LEARNING FOR SUSTAINABLE DEVELOPMENT

COMMONWEALTH of LEARNING

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Strategies for blended TVET
IN RESPONSE TO COVID-19

Introduction

A recent International Labour Organisation (ILO) report noted that nearly half a billion people – one in six of the world's working population – did not have enough work, were looking for but unable to find work, or had given up looking for work. Women and youth were over-represented in this group.

Since then, due to COVID-19, the numbers of those who are unemployed and underutilized have gone up dramatically across the globe. ILO predicts that in the second quarter of 2020, working hours equivalent to 400 million full-time workers will be wiped out in response to the pandemic. ILO also notes that 'Worldwide, two billion people work in the informal sector (mostly in emerging and developing economies) and are particularly at risk.' Governments also face rapid upskilling challenges, for example, keeping health workers up-to-date with the evolving understanding of COVID-19, and large numbers of migrant workers without work.

Many businesses have closed, or, if open, are prioritising survival ahead of workplace training.

At the same time, technical and vocational education and training (TVET)[1] institutions and community groups offering vocational programmes have closed to slow down the spread of the virus. Many businesses have closed, or, if open, are prioritising survival ahead of workplace training. As a result, there is increasing pressure on governments, educational institutions, workplaces, and community groups to adopt distance and online learning to ensure the continuity and upscaling of skills development while keeping communities safe.

Blended learning for TVET

Within TVET programmes learners acquire knowledge, but also need to master practical and soft skills. Practical and soft skills can be up to 80% of a programme and may be impossible to develop online. Therefore, most TVET programmes need to include face-to-face learning in workshops or workplaces to practice and master these skills, which makes it challenging to continue offering TVET when educational institutions and businesses are closed. However, parts of TVET programmes can be moved online and offered by distance.

Blending distance learning with workplace learning has proven effective for nearly 200 years since Pitman began teaching shorthand by correspondence in 1840. In 1910, in response to a typhoid epidemic, Australia introduced its first distance TVET to train health inspectors by correspondence while they continued to work. Today, examples of blended learning for TVET are evident across the world in workplaces, formal educational institutions, and community settings.

This document defines 'blended TVET' as the practice of building competence in knowledge, and practical and soft skills through a combination of face-to-face and technology enabled learning experiences. Distance learning is where the blend allows learners to develop competence online or in their workplace or community and does not require them to attend a physical campus.

In the current crisis, 'as-distance-as-possible' TVET allows for continuing its selected components, upskilling of essential workers in their workplaces, and starting

[1] Technical and vocational education and training' (TVET) is understood as comprising education, training and skills development relating to a wide range of occupational fields, production, services and livelihoods. TVET, as part of lifelong learning, can take place at secondary, post-secondary and tertiary levels and includes work-based learning and continuing training and professional development which may lead to qualifications. TVET also includes a wide range of skills development opportunities attuned to national and local contexts. Learning to learn, the development of literacy and numeracy skills, transversal skills and citizenship skills are integral components of TVET. (https://unevoc.unesco.org/home/TVETipedia+Glossary/filt=all/id=474)

to reskill displaced workers, while observing physical distancing guidelines. It also offers the potential to rethink traditional TVET models to be able to reduce costs and increase flexibility, and thus reach marginalised and remote learners, including those working in the informal sector. This also presents opportunities to build TVET systems which can be more resilient in the face of other possible disruptions, such as further waves of infection, other pandemics, effects of climate change and civil wars.

Models for blended TVET

Blended TVET can be classified into three broad models, listed below in order of increasing distance and flexibility:

1. *Learning in classrooms and workshops, enhanced with technology:* The main teaching happens in classrooms and workshops in schools, TVET institutions or community organisations. Technology is mainly introduced to improve quality. These models may include a short work placement, but most learning happens in an organisation's physical spaces created for educational purposes.

2. *On-the-job training, supplemented with classroom and distance and online learning:* For centuries, skills have been passed on through apprenticeships in which experienced artisans train learners at their workplaces. In both developing and developed countries, this is still how most people first gain skills for employment, and increasingly important, for upskilling. Over the last 100 years, as governments have sought to standardise and quality assure apprenticeships, formal institutions have taken on the role of teaching theory through day release, block courses, night classes, or distance learning, and assessing and awarding qualifications. Educational institutions can support and assess learners by distance and visit workplaces to ensure coherence and assure quality, so that apprentices do not need to visit a campus.

