and capacity building for TVETA staff
- Train technical teachers and trainers (10% in 2019)
- Capacity building and accreditation of Master trainers on technical skills
- Competency-based training and awareness
- Qualification system for teachers
- Language training and education for teachers and managers
- Training of assessors and internal verifiers
- Develop a TVET research unit within TVETA
- Twinning agreement for TVETA
- Set initial education standards for technical teachers and instructors training and qualification standards for in-company tutors and instructors

T4-Transformed Schools through Employer Engagement & Work-based learning

- Expanding Applied Technology Schools partnership with large enterprises based on Egypt's economic development priorities and investment map
- Expanding Dual system education to 10%
- Integrate best practices quality concepts
- Graduate accredited schools into the concept of Centers of Excellence as a knowledge hub for other schools
- Establish 2 Sector-specific Centers of Excellence as lighthouses in the priority sectors and governorates
- Transfer of Duel System curricula into competency-based
- Support the implementation of internship/apprenticeship programmes
- Transition to Employment. Includes entrepreneurship and CG services on TVET institution level
- Systematic integration of the private sector into the system of technical education
- Review the operations of the productive schools'

T5- Transformed Image of Technical Education

- Raising the profile of Technical Education by developing and disseminating modern and attractive branding for TE.
- Including TE in the 2019 Year of Education
- Providing information and prompting all reform initiatives and their impact
- Developing and disseminating TE success stories
- Engaging all stakeholders in the process especially the private sector
- Launching the TE portal and social platform
- Uniforms and identity of students
- Promoting and covering quality competitions

T1- Transformed Quality of TE

- Establishment of the Central Unit for QA and Accreditation Support (CEQAT). The first step is to conduct gap analysis of all TE Schools.
- Internal restructuring of the TE sector, HR policies, review current legislation and propose new ones etc.
- Digital Solutions: Online database and communication portal/ Quality M&E software, Develop and launch a dynamic database/system of MoETE resources (Schools, equipmer teachers, experts).
- Establish a monitoring and evaluation system.
- Establishing a new independent Authority for QA & Accreditation of TVET Programs (ETQA Currently, the draft law is in the cabinet waiting for submission to parliament.

T2-Transformed Relevance of TE by Transforming Curricula to Competency-based Curricula (CBC)

- Transform all program curricula into competency-based (CBC) making Egyptian graduates more competitive locally, regionally and internationally.
- Review exiting specializations for relevance to labor market needs.
- Review and development of Commercial technical education and introducing specializations that address future jobs.
- Introduce new programs in all sectors including Green jobs, industry 4.0, Technology+ Agriculture.
- Train curricula developers, Train teachers on CBC, Train assessors on CBC.

T3-Transformed Teachers Through Training and Qualification

- Establishment of the Technical & Vocational Education Teachers Academy (TVETA).
- Train technical teachers and trainers .
- Capacity building and accreditation of Master trainers on technical skills.
- Competency-based training and awareness.
- Qualification system for teachers.
- Language training and education for teachers and managers.
- Training of assessors and internal verifiers.
- Develop a TVET research unit within TVETA.
- Set initial education standards for technical teachers and instructors training and qualification standards for in-company tutors and instructors.

T4-Transformed Schools through Employer Engagement and Work-based Learning

- Expand the Duel system education to 10% of the number of technical education students by 2030 in partnership with Investors Associations.
- Expand Applied Technology Schools to 100 by 2030 in partnership with large enterprises based on Egypt’s economic development priorities and investment map.
- Transfer of Duel System curricula into competency-based.
- Support the implementation of internship/apprenticeship programs.
- Systematic integration of the private sector into TE system.
- Review the operations of the productive school concept.

