



Combating COVID-19 Consequences: Egypt's Response in the Technical and Vocational Education and Training (TVET) Sector



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Abstract

This report describes Egypt's Ministry of Education and Technical Education (MoETE) response to the consequences of the COVID-19 pandemic on delivery and assessment of technical education. The report first looks at the context of technical education in Egypt in terms of size, special nature when compared to general/basic education and the diversity of the offerings. Then, the report explores a few balancing acts in terms of the provision of TVET learning within a distance learning context, the fairness and feasibility of conducting assessment schemes, and the future outlook of technical education reform and how this crisis has impacted on this and what are the lessons learnt for building foundations for tomorrow's strong and resilient VET system in Egypt.

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Introduction and Background

The entire world is fighting the COVID-19 global health pandemic, and its short, medium and long-term economic, social and emotional consequences. The pandemic has shown us that most countries were not prepared when the crises hit. However, it is those countries that reacted quickly and effectively to reduce the impact of the crisis who will have a good story to tell and will be most prepared for the next crisis. It has also shown us that postponing bold and unorthodox decisions can have huge costs. The world was not prepared for the Covid-19 health crisis, and it was even less prepared to react to the effect on the education system in general and the technical and vocational education sector in particular.

With limited exceptions, schools all around the world have been suspended, affecting almost 1.6 billion learners (over 90% of total enrolled learners) from pre-primary to tertiary education, including Vocational Education and Training (VET)¹. If we consider adult learners in training primarily or partially, the number is even higher². Many countries have quickly created or adapted digital platforms to replace school-based learning, to varying degrees of success. However, vocational education and training including work-based learning programmes (WBL), dual education and apprenticeships are often much more difficult to provide and assess. This is due to the practical, hands-on nature of this education system that more often than not need equipment, tools and workshops that are not available in home-confined distance learning. Other factors also include: (i) the immediate disruption of provision caused by confinement and social distancing guidelines and regulations; and (ii) the fact that employers have historically tended to cut back on apprenticeship training during economic recessions³.

In general education, Egypt has been relatively forward-thinking when it introduced its Education Reform Strategy 2.0 in 2018 with many features of curricula transformation, digitalization including the investment in devices like tablets for secondary school students. Also the launch of the Egyptian Knowledge Bank as one of the World's largest online resource platform available free of charge for all Egyptians including the 22 million pre-university students. Reforms also included on-line exams for secondary school students which have been developed and tested before the COVID-19 crisis and will continue during and after the crisis, the appointment of dedicated Deputy Minister of Education and Technical Education for ICT and Digitization at the end of 2019 reflecting the Ministry's vision for the long-term need for digital transformation and blended learning.

The first cases of corona infections were announced in Egypt in early February 2020. When schools closed on March 15th 2020, Egypt's general education system was relatively prepared and quick to act. A couple of weeks after the schools closed the Ministry of Education and Technical Education (MoETE) launched the Edmodo learning management platform, where teachers can upload content and have virtual classes with their students. A few days after the launch of the platform, more than 10 million students, teachers and parents were registered on the platform and were active in the learning process. Technical education also benefited from the electronic infrastructure built by the ministry.

¹ Number as of 23 April 2020 (UNESCO, 2020).

² OECD, 6 May, 2020

³ OECD, 6 May, 2020

This report looks at Egypt's response to COVID-19 in the TVET sector and in particular in technical education that is administrated by the Ministry of Education and Technical Education. We first look at the context of technical education, then we explore a few balancing acts in terms of the provision of learning, its assessment schemes and the future outlook of technical education reform and how this crisis has impacted on this and what are the lessons learnt for building foundations for tomorrow's strong and resilient VET system.

The Technical and Vocational Education and Training Context in Brief

At present, the most important features that characterize the Egyptian TVET system are its extreme complexity, diversity and what could sometimes be seen as fragmentation due to the number of public providers involved. However, there are a few providers that offer formal TVET programmes, and the largest of these is the Ministry of Education and Technical Education (MoETE). The system is mainly composed of a number of formal Initial Vocational Education and Training (IVET) and a much less influencing Continuing Vocational and Training (CVT) programmes. The IVET include a number of programmes governed by a few stakeholders, at pre-university and post-secondary level and more recently also including university level through the new Technological Universities that started in the academic year 2019/20. This includes Technical Secondary Schools TSS (those administered by the MoETE, and others administered by ministries with functional responsibilities such as the Ministry of Health as an example), Vocational Education (administered by the Ministry of Trade and Industry MoTI), and Technical Colleges (administered by the Ministry of Higher Education MoHE), Integrated Technical Education Clusters (administered by the Education Development Fund EDF), vocational training centers (administered by Ministry of Manpower, MoM and Ministry of Housing as examples)⁴.