3. *Fully distance and online learning*: Where skills can be developed without a specialist context, TVET courses can be done fully online. Learners still need to develop practical skills, but they can do this where they live and work. Increasingly, the cloud is an environment in which ICT skills, such as programming or graphic design, can be practiced and mastered, as well as a potential workplace following achievement of competence.

NOTE: The Appendix gives case studies for these three models to illustrate how each one might work in practice.

These three models exist on a continuum between using technology while being based at an educational institution and using technology to take learning to where a learner is at home or at work (see Figure 1). In Figure 1, the more a blend relies on contexts to the right of the continuum, the more flexible and accessible it is for learners.

Figure 1: Take learning to the learner continuum

	Specialised assessment centre	Campus	Community centre	Workplace	Online, radio, TV
Teach and assess theory	National external assessment	Lectures, tutorials, access to digital and print materials, peer discussions, projects Exams, assignments, online quizzes	Lectures, tutorials, access to digital and print materials, peer discussions, projects Exams, assignments, online quizzes	Professional conversations with supervisors, which integrate theory with workplace tasks	Work through online learning materials asynchronously – self-paced or supported by an online facilitator Online assignments, quizzes Synchronous lectures or demonstrations using radio or TV
Develop and assess practical skills	National external assessment	Observation, practice, and mastery in a campus workshop or simulated physical environment at the TVET institute Classroom or workshop assessment – observations, simulated context, case studies	Observation, practice, and mastery in a community setting Classroom or community setting assessment – observations, simulated context, case studies	Observation, practice, mastery and real-life application in a workplace, under supervision Workplace assessment e.g. observations, professional conversation, naturally occurring evidence from work tasks	Observation, practice, and mastery of digital skills developed in an online context Instructions on how to practice and master non-digital skills in the learner's own context e-portfolio of evidence
Develop and assess soft skills		Educator and peer relationships, role plays, projects, simulated environments	Educator and peer relationships, role plays, projects	Relationships with supervisor, colleagues, peers, customers, learning advisor Workplace assessment e.g. observations, professional conversation, naturally occurring evidence from work tasks	Educator and peer online relationships, online customer relationships for digital work e-portfolio of evidence
Learner support		Campus based teachers and learning support roles Other students Mainly synchronous	Centre-based teachers and learning support roles Other students Mainly synchronous	Workplace managers, supervisors, trainers, advisor visits Work peers Mainly synchronous	Personal networks, educators and peers by phone, email, messaging, forums, ring in to radio or TV hosts Online is mainly asynchronous Radio and TV mainly synchronous

Role of technology		Digital presentations, multimedia, simulations, games Online searches, access to resources online 24/7 Can support flipped classroom i.e. face-to-face time focused on teacher-learner and peer-to-peer interaction Learning materials available to help integrate theory and practice Online automated assessment – knowledge and application in scenarios Submit and mark assessments online	Digital presentations, multimedia, simulations, games Online searches, access to resources online 24/7 Can support flipped classroom i.e. face-to-face time focused on teacher-learner and peer-to-peer interaction Learning materials available to help integrate theory and practice Online automated assessment – knowledge and application in scenarios Submit and mark assessments online	Access to online resources during work tasks – educator generated, general, and manufacturers' equipment-specific technical specs Digital learning materials fill gaps in knowledge during recognition of prior learning (RPL) process Create e-portfolio of workplace evidence of practical skills e.g. photos, videos, scans of job sheets – which learner, supervisor, advisor, employer, assessor and verifier can access.	Access digital learning materials - presentations, papers, websites, multimedia, simulations, games Communication with technical experts and learning support Online discussion with peers Automated assessment of knowledge and application in scenarios Submit assessments online e-portfolio of evidence Learner analytics Linked learner support

While overly simplistic, it is common to think of theoretical competencies or 'knowing' as being able to be done online, and practical skills as requiring the opportunity to practice 'doing' in a specialised environment. The latter can be at a workplace or campus, in the community or online.

Examples of programmes that rely on demonstrating practical skills in a specialised physical context are construction, hair and beauty, mechanics, hospitality and catering, nursing, aged care, social work, exercise, agriculture, mining, drilling, transport and logistics.