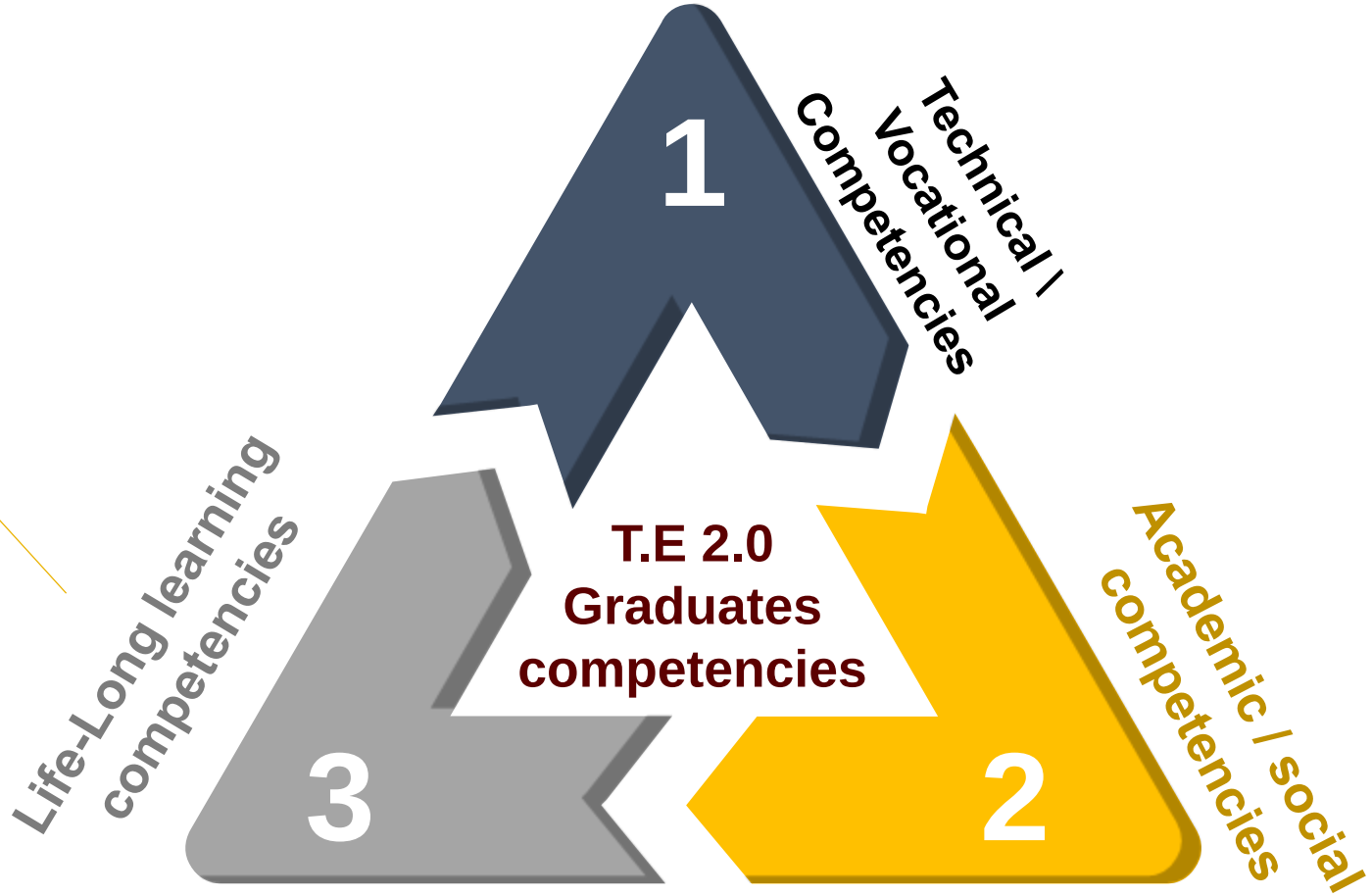
T4-Transformed Schools Through Employer Engagement and Work-based Learning- Continued

- Establish 27 Sector-specific Centers of Excellence as lighthouses in the priority sectors and governorates.
- Link the CoE with regional branches for TVETA.
- Piloting CoE with various international partners (Germany, China Luban workshops, USAID etc.)
- CoE becoming the innovation Hubs for TE development at the regional level in terms of research, ToT, and student-centered education.
- Plan for infrastructure repair, upgrading or replacements.
- Provision of enhanced equipment to match the newly designed curricula.

T5-Transformed Image of TE through Changing Social Perception

- Raising the profile of Technical Education by developing and disseminating modern
  and attractive branding for TE.
- Including TE in the 2019 Year of Education
- Providing information and prompting all reform initiatives and their impact
- Developing and disseminating TE success stories
- Engaging all stakeholders in the process especially the private sector
- Launching the TE portal and social platform
- Uniforms and identity of students
- Increased participation in regional and international skills competitions

Competencies of Technical Education Graduates in TE 2.0



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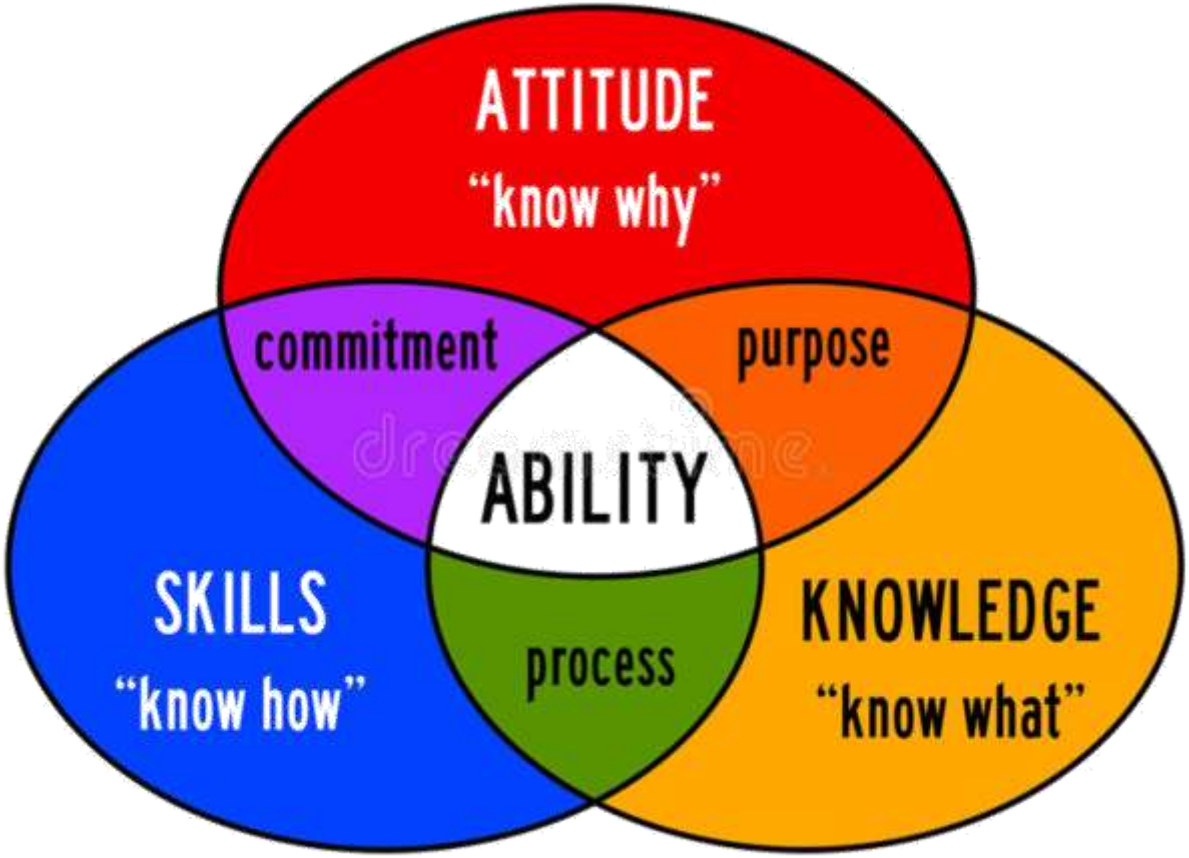
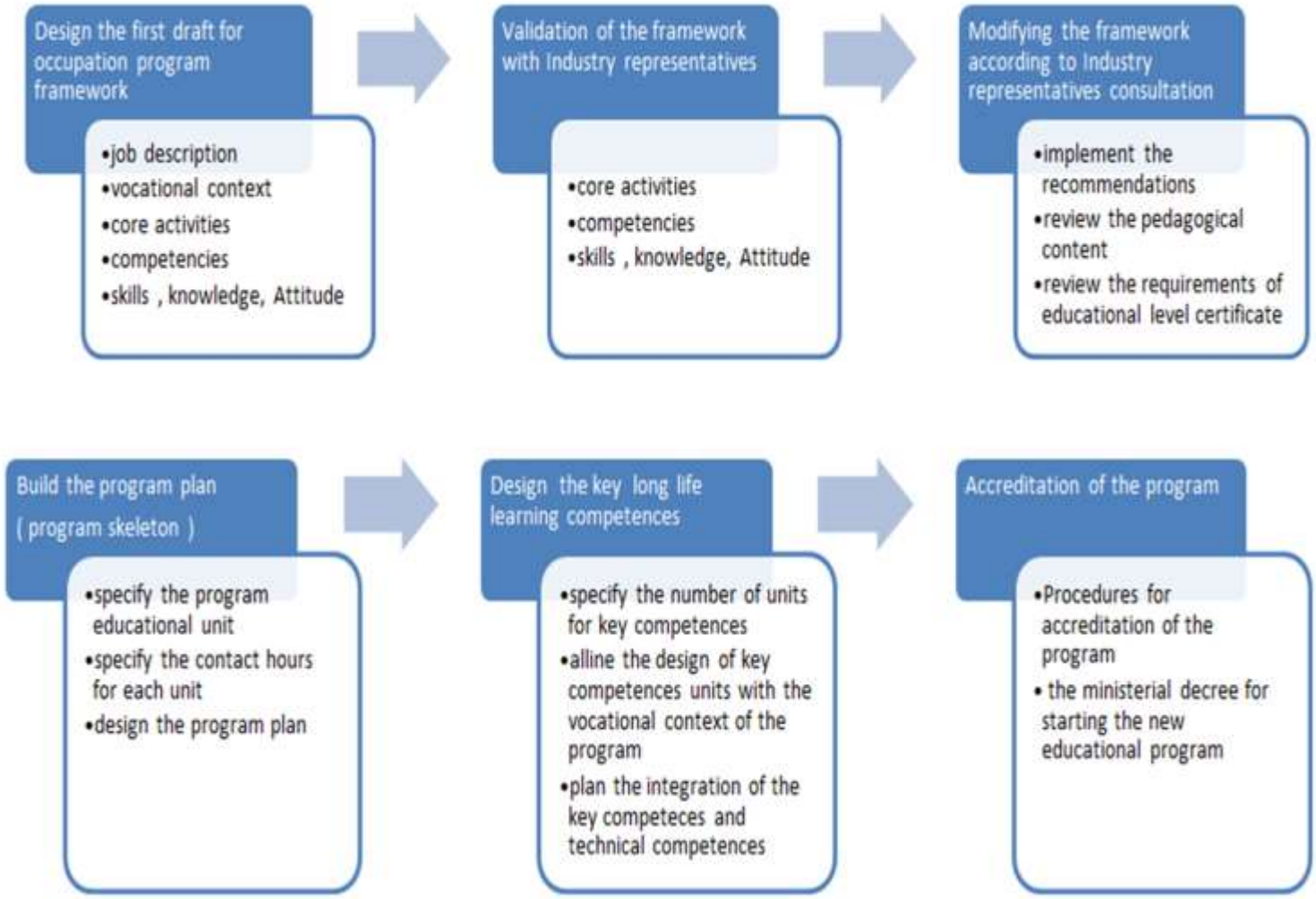


Programs Already delivered in CBC Format

- Renewable energy program in cooperation with USAID-WISE
- Logistics program in cooperation with USAID-WISE
- Ready Made Garments program with TVET-Egypt
- Electric Installation program with TVET-Egypt
- Wooden Furniture Carpentry by Technical education cluster
- Applied Technology Schools Programs
- Mechanical Maintenance dual education program with GIZ and SIEMENS
- Electrical Maintenance dual education program with GIZ and SIEMENS

Design Methodology of Competency-Based-Curricula



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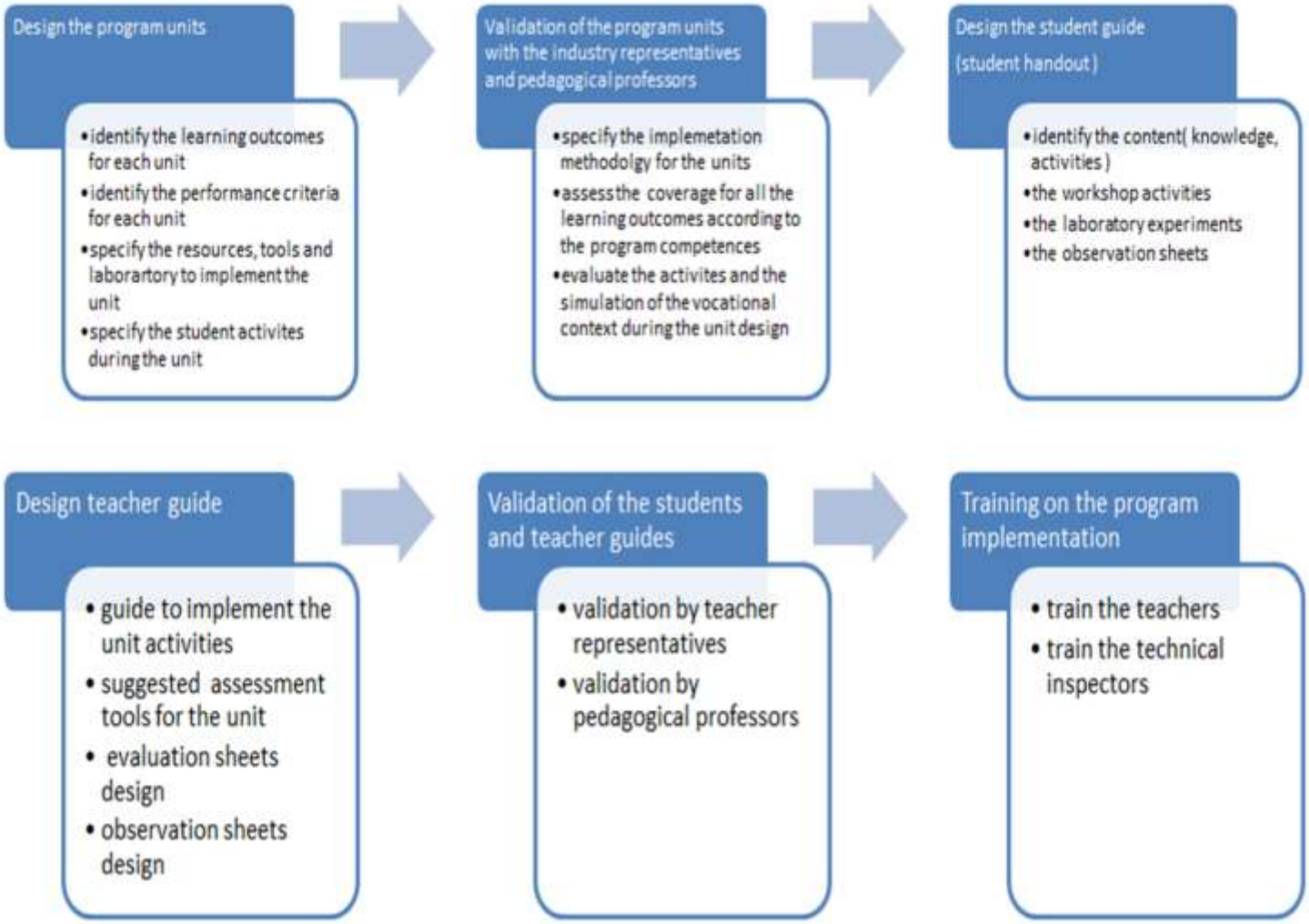

CBC Programs: Current Achievements

Industrial Programs (13 program)	
Ready Made Garments Operator	Units of First year validated
Electrical Installation Tech.	
Automotive Mechanics Tech.	In Consultation with Industry representatives
Reinforced Concrete Tech.	
Sanitation and Water Pipelines Tech.	
Metal Machining Tech.	
Painting and Decoration Tech.	
Electronic Devices Tech.	
Textiles Printing Tech.	
Furniture Carpentry Tech.	
Refrigeration and Air Conditioning Tech.	
Welding Tech.	
Industrial Control Tech.	

CBC Programs: Current Achievements

Agriculture Programs (9 programs)	
Land Reclamation and Agricultural Mechanization Agent	Curriculum framework validated Unit writing start (6 Jul. 2019)
Fishery Operator	
Laboratory Operator	
Field Crops Production Agent	
Horticultural Operator	
Animal, Poultry & Veterinary Health Operator (Incl. Animal Waste & Biogas Management)	
Food Industries	
Dates Production	
Rain Water Cultivation	

CBC Programs: Current Achievements

Commercial Programs (5 programs)	
Bookkeeper	Curriculum framework validated Unit writing is underway
Seller: Wholesaler and Retailer	
Insurance agent	
Secretary	
Legal Assistant	Consultation with Industry representatives

CBC Programs: Current Achievements

Tourism Programs (6 programs)	
Cooker/ Chef	Units of First Year validated
Waiter	
House Keeping Room Attendant	
Front Office Agent	Curriculum framework validated
Barista / Bar Attendant	
Guest Relation Agent	

CBC: Basic Principles of Student Assessment

- Evidence Based Assessment
- Student Portfolio
- Summative and Formative Assessment
- Final program competence assessment
- (Competent or not yet competent) assessment results
- Competence Assessment committees include MOETE and industry representatives

Education System Development in Cooperation with GIZ

- Develop the occupation programs accordance to the competence based curriculum
- Develop a quality criteria for the training institution with the investors association
- Develop a quality criteria for the trainers in the training institution
- Have a new insurance system for the students
- Start a new occupation programs to match the new industry revolution

التكنولوجيا التطبيقية

APPLIED TECHNOLOGY

وزارة التربية والتعليم والتعليم الفني

Introduction of Applied Technology Schools

- Establish partnership between MoETE, Industrial Partner and QA agency
- MoETE provides the curriculum according to competencies identified by the industrial partner
- MoETE selects and train teachers, provide school venue and lab equipment in cooperation with the industrial partner
- QA agency monitors the quality of the educational and training process
- Industrial Partner provides venue for WBL in an industrial environment
- Industrial partner provide incentives to teachers based on performance
- Students receives pocket money during traing in addition to other benefits and have priority in employment by the industrial partner after graduation

Applied Technology Schools Brand and Vision

- AT Schools are a new type of technical schools that provides an enhanced Dual System of TE. Its system of education has benefited from the experiences gained from the education programs adopted in the integrated technical education clusters (ITECs) that has stemmed from the 3+2+2 model

- Applied Technology Schools depends on its operation on a new system of qualification that is in accordance with the best QA practices

Characteristics of Applied Technology Schools

- Competency based curricula that is built on the bases of labor market needs.
- Active School Management instead of the current traditional management.
- Training of Student in the facilities of the industrial partner.
- Grants Vocational qualification in addition to Applied Technology School Diploma.
- Enhanced student assessment methodology in which industrial experts participate.
- Monitoring and Evaluation of Teachers Performance.
- A total of 1200 hours of student guided learning hours per year.

Student Assessment

- Continuous student assessment to ensure that they have acquired the planned competencies
- Examinations are administered by committee composed from both industry and teaching staff
- Final diploma examination includes a practical exam involving discussion of a project or activity that the student has made in order to enable assessment of the whole competencies that the student has acquired during the three years of study

Partnership with Private Section Education and Training

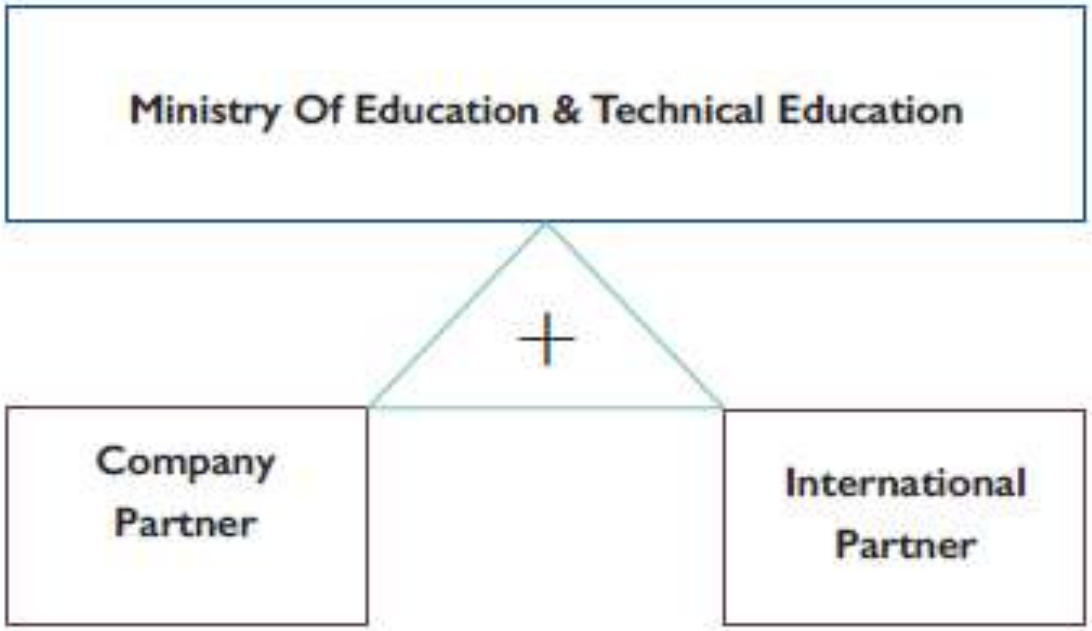

Figure 1 – PPP School Structure

Partnership with Private Section Education and Training

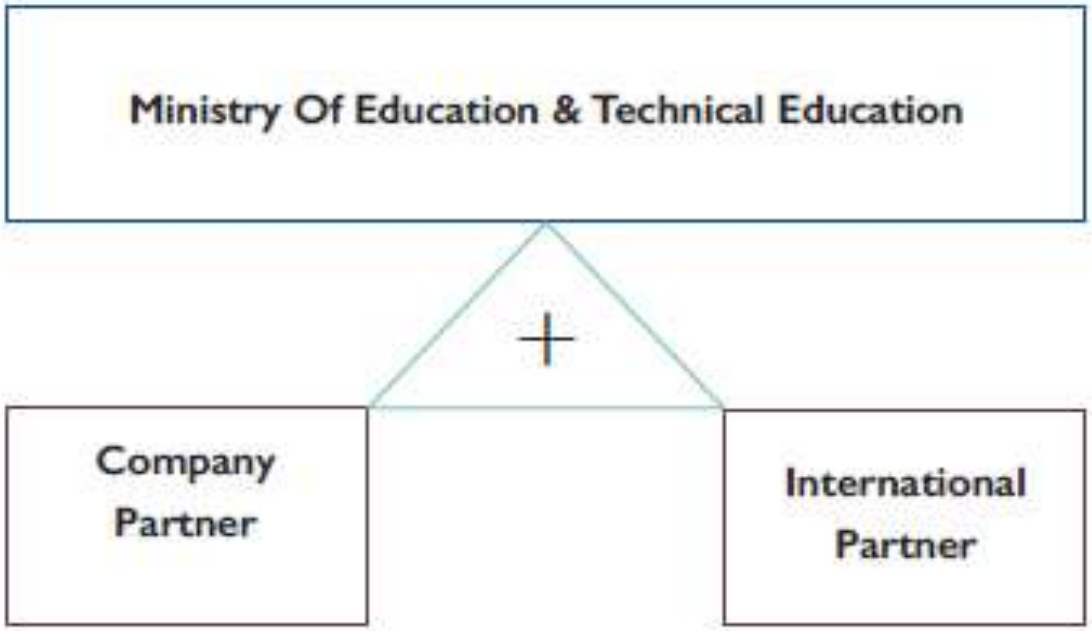

Figure 1 – PPP School Structure

Schools

مدرسة
العربي
الثانوية
للتكنولوجيا
التطبيقية

مدرسة العربي الثانوية
للتكنولوجيا التطبيقية

مدرسة التكنولوجيا
التطبيقية للميكاترونيات

Students

Students