

## **1]TVET in the Time of COVID-19 and After**

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### **Abstract**

The threat of a global health pandemic called COVID-19 has affected the health of hundreds of thousands of people, claimed lives in many parts of the world, disrupted learning and training, has threatened (and continues to do so) economies and pushing many on the brink of recession. However, it has also pushed individuals and units in the public governance, business, education and communities to think out of the box. Governments are deploying strategies and approaches that had never been done before to overcome the crisis. The response in TVET that we see today represents the approaches and solutions that correspond to the preparedness of countries, businesses and communities to tackle the issue in different fronts. The paper makes a reflection of the ongoing impact of the global disruption such as COVID 19 on education, training and employment. It further makes a practical assessment of the different levels of response of TVET systems and institutions and the potential that TVET has to further develop its response to the challenges according to the different levels of technical competence possess by institutions. The paper concludes with a set of recommendations to advance the debate.

*Keywords:* COVID-19, TVET, mitigation, emergency

### **Introduction**

The society is facing an unprecedented crisis due to threats of a global health pandemic. At the beginning of 2020, an unprecedented blow due to COVID-19 has affected the health of hundreds of thousands of people. It continues to claim lives of people in many parts of the world. Perhaps this is the biggest crisis of the 21<sup>st</sup> century, with a high number of recorded deaths. As a result, there are widespread learning crisis due to the school closures in many countries. According to UNESCO Global monitoring of schools closures caused by COVID-19, 188 countries are affected by school closures. As a result, 1.54 Billion learners are unable to attend school and learning activities. The scale of impact is also reflected in TVET sector. With a sudden halt in normal running of technical and vocational schools and training institutions, students, trainees and apprentices, are systematically unable to continue planned learning and training processes.

In efforts to mitigate the short term and long-term impact of the COVID-19 pandemic, governments have deployed strategies and approaches corresponding to the preparedness of countries to tackle the issue in different fronts. For example, efforts are in place to

promote self-isolation of people at home, social-distancing, the closing of shared frontiers, the strict observance of sanitary measures, the restriction of some labour activities, accelerated testing, the closing of schools, universities and prevention of social gatherings. All these urgent measures are applied to prevent the worsening of the state of pandemic. However, long-term measures also need to be commenced to manage the serious consequences on the economy, society, culture and education worldwide.

Education and training systems around the globe have started to respond to the situation. Under the circumstances, TVET, an important subset of education and which takes place in secondary, post-secondary and tertiary levels, including work-based learning, continuing training and professional development UNESCO, cannot be a silent spectator. The essence of how TVET can play an important role in the time of crisis, is discussed in this paper.

### **How TVET Institutions are Education and Training Systems Responding to the Crisis**

Broadly speaking, the response of education and training systems to the crisis carries two levels of responsibility. The first one acts upon the urgency of the situation (emergency) to avert the occurrence of more serious crisis, with immediate negative effects such as learning interruption that can delay education targets, and systematic entry to the next level of learning or the labour market. The second one acts upon the situation with some stability evidenced in the way temporary measures are working and there are more long-term solution in sight to be developed, to mitigate the far-reaching impact of the crisis. Either way, systems are expected to reach a level of stability with the employed measures, whether they are temporary or long-term to appreciate if the right solutions are meant to stay in place for a long time. In the context of varied developmental structure with specific economic, social and cultural characteristics, the degree of response of institutions is a reflection of their ability to discern the urgency and stability of approach, capacity, the readiness of systems and institutional actors, and availability of resources that suit emergency situations.

### **Emergency Response**

Worldwide, the crisis is dealt responded to with much urgency. The pandemic has had an impact on education and training. During this crisis, TVET institutions had to deal with concerns:

- How to bridge the ongoing interruptions of learning due to the closure of learning institutions?
- How to augment the huge shortages in sanitary and life-saving medical products (e.g., protective gears, mask, & ventilators) and similar shortage of service to supply them within short notice?
- How to support the community through information campaign and public health safety measures?