For some skills, such as spray painting or engine repair, simulators can significantly decrease the time needed for real-world practice but they do not exempt it completely.

Examples of programmes that can be studied fully online without specialised physical contexts are business, entrepreneurship, accounting, ICT, communication, psychology and project management. A growing number of simulations, including augmented and virtual reality, are being developed to train in skills such as business, data analysis, and software design and development.

Benefits of blended TVET

Blended TVET offers several benefits:

a) *Increase access:* Taking learning to where learners are in homes, workplaces and communities increases access through flexibility of time and space, thus giving learners more choice of when and where to learn. This enables learners who need to combine studying with looking after dependents or working, and who find it difficult to travel to an educational institution, as well as those needing to maintain physical distancing, to still be able to learn.

b) *Reduce cost:* The fixed costs of initial development of quality materials are significant but can be lower per learner if used at scale, such as within centrally managed TVET systems with national qualifications. Content and learning activities within materials reduce variable costs per learner. Where skills are comparable across countries, reuse, repurposing and sharing of open education resources can further improve cost-effectiveness. Automated assessment of theory can reduce teacher marking time. Using technology to collect and share evidence of competency brings down the cost of processing

evidence between teachers, assessors, verifiers/moderators, workplace advisors and supervisors. Opportunity costs can be saved by taking learning to the learners and their locations.

Physical buildings and equipment to create specialised contexts on campus for practical skills development incur significant costs and can be expensive to keep up-to-date. Blended TVET can maximise the use of physical infrastructure by reducing the time each learner needs to be present on campus, when accompanied by careful redesign and associated scheduling. Workplace learning reduces costs through use of industry's existing physical infrastructure, employer contribution (financial and in-kind), and focuses government investment on tuition. For example, a New Zealand study noted that one million dollars of government investment achieved 306 qualifications through industry training, 51 through polytechnics and 19 through universities[2].

c) *Improve quality:* Blended TVET models often rely on organisations whose primary purpose is not education. Well-designed resources contribute to quality by providing consistency across multiple players. Centrally developing resources for national qualifications helps smaller, less well-resourced TVET providers to have the same quality materials available to them as those with more resources.

Distance and online learning for TVET embeds digital literacy skills, and lifelong learning skills such as self-efficacy, self-direction, and critical engagement, which are valued by employers. Multimedia, such as audio and video, can communicate knowledge more effectively, demonstrate practical skills, and reduce the use of written assessments as a proxy for competence of non-literacy skills. Online systems provide an environment to share, validate, track, and store the range of evidence formats and enable timely communication between trainees, trainers, assessors, verifiers/moderators and trainees' support persons.

Distance and online learning for TVET embeds digital literacy skills, and lifelong learning skills such as self-efficacy, self-direction, and critical engagement, which are valued by employers.

d) *Increase inclusion:* People with disabilities make up 15% of the global population and an estimated 785 million people of working age[3]. Information technology developments and advances in assistive devices are making it easier, and even possible, for people with disabilities to learn and to work.

Challenges of blended TVET

Implementing blended TVET also offers some challenges:

a) *System change to gain benefits:* If the use of technology is layered on top of existing classroom models, costs will increase and access will be unchanged. Achieving these benefits requires rethinking learning, assessment, learner support and the role of teachers. This new thinking requires different business models and ways of working, and management of the change by government and institutional leaders.

b) *Increased costs to learners:* COVID 19 has exposed the digital divide within and between countries. For many learners, the cost of devices and data, and even access to reliable electricity limits wide access to blended TVET based on technology.

c) *Maintaining agility:* Well-designed, quality blended TVET relies on pre-delivery design and development of quality learning and assessment materials. This makes it challenging to respond quickly to unanticipated changes in labour market demands such as those experienced in the pandemic. Rapid prototyping processes using guidelines, tools and checklists informed by good learning design can help speed up materials development while maintaining quality.