By absorbing more than 52%⁵ of young people at the secondary level (grades 10, 11 and 12), the technical secondary education pathway and its industrial (about 50 % of TE students), commercial (35% of students), agricultural (13% of students) and hospitality (2% of students) represents the larger part of the Egyptian education system at this level. MoETE administrates around 2,500⁶ Secondary Schools (TSSs) with the number of enrolled students approaching 2 million in both 3-year technical diploma or 5-year advanced technical diploma tracks. The number of teachers is more than 140,000 teachers. Most TVET graduates are directly obliged to enter the labour market. About 25% of annual graduates get enough marks to secure a place at Universities. However, less percentage actually manage to continue their higher education until they get a Bachelor degree.

Social Distancing Vs. Distance Learning

Like most governments around the world, Egypt had to balance between the priority of keeping its citizens and specially students safe from this invisible and deadly virus through social distancing and school closure and the need to continue the learning process for the rest of the academic year. Therefore, all types of education including TVET and work-based learning was suspended on March 15th 2020 until the end of the academic year and replaced with distance and on-line learning.

⁴ Torino Process Report-Egypt (2018-20), ETF, May 2020.

⁵ EEDS Planning Workshop (GiZ), 2019

⁶ This number includes 1300 technical schools and 1200 technical classes in non-technical schools.

While it might be more suitable for general education, depending entirely on home confined distance and on-line learning, it is not the ideal solution for TVET. The challenges facing TVET students with e-learning as the only method is that (i) it lacks the practical hands-on learning required by students to practice their skills and improve their competence with the real tools and equipment in the right setting, (ii) most TVET students come from low-income families who may find internet access relatively costly or live in areas where internet connectivity is weak as well as the fact that some families may not be able to afford IT devices to access on-line learning⁷.

With these challenges in mind and with the MoETE already inside the crisis, the following measures were immediately implemented to respond to this learning dilemma:

- A task force of the Ministry's technical education decision makers was formed to develop the immediate plan for continuing the learning and ensuring continuous communication between teachers and students as well as decide upon the process of assessment to be implemented.
- Since Egypt did not impose a full lockdown of the economy and public services and although schools were officially closed for students, teachers had access to the schools. While at school, teacher peer-to-peer learning and support took place to record theoretical and practical teaching videos as well as hosting on-line virtual classes with students. This happened immediately after the schools closed.
- The following means to address home-confined distance and on-line learning were immediately either established or activated and each tool was supervised by a team of experienced Technical Education teachers:
 - **YouTube Channels:** teachers, schools and local education authorities soon started establishing dedicated TE channels, on which videos and lectures were uploaded. The Central Technical Education Sector also established its own YouTube Channel as an additional resource for teachers which contains more than 600 videos from all other channels in most specializations.
(<https://www.youtube.com/channel/UC0ICJfzsyx7M29DPpFXFx2Q>)
 - **Nile Sat TV Channel:** for students with limited internet or IT device access, a dedicated TE TV channel was launched. This included, live programmes on TV for 2-3 hours daily entitled "Teacher at Your Home" and "Technical School on Air" in which top teachers provide lessons/classes. Students can call or send messages to teachers during the programme.
 - **Daily Newspapers:** another tool that serves students with limited internet or IT devices access is the use of daily news papers. The MoETE coordinated with two major daily Newspapers (الاحبار – الاهرام المسائي) to publish revisions of various courses for Senior Diploma Students. Material is published on both the hard and electronic copies of the newspaper. This

⁷ According to OECD, to access digital learning, however, students need access to a home computer or digital device. Not all students have such access, especially those from disadvantaged schools or backgrounds, and in many homes devices may need to be shared among parents and siblings. This could widen already existing learning gaps among students, with the most disadvantaged at greatest risk of falling behind.

type of service was highly welcomed by students as such means were focusing only on General Education students in the past.

- **Technical Education Platform/Website:** The portal contains sections for the four disciplines of TE: Industrial, Commercial, Agricultural and Tourism <http://www.fanyeduc.yoo7.com/>. Teachers can upload their material in various formats, e.g Word, PDF, Videos and students can comment and publish their own material too. Since the crisis began, more than 600,000 students have visited the site.
- **Learning Management Portal (Edmodo):** This portal was launched as the official learning management system of the MoETE only two weeks after schools closed. Edmodo is an educational technology company offering a communication, collaboration, and coaching platform to K-12 schools and teachers. MOETE has the official right to use it in all its 55000 schools for both general and technical education. Students, teachers and parents can readily obtain their access codes for Edmodo from MoETE website using their national IDs. The portal facilitates virtual classes that help teachers upload all types of materials, communicate with students and design quizzes and assignments. Although Edmodo is the official platform used by the Ministry, teachers and students at some schools preferred to use other types of portals such as: Google Classroom and Discord. Virtual meetings via Zoom, MS team, WebEX were used to train the teachers on use of Edmodo portal to create virtual classes. More than 1000 teachers were trained during the first phase, from which, 150 trained teachers were identified to become Master Trainers for other teachers in the various Governorates in a cascading process to train all technical education teachers. A user manual for Edmodo portal was also published. The MoETE also collaborated with Care International and Microsoft to train teachers to produce on-line content for students.
- The above-mentioned tools have been positively received by students who found many different means that suited them, including mobile phones and WhatsApp application,.....etc, to ensure continuous communication with teachers. Some students have also interacted with teachers by sending their own videos and presentations. The overall impression is that the MoETE has handled the situation in a positive and comprehensive way. GiZ also provided short-term expertise to the Ministry to manage communication and media advice in these challenging times.
- Some of the applied technology schools managed to keep track of the performance and behavioral aspects of their students during their remote learning. This included student on-line attendance and certain behavioral aspects, which was later assessed to see its consistency with what is usually expected from each student.
- Private sector engagement in the process has also been quite positive. In 2018, The MoETE has developed a new brand of Public Private Partnership schools

called Applied Technology Schools (ATS)⁸. The private sector partners in these schools have worked with teachers and schools during the crisis to plan effectively, training teachers, providing content and expertise and contributing to the student assessment process. For example, one of the partners, IBM provided coaching for teachers, organized virtual classes for students including prominent guest speakers from the company and trained the teachers and students on the various communication tools.

Fairness Vs. Feasibility in Assessments

Another challenge which faces technical education is to balance between the feasibility of conducting assessments that reduces the risk of students contracting the virus and the fairness and credibility of assessing their real skills and competence. In this context, we must also remember the size and number of students within the technical education system, almost 2 million students in all levels and categories. Unlike many other countries, and contrary to the advice of some of the international development partners active in Egypt MoETE did not use the system of predicting students' grades. the Ministry decided to adapt a combination of assessment tools as most teachers are not used to or trained on the prediction system which may have resulted in many issues resulting from accuracy, fairness and the large number of potential appeals/complaints from parents. To resolve this, the MoETE decided to adapt two different tracks for the assessments, the first is for the students transitioning to the next year and they represent two thirds of the total number of students. The second track are for final year students (Grade-12 in the 3-year school system and Grade-14 in the 5-year school system). The following describe the two adapted tracks:

- **Students of transitional years:** there will be no summative assessment this year. Assessments will be based on three elements:
 1. The first is student results obtained in the first semester which was completed before the suspension of schools in 15th March 2020.
 2. The second is the student submission of Applied Research Assignment, that were announced in mid-April, submitted for evaluation in early June. Details of Applied Research topics are given below.
 3. The third element of the assessment will include students returning to school next September, 3 weeks earlier than normal to conduct practical assessments for all technical fields.

About 1600 Applied Research Topics (ART) were developed for students to choose from covering the 100+ occupations. About 80 % of ARTs were devoted to Industrial technical education, the remaining were for commercial, agricultural and tourism disciplines. Students were allowed 6 weeks to prepare their research and submit it either electronically through the Edmodo platform or in hard copy at the school in specified days and according to strict safety precautions. Research could be conducted individually or in a group of up to 5 students. All ARTs were developed by committees at the Ministry level and for Applied Technology Schools, the private sector partners also contributed. Design of the research topics was quite a challenge for teachers as a criterion was established that requires it to be essentially different from ordinary written exam questions. The criteria for designing a good ART included: focusing on vocational context, requiring innovative research and self-study,



⁸ Applied Technology Schools are the new brand of schools initiated by the Ministry of Education and Technical Education in partnership with leading private sector employers to co-manage these dual education schools according to international quality standards.

containing critical thinking and problem solving, encouraging work ethics and management as well as occupational health and safety (Examples of these ARTs may be found in the two figures below). Many positive aspects were gained out of this new and bold approach for the Egyptian TVET system; engaging TE students in a research activity which challenges their innovation capabilities, developing their ability to work in teams, upgrading the capabilities of teachers in designing such ARTs for the first time in their career. This needed considerable guidance and mentoring that will definitely benefit the system in future. Students preparing for the ART could get support from teachers and also access the Egyptian Knowledge Bank (EKB) and the ministry's e-libraries.

It is worth mentioning here that the large number of ARTs is not only due to the high number of disciplines in TE but also due to the diversity of student categories in MoETE TVET system. In addition to traditional technical schools, MoETE have also vocational schools devoted for students with low grades at the end of basic education, and also a good number of students with special needs who are integrated with other students. Special ARTs have to be well-prepared to provide a number of choices for inclusion students regardless of their usually small number of them. It is worth mentioning here that the total number of enrolled students in transitional stages approaches nearly 1.3 million students.

The following Table provide samples of some ARTs at some Applied Technology schools and illustrates the characteristics of each topics

 Characteristics of Applied Research Topics and Selected Examples 	
Topic Title, Specialization, Level	Characteristics of ART
ATR = Establishment of a Utilities Room on the Roof of a Residential Building, Disc. = Facility Management Level = Grade 10 students	<ul style="list-style-type: none"> - Focusing on vocational context - Relevance for collaborative team-work - Encourages critical thinking - Encourages problem solving - Reflects work planning and work-management culture - Focusing on health and safety
ATR = Feeding materials for dairy Animals, Disc. = Technology of Animal production, Level = Grade 10 students	<ul style="list-style-type: none"> - Focusing on vocational concept - Encourages independent research - Encourage collaboration with other family members in the context - Encourages self-study
ATR = Split Air Conditioning Systems, Disc. = Refrigeration and Air Conditioning, Level = Grade 11 students	<ul style="list-style-type: none"> - Focusing on vocational context - Relevance for collaborative team work - Focusing on health and safety rules - Reinforces commitments and work discipline

<div>  Characteristics of Applied Research Topics and Selected Examples  </div>	
Topic Title, Specialization, Level	Characteristics of ART
ATR = Preparation and Cooking of Vegetables and Fruits, Disc. = Hospitality and Tourism, Level = Grade 10 students	<ul style="list-style-type: none"> - Focusing on Vocational Context - Relevant for Collaborative team work - Training on good work practice - Strengthening communication skills with others - Reinforces commitments and work discipline
ATR = Hinges, locks and Connectors in Jewelry Disc. = Jewelry Manufacturing, Level = Grade 10 students	<ul style="list-style-type: none"> - Focusing on Vocational Context - Relevant for Group-based work - Encourages Independent Research - Encourages Self-Study - Reinforces commitments and work discipline
ATR = Hydraulic Control Systems Disc. = Mechatronics, Level = Grade 11 students	<ul style="list-style-type: none"> - Focusing on Vocational Context - Relevance for Team Work - Encourages independent research - Focusing on health and safety - Reinforces commitments and work discipline

Some of the student testimonies to the experience of conducting research included the following:

A Grade 11 Student doing Mechatronics Research Topic on Hydraulic Control systems:

"I was afraid at first from the idea of doing research but after a while I started enjoying the exercise. I was surprised to know the much wider industrial applications of hydraulic and pneumatic systems in industrial equipment that the school book tells us. At the end of this project I was able to master how to draw hydraulic circuits on the computer, something that I was not capable of before doing this research"

A Grade 10 Student doing Research on Feeding Materials of Dairy Animals

"It is my first time to conduct research. I was not very confident at first. After knowing how to search on the internet, I felt I have become like my teacher in explaining things. I was very happy and satisfied after succeeding in getting the required information from the internet. This research is much better than exams, in which we depend more on reciting memorized information"

A Grade 10 student doing research on Locks and Connectors on Jewelry Articles

"Doing this research taught me the importance of improving my English. Most of the data on this subject on the internet is in English. Through this research, classmates in my group and I learned how to do good Power Point presentations"

The following photo shows students of one Applied Technology School when submitting their Applied Research reports. Strict adherence to social distancing and face masks is observed.



- **Final year Diploma students:** By law, final Diploma exams must be held since it is a prerequisite for granting the official diploma certificate. These were postponed from early May to late-June. In order to ensure social distancing and sterilized environment, very strict precautionary measures will be introduced to the exam set-up. These measures will potentially include: number of students per exam hall/workshop will be greatly reduced, sterilization entrances to schools will be installed, compulsory use of face masks, gloves and shoe protection and daily sterilization of each class after the exam. These items must be provided for all students and supervising teachers. These extra precautionary measures must be provided for almost one million individuals; 780,000 students in TE and about 220,000 teachers supervising the Diploma exams around the country. The government has allocated a tremendous budget for this purpose.

Responsiveness Vs. Reform

Egypt's immediate concern today is rightfully how to overcome the immediate crisis. However, decisions taken today can have long-term implications, so policymakers also need to ask themselves how VET systems can be improved through these decisions and ultimately emerge from this crisis even stronger, more responsive, and more resilient than before.

From the onset of the crisis, the Ministry of Education and Technical Education (MOETE) has taken a double approach to achieve a balance, focusing both on immediate response of providing distance and on-line learning and assessment options while keeping an eye on the longer-term reform perspective. In 2019, the MoETE launched its Technical Education 2.0 strategic pillars to transform technical education and is collaborating with all international development partners to achieve the planned outputs even if some were delayed due to the COVID-19 crisis but they have definitely not been put on halt. The reform pillars included the following:

- T1- Transformed Quality of Technical Education
- T2- Transformed Relevance of Technical Education by Transferring to Competency-based Curricula
- T3- Transformed Teachers through Training & Qualification
- T4- Transformed Schools through Employer Engagement & Work-based Learning by expanding Applied Technology Schools (ATS), Dual Education and Centers of Competence (CoC)
- T5- Transformed Image of Technical Education through Changing Social Perception

For example, plans to establish a dedicated authority for TVET quality assurance and accreditation, an academy for TE teachers training and expansion of ATS are still ongoing during the crisis. Furthermore, there was a plan to convert 45 new curricula to competence-based in collaboration with the EU-TVET-II project to start the coming academic year but it was decided to reduce the number but not to cancel the initiative due to the difficulty in organizing face-to-face meetings with private sector representatives involved in the process of development and validation.

The MoETE is currently working on a developing a medium to long-term strategy to better integrate distance and on-line learning within the TE sector and the following are some of the activities and initiatives that are envisioned in addition to some of the initiatives that the Ministry has launched to support the country in its plans to co-exist with this virus until a cure or vaccine is approved:

- A task force was established to include international development partners (GIZ, EU- TVET-II, ETF and USAID) for follow up on the COVID-19 response and to address the medium and long term requests of the ministry that was sent to most partners. It is also flagged that the office of the Deputy Minister for ICT and digitalization is a key factor in preparing a strategy to mainstream blended learning; as it involves assessment of the resources available at the Ministry as well as negotiations with large ICT providers such as Microsoft and others. The task force will consider lessons learnt from the response to the crisis and what could be taken forward to be part of the provision of technical education regardless of the crisis. This will include digitalization of content, teacher training, development of on-line courses and exploring options for innovative, digital pedagogical approaches such as simulators, augmented/virtual reality, or artificial intelligence.
- Before the pandemic, the USAID-WISE project had developed a specific portal for TE and a social media platform dedicated for TE students and teachers, these will be launched in the near future to facilitate the process and improve communication with and on-line learning for students. The project also developed a useful manual to support private sector companies to continue their operations during the COVID-19 pandemic. The manual provided guidelines for managing HR operations in crisis, managing operations in terms of suppliers and clients, keeping the workforce at low risk of infections and tips on planning for different scenarios to keep the operations ongoing.
- Monitoring, evaluation and feedback of the initial period of the Ministry's approach will be crucial, gathering statistics about accessibility of content, satisfaction of students, feedback from teachers and analyzing all this to come up with meaningful lessons learnt. It is also important to assess the quality of on-line learning and the consistency across regions and among teachers. Conformity to standards and specific criterion, unified branding and production of material. This will also be done with the support of international development partners.
- Analysis of the changes in jobs and related skills and competencies post-COVID-19 will be very important for the TVET system. Negotiations are ongoing between the MoETE and EBRD to conduct this type of assessments in both internal and external labour markets with potential to absorb Egyptian workers.

- One of the important initiatives of educational institutions in times of pandemics and crisis is to utilize facilities and expertise to support the overall efforts of the country to combat the consequences of the crisis. For example, public universities offered their dormitories as quarantine venues for returning Egyptians who were stranded aboard and had to be quarantined for 14 days upon their return. In technical education, the Ministry is using its facilities and teachers to manufacture much needed precautionary items like self-sanitizing gates (see photo), face masks and disinfectants.



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