- How to prepare TVET for the challenges due to massive impact on labour market?

**How to bridge the ongoing interruptions of learning due to the closure of schools?** Almost all the countries strive to act on the ongoing interruption to the learning process on emergency basis. In many countries, the situation can be compared to being pushed into the water without knowing how to swim, or not having the right tools. However, as the countries are in different stages of technological development with regard to distance and online learning, the experiences are varied. We are observing that mitigating learning disruptions in many countries is hindered by technology uptake. Access to internet connectivity is poor, there is a limited availability of household computer, online educational resources and online teaching solutions. Broadly, the response in different countries in this situation is influenced by digital technology uptake and connectivity, which can be a ‘No-tech response’, ‘Low-tech response’ and ‘High-tech response’ (Chakroun, 2020). A ‘No Tech’ response tends to occur in some less connected environments where there are still remote areas not reached by digital technology, relying on basic resources that are less technology-intensive to deliver. The technology available offers one-way communication using multimedia tools, like public television channels, telephones and radios. Then there are those with ‘Low Tech’ response in which local technology infrastructures and devices are used for learning purposes. Here, having two-way interactive learning using digital or online learning mode is possible. Countries with well-developed connectivity, and therefore strategies embedding technology to deliver education are able to provide a ‘High tech’ response or stable solutions. When implementing technology-aided education, for example, distance learning, some countries have the advantage over the others due to wide digital gaps namely: connectivity gap, teachers capability gap, content gaps and digital technology gap. Therefore, the type of response in emergency situation is relative to other surrounding conditions beyond capacity, but also technology uptake. This also suggests achieving different outcomes in the learning process.

**How to augment the huge shortages in sanitary and life-saving medical products and similar shortage of service to supply them within short notice?** Worldwide there is a general shortage of sanitary products and services. In some countries, the shortage of Personal Protective Equipment has launched social, medical and moral issues as they have triggered fatal spread of infection and put medical workers and hospital patients at great risks. To solve this, TVET institutions are actively engaged in producing these products, or in some places, lending their facilities and services to augment the supply of protective equipment and other goods such as sanitizers and masks. In some parts, institutions have been able to showcase a timely application of new training concepts closely linked to the community. In some areas, repair and maintenance of some equipment needed in health facilities are also supported by these schools, in association with industry. The current crisis has pointed to a new opportunity for TVET institutions. TVET could be an important partner that can bridge education and business

to support product and service design, development and distribution. The value proposition that TVET can offer is that it does not only develop students' knowledge, skills and competencies for future work and employment, but could also be an effective partner for supporting the production, supply and delivery of goods and services. Moreover it can also facilitate practical training. In this mode, TVET can connect business, community and students who seek for continuance of training. Several inspiring interventions linked to the concept of 'production school' are being led by VET Schools by utilizing their training facilities in the production of much needed medical equipment, creating opportunities for practice-based training in the areas of health and safety and exposing students to new trades while real goods and services are produced (David, 2019).

**How to support the community through information campaign and public health safety measures?** Many TVET schools around the world are undertaking a massive awareness campaign and information services. COVID-19 is a newly identified virus. This means that, particularly when it started, only limited information was available about it. Health organisations, at all levels, have been researching without a break and the world has been gaining more and more understanding about the threat. These awareness campaigns are, and should be, coordinated by relevant authorities from the health sector. However, having ample access to a great number of cohorts of teachers, students, parents and partners, institutions can serve as effective hubs to disseminate public knowledge and information.

Some ideas for TVET institutions are to put posters and infographics in their buildings, to share convenient measures and protocols in their webpages and social media, and to get in touch with students, parents and companies to make them aware of the situation and to share with them the contents created by the relevant health organisations.

Awareness campaigns have been carried out in many countries which published recommendations, addressed the crisis through targeted communication to media, and regular public announcements. TVET schools can contribute to this by mobilizing institution community and replicate many innovative and inspiring interventions led by TVET schools in information dissemination and mobilization.

**How to prepare TVET for the challenges due to massive impact of COVID-19 on labour market?** The pandemic has had an impact on employment as work in some sectors had to be stopped, bringing millions of workers disengaged or with reduced working hours. Some sectors had been impacted causing massive job losses. The crisis has led to a collapse in economic activities, firm closures, disruption in industries, resulting in distress. The sectors that face significant job decline are travel and tourism, hospitality management, entertainment and sports, manufacturing, construction, trade, catering and accommodation, and financial and business services. In contrast, there is a huge skills demand on public health care management including requirement for workers to perform tasks related to the pandemic. Other job sectors that see high potential job



demands during the pandemic and for a longer term are online retail business, food security and production, distance learning, telecommunications, cybersecurity, health and wellness sector, logistics, agriculture, energy efficiency and renewable energy and biodiversity. Jobs linked to digital, green and sustainable technology and health will get a tremendous boost and create more jobs. Therefore, diversifying training provisions of TVET institutions could address the need for upskilling and re-skilling of the existing workforce in addition to enhanced support for adult learning and continuing.

### **Long Term Response**

By long-term response, TVET institutions are expected to anchor the development of long-term comprehensive solutions based on stable success in their temporary response, or a modification of this to develop further and become more sustainable in the long-run. Institutions need to be effectively prepared for any future similar situation and to gradually prepare for any post-pandemic disturbances or opportunities that may arise.

**Re-positioning TVET to support workforce re-training and continuing education for livelihood.** Many countries that send migrant workforce overseas are bracing for mass return of migrant skilled workers in addition to domestic internal migration. Looming job displacements will see huge numbers of workforce that need to be absorbed in other jobs or requiring to be re-skilled or re-trained. ILO data (2018) shows that 32% of the world's current 164M migrant workforce are in Europe, followed by North America and Arab States Labour Migration (2019). There has been huge domestic mobility of workforce in largely populated countries, and similarly, domestic migration occurs when urban jobs displace workers or when the demands for seasonal and other service workers are in decline in the affected job sectors. This trend has a serious implication on the global and domestic labour markets and has raised policy-related debates calling for emergency and long-term reforms. Re-training provisions and other market-oriented measures are needed to safeguard the interest of this group and utilize their potential to re-energize local economies.

Depending on how the pandemic could cause long-term impact to business, TVET institutions will have an important role in addressing unemployment and help in the skilling of locally displaced workforce as well as returning migrant workers to seize the next wave of employment opportunity. This opportunity could start with preparing skilled people for temporary or long-term work engagement or tasks where there is an increased demand, for example, local jobs in public utility services. Projection of jobs that will open up need to be accompanied by efforts in developing multi-purpose vocational programs to suit the local skills needs that are already known or are foreseen for the immediate future.

**Strengthening life skills, mental health and guidance and counselling.** In addition to training people with technical skills in emerging job opportunities, TVET reforms will need to integrate learning components of life skills and mental health, and organize support for personal and professional guidance for learners. Abrupt job unemployment, disengagement and changes in health and environment demand individual abilities and resilience to cope with the changes in environment and different forms of transition. Guidance and counselling must be underpinned or enhanced in the student support services of institutions to be able to provide a holistic support that combines skills training and personal and professional development.

**Supporting TVET for public health management and handling pandemic situations.** The COVID-19 outbreak has evidenced that access to medical and other service-oriented facilities is not always easy in an environment where there is controlled mobility, limited flow of services and high reliance on local-based services. Unfortunately, this pattern is establishing a new norm in places where resources are lacking. In some cases, the establishment of local centres might just be the only solution to cut down costs and reduce reliance to non-domestic service providers, which is not plausible in a crisis situation. These are solutions that require long-term policy strategy.

**Medical Kiosks.** are immediate solution and the availability of these kind of kiosks can augment the number of service centers that cater to the community during crisis. TVET institutions can be very helpful in expansion of this concept in different localities, in tandem with local community health service providers, to collect community-oriented data and information that can be analysed as a basis for local policy actions and developmental project priorities. TVET expertise could be helpful in deploying technology-enabled applications for managing and maintaining community health databases that are lacking in local health units. TVET can support the development of specific competencies of the local youth to meet the needs of local jobs around the setting up and running, and the delivery of basic medical and non-medical services such as early diagnostics, sample analysis, database recording, equipment repair, maintenance and community-government-business coordination. These kiosks have the potential to be managed either as a small-scale income-generating enterprise by the community or a philanthropic/civic/public initiative co-managed with private individuals and local government units.

**Handling health-related epidemic or pandemic situation.** The outbreak of COVID-19 has made it evident that TVET systems were not prepared to handle a pandemic situation. They have been, in different degrees and with more or less consequences for students, teachers unable to face the challenges of the current situation. If we were to ask why it has been like this, the answer will lie in the lack of awareness about pandemic outbreak. In other words, TVET systems have not included pandemics or other similar risks scenarios with global impact that could oblige them to set up new or alternative strategies for delivering education. The Global Preparedness Monitoring Board, World at Risk Annual Report on Global preparedness for health emergencies, has a good explanation how to prepare for health emergencies in future.

**Supporting the development of TVET for agricultural and natural production.** Climatic friendly and economically smart agriculture as well as natural products development can be a solution to address food security under the realities of climate change. Villages can engage in a) Increasing agricultural productivity using bio technology/fertilizer/horticulture b) Building capacity to become resilient to climatic changes c) Reducing their local greenhouse gas (GHG) emissions and d) promoting eco-friendly entrepreneurial activities. Adequate nutrient management can also improve soil quality and lower the emission of Green House Gases , apart from ensuring that agriculture produce are safe for consumption. Access to available water resources is intrinsically linked to food security. Agricultural production is an area that consumes huge amount of water. Hence, there is a need to manage water resources for agricultural production in a sustainable and ‘smart’ manner thereby creating opportunities to recycle or harvest water for irrigation purposes. In this regard, creating balance between water availability, access, use, and innovative storage across a range of water resources and according to principles of socio-economic, environmental and technical sustainability represent smart water management.. All these entail well-designed and modern skilling and reskilling TVET programmes that make use of both indigenous knowledge and new technologies for the efficient use of resources and safe production.

**Supporting community in renewable energy generation and maintenance.** Expansion of facilities that use renewable energy, such as solar energy, is an important initiative that can help in the electrification and better management of remote communities not reached by grid-connected power supply. In times of crisis, the supply of medicines and equipment is scarce. Food supply is heavily disrupted, which creates high demand for local produce and challenges in storage and distribution. TVET can support the training of youth and community to build internal capacities for installation, operation and maintenance of solar-based off-grid devices which are useful in the running of temporary health-care units, local laboratories, food dispatch and other service areas for the community that needs electricity supply.

**Preparing for flexible work based learning solutions.** Learning disruption has an impact on students’ interest with regard to their preferred field of studies. Thus, there is merit in creating solutions to avoid learning disruption and ensure continuance of engagement. Flexible work based learning arrangements deserves a special attention in this regard. It is very common for TVET curricula to have a compulsory part of work placement in the company and there are very different schemes to do that. There has been wide-ranging disruption in TVET student learning within work-based setting. Most countries have had to stop the company training of their students. It is true, however, that there are countries in which, although the schools are closed, students can continue their work placement if the company is open. A dual type of training with a very strong company component and the work placement carried out all around the year is harder to apply flexible approach, especially, in field areas where tasks are simply not possible to be carried out from home. Companies engaging in temporary shifts in production of in-demand products are surely able to cope in a crisis situation, such as what we are learning

is happening in France and China. Factory production is shifted to manufacturing of in-demand goods based on similar production chain, and where the available infrastructures are possible to produce them.

**Strengthening digital TVET and promoting Open Educational Resources.** As the European Commission and many others have realised, there is a need for TVET specific materials and platforms to be shared and opened to more countries. TVET is particularly vulnerable in a situation where in-person training could not be carried out. TVET students need to practice their skills with real machines and equipment and it is impossible to have them at home. However, the impact of this could be minimised to some extent with the use of free and open source lessons and modules that use virtual simulation. Even in undisrupted learning condition, this option has always been an important aspect that schools are encouraged to invest in, especially in case where there is limited work placements in the company. The crisis has magnified the lack of open and virtual learning simulation materials that can be used by students off-work.

**TVET for innovation and entrepreneurial learning.** Stirring institutions to innovate and link with community actors is a crucial factor of VET institutions responsiveness. It has been widely demonstrated by VET institutions during the emergency responses to COVID pandemic. Such spirit of innovation is important to help address global challenges, community needs, addressing climate change and sustainable development in future. Skills are the main lever to convert innovation into economic growth and social development. Such entrepreneurial spirit and diversification of the learning areas that TVET can support to be able to provide a rapid response to crisis, and enhanced role in the skills ecosystem comprising of public education and business, and its role in supporting innovation to benefit the local community

**TVET for sustainable development and inclusive growth.** Social justice, environment and local development as core principles of TVET learning. By now, it has been a common understanding that COVID-19 has originated from the lack of understanding of fundamental issues that society is facing. Globalization has caused inter-dependence and imbalance in the production and supply of global food, medicine and other essential supplies. People's habits and often disregard of others, and other living organisms have highlighted the serious implications and complexities of ecological co-existence. To address this, education and training will need to reinforce training approaches and contents that do not only focus on the technological future, but also help embrace the fundamentals of living in an environment with respect for biodiversity, social justice and cohesion and inclusive development. In this approach communities and small units of society are enabled to be strong and resilient in any given crisis. Embarking into the path of sustainable development will require a profound transformation in the ways we think, we work, we live and we act; it requires adequate knowledge, skills and attitudes to contribute successfully in the long term. Education and Skills will be most crucial for transforming the changes to promote the kind of development that people want to see around them

**SDGs as overarching principles of future TVET development.** In 2015 all the members of the United Nations Member States adopted the 17 Sustainable Development Goals and agreed on an ambitious action plan to be achieved by 2030. As the United Nations Organisation point out in their webpage “the Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice. The 17 Goals are all inter-connected. In order to leave no one behind, the pursuit of achieving all the targets of SDGs is an important agenda for 2030. People, planet, and prosperity all rely on inclusive societies, a healthy environment and jobs that preserve these aspirations. This is underpinned in the UN 2030 Agenda for Sustainable Development (UNESCO-UNEVOC (2017). As countries accelerate their efforts towards achieving the 17 Sustainable Development Goals, there is an urgent need to develop the knowledge, skills and competencies to meet the professional and societal demands, whilst seizing the employment and lifelong learning opportunities offered in the transition to a more sustainable economy and society. TVET institutions in the long run have to play an important role in steering the transition to a low-carbon economy and climate-resilient society. To facilitate this transformation in a systematic and practical manner, UNESCO-UNEVOC offers a guidance framework for Greening TVET (UNESCO-UNEVOC (2017). The framework sets the scene to undertake TVET reforms in conformity with the SDGs and Education for sustainable development through a whole-institutional approach. This approach highlights five dimensions of green transformation in TVET institutions including greening the campus, greening of curriculum and training, greening community and workplace, greening research and greening culture.

**Global citizenship, peace education & life skills as central pillars of individual growth.** The crisis reminds us that regardless of skin colour, country, culture or size of economy, anyone could be affected by a sudden global pandemic such as what is happening now with COVID-19. European Commission organized an online survey on how TVET stakeholders respond to COVID-19 emergencies (European Commission, 2020; European Commission, 2020). We all live in the same world, sharing the same risks. While the world may be increasingly inter-connected, human rights violations, inequality and poverty still threaten peace and sustainability. Global Citizenship Education (GCED) is UNESCO’s response to these challenges. It works by empowering learners of all ages to understand the global impact of today’s issues and that everyone must be on the path to become active promoters of more peaceful, tolerant, inclusive, secure and sustainable societies. Similarly, it is built on the principle of Peace and Human Rights Education. It aims to instil in learners the values, attitudes and behaviours that support responsible global citizenship: creativity, innovation, and commitment to peace, human rights and sustainable development. Schools can act as human resource development centres with values, ethics and traditional culture of peace instead of places of ‘congregation’ for some defined learning inputs. One example of that is the Basque Country in Spain, where the TVET Vice ministry through their Research Centre, TKNKA, has launched a programme called 4.0 values.



## **Conclusion and Recommendations**

COVID-19 has raised fundamental concerns regarding the way people live, work, consume and enable development. It has raised serious questions about the understanding of developmental models and basic beliefs about people's relation with nature. The way these challenges are eventually addressed is a reflection of the society's vision of the world of the future.

The current crisis has rendered interruption not only in school-based education, but also in employment, apprenticeship and other forms of work-integrated learning. The threat of job displacements brought by industry 4.0 and job automation has now been overtaken by actual massive job displacements that are not in industries only affected by digital automation of jobs but largely by the economic effects of the pandemic escalated by business closures. Many trainees/students and workforce are forced out of job, whether it is temporary or full-term, in economies that are unable to buffer the cost of the pandemic to business.

Governments will need to prepare education and training systems and their governance to enable and empower TVET Institutions to be flexible, to recognize their intrinsic role to the society and economy, as well as allow them to be recognized in the whole skill ecosystem as partners in developing solutions.

Countries, especially those with high vulnerability to experience another wave of pandemic, can learn a lot from the crisis. Preparing contingency plans at all levels and sectors (local, regional and national), would be helpful. Similarly, international development organizations which have a good overview of global scenarios and tendencies are ideally to provide support for national institutions to understand the occurrence of these tendencies and be supported to respond in a timely manner.

Partnership and establishing strategic networks will be the key to share and learn from each other.

At the systems and sectorial levels, it is important to start articulating inter-sectorial coordination of solutions. Zero-growth, massive unemployment, social and health-related issues, displacement, migration and disrupted learning are some of the major fallouts that societies must bear for a long period of time. However, this can also offer new opportunities to reassess current vulnerabilities and reposition education and training for sustainable development.

When planning and considering to improve governance of TVET, it is also important to note the following recommendations:

- Transforming TVET for sustainable development must encompass social, economic and environmental dimensions, which are central in the agenda of future TVET work. Biodiversity, climatic change, inclusive growth, sustainability are therefore the cornerstones of any new TVET reform.
- Pandemic situation, public health management and their impact should be included in planning of the TVET learning management approach and risk management, and in planning for emerging field areas where TVET qualifications could lend strong support for developing job sectors and performing tasks.
- TVET institutions can be leading examples to implement a new sustainability agenda through the greening approaches and strategies
- Capacity development of TVET teachers and all stakeholders need to be strengthened on handling pandemic situation, sustainable development and digital transformation
- TVET for public health management, food security and sanitation need to be strengthened
- TVET through blended learning and distance-based online education are new forms to deliver TVET and increase its outreach
- Learners should be provided with learner-cantered, autonomous tools to learn on their own
- The development of entrepreneurial skills, life skills and learning to learn skills are essential to advance individual resilience and capabilities to navigate through complex dynamic situations.

TVET systems are also in strategic position to think on different time spans when planning their actions and consider short-term (immediate) and long-term actions.

On the short term, TVET systems should become aware of the fact that they have a huge technical knowledge and, in some cases, well equipped facilities that could be used to help mitigate the impact of global issues on education, training and employment sector. It is imperative to understand and act upon field areas where TVET can contribute.

The decision the TVET institutions, people and government take will shape the world for future. It will not only change the health care system but also our future for sustainable economy, social cohesion and environmental integration, the way to think, act and socialize.

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