[2] Business and Economic Research Ltd. (2018). Cost of qualifications by sub-sector. Retrieved from http://Tinyurl.com/costofprovision

[3] Sarton, E. & Smith, M. (2018) UNICEF Think Pieces Series: Disability inclusion. UNICEF Eastern and Southern Africa Regional Office, Nairobi. Retrieved from https://www.unicef.org/esa/sites/unicef.org.esa/files/2019-04/EducationThinkPieces_7_DisabilityInclusion.pdf

Strategies for blended TVET post COVID-19

Figure 2 suggests four phases through which education systems might move in response to COVID-19:

a. Rapid transition to emergency remote learning and teaching

b. Extended transition during continued turmoil

c. Laying the foundation for a new normal

d. Embed the new normal

Nobody can be sure of the future or how long each phase will be, and phases are likely to vary between countries and regions within countries. However, it seems likely that TVET systems will be in various states of uncertainly until countries obtain herd immunity or a vaccine has been developed and becomes widely available. And then, they will need to respond to the consequences of the pandemic for the labour market. Therefore, taking the time now to develop blended TVET strategies can enable medium-term benefits and lay a foundation for a long-term new normal.

Figure 2: Phases of TVET response to COVID-19

	Phase 1	Phase 2	Phase 3	Phase 4
Distance and online learning adoption	Rapid transition to remote teaching and learning	Extended transition during continued turmoil	Lay foundation for a new normal	Embed the new normal
	Rapid transition to using whatever technology options are available – Zoom, WhatsApp, LMS, radio, TV Limited or no options for some institutions and learners, especially those in remote and poorer areas, and women	Hybrid models where learners are both in class and online, physical distancing rules apply, and lockdown status oscillates depending on the virus spread Expand TVET system to meet increased demand from displaced workers and changed business practices	National strategy for TVET, blending classroom, on—the-job and ODL to meet labour market demands, achieve scale, increase access, improve quality, and build resilience. Plan to manage the change to a new normal, based on strategic intent and emerging learning through Phases 1-2	New normal for TVET blending classroom, on—the-job and ODL, based on strategic decisions and managed change. New policies and funding, new ways of working within and between institutions and industry, new roles for teachers and other staff, new skills developed, new technologies, OER developed and available

Adapted from Hill, 2020.

Governments play a critical leadership role in laying the groundwork in each phase for subsequent ones, and maintaining a balance between assuring quality TVET delivery now, supporting innovation and leading the change for the future.

Phase 1: Rapid transition to emergency remote teaching and learning

Countries are well into Phase 1. Here the focus is on emergency remote teaching rather than optimal blended learning (Table 1).

Table 1: Differences between emergency remote teaching and optimal blended learning

Emergency remote teaching	Optimal blended learning
Options limited to online	Full range of options available
Emphasis on synchronous online interaction	Emphasis on asynchronous online interaction
Little time for planning and development	Blend well-designed, planned, and effective
Limited to online learning and assessment	Integrated theory and practical skills development
Using whatever resources are available	Quality materials, activities, and assessments
Little or no support for teachers, learners, employers	Support systems for teachers, learners, employers
Teachers and learners developing new skills as they go	Capacity building within change projects
Solutions limited to existing technology solutions	Technology systems selected, set up and supported
One size fits all framework	Equity and personalisation

Adapted from O'Keefe et al (2020)

In this phase, governments, institutions and individual teachers, have been working with whatever technologies, materials and skills they have available, mainly within existing synchronous models. The pandemic exposed and exacerbated the inequity between rich and poor countries, communities and families, men and women, and urban and rural communities. Countries with existing capability were able to leverage this quickly.

The pandemic exposed and exacerbated the inequity between rich and poor countries, communities and families, men and women, and urban and rural communities.

Examples:

The Open Polytechnic of New Zealand could immediately make its online learning platform freely available to other New Zealand training organisations.

Zambia's government was able to immediately install COL's OER in Zambia's Technical Vocational Teachers College's existing LMS to train TVET teachers. They used a train the trainer model to train one online champion from each public TVET institute in facilitation skills and then rapidly scale up to train more than 800 TVET teachers.

Phase 2: Extended transition during continued turmoil

Since further waves of infection are likely to happen, TVET physical campuses may alternate between being open and closed, and learners may or may not choose to resume face-to-face study. Businesses may or may not reopen, may no longer be economically viable and may not want to prioritise training. As well as turmoil in existing TVET programmes, future training needs are uncertain with jobs disappearing and new jobs being created. Governments intervene with solutions to support TVET systems to improve the quality of emergency remote teaching, build on any available optimal online learning, and minimise disparities. The key to responding to chaotic environments is to respond rapidly. Examples of ***rapid strategies*** include:

- Establish national cloud-based learning management systems or make existing systems within institutions available more broadly. As well as enabling access for learners, this learning management system can be used for online training of TVET teachers.
- Establish national educational radio or TV programmes.
- Negotiate with internet service providers to offer zero rating access to educational platforms.
- Offer online courses to build staff capability in blended TVET.
- Create online communities of practice for staff to share ideas and experiences.
- Set up a national digital content platform, based on existing national qualification frameworks, to facilitate easier access to relevant, quality resources, and build awareness of good practice.
- Offer financial support to learners to be able to afford mobile devices for online learning.
- Support new ways of teaching and assessing practical skills, as institutions and workplaces alternate between learners being on and off campus, and in and out of workplaces.
- Modify assessment and completion policies to recognise events outside learners' control.

Examples:

In response to COVID-19, **the National University of Samoa** needed to modify its face-to-face exam assessment for TVET courses and through the process was able to move to competency-based assessment based on online portfolios of evidence.

Shanghai, China established a team of TVET teachers to develop online courses that were then delivered through multiple platforms including a new TV channel for TVET. They also developed simulation software to support practical skills development in some courses e.g. network security.

Sweden's crisis package for jobs and transition included increased funding for TVET including distance education providers.

Phase 3: Lay foundation for a new normal

In the third phase, governments, institutions and industry agree on a clear vision for blended TVET. Where on the continua of access, cost, quality and inclusion will the nation's TVET system sit? Which of the three models will dominate in which skill areas and why? What changes are necessary to effectively implement these models? What is emerging from Phases 1 and 2 to inform our strategy?

Examples of ***foundation laying strategies*** include:

a) ***Collaborate for efficiency and relevance:***

- Articulate a policy vision for blended TVET that agrees on desired outcomes, and defines new models, including funding assumptions.

- Work with industry and government agencies to agree on priority skills and the blends by which they can be developed.
- Build partnerships between educational organisations, industry and community groups to better understand skill demands, including digitalisation, enable work placements and use of work-based infrastructure, support learners where they are, and better transition learners into employment and self-employment.

b) ***Plan to increase access and resilience:***

- Design to take learning to where learners are to increase flexibility.
- Design to reduce costs through the use of digital materials at scale and workplace infrastructure.
- Plan to enable access for marginalised groups, such as youth, women, persons with disabilities, laid off workers and migrants.

c) ***Focus on competency:***

- Assess competency, without making a distinction between the mode of delivery by which it was achieved.
- Move towards recognition of prior learning, integrated assessment and learner portfolios of naturally occurring evidence of competency, to more readily enable certification of skilled workers, while maintaining standards.
- Promote policies and regulations that support awarding micro-credentials and mobility between institutions and countries.
- Support new ways of teaching and assessing practical skills, as institutions and workplaces alternate between learners being on and off campus, and in and out of workplaces.

d) ***Embed literacy and numeracy, and digital literacy:***

- Plan to prepare learners for employment, lifelong learning and active participation in civil society through improving literacy, numeracy and digital literacy.
- Give learners a second chance to develop these skills through embedding these within TVET programmes.
- Consider using multimedia to support learning for lower literacy learners, and to bypass literacy-based assessment as a proxy for competence.

e) ***Develop a long-term change strategy:***

- Analyse what has and hasn't been working for blended TVET in earlier phases.
- Plan and establish projects to integrate blended TVET, building on blends already available at institutions.
- Support institutions to create new organisational structures, policies and processes.
- Redefine the roles and responsibilities of teachers and other staff to support the new models.

f) ***Learn and improve:***

- Develop indicators in line with the desired outcomes e.g. access, cost, quality and inclusion.
- Gather quantitative and qualitative data from learners, educators, industry and community to assess effectiveness of the changes.
- Modify the change plan in response to what the data is saying.

Examples:

New Zealand is merging all of its existing polytechnics and industry training organisations into a single institute which will offer all classroom, on—the-job and online training with a centralised online learning design and development team and a suite of technology solutions to meet the needs of learners, educators and employers.

The Kenyan government has developed a blended TVET strategy which includes nationalising the learning management system of the Kenya Technical Trainers College, national TVET teacher training in online learning and central hosting of online courses for national TVET qualifications.

Phase 4: Embed the new normal

The final phase is about embedding and normalising new ways of working, in line with the agreed strategy and building on lessons learned from Phase 3.

Examples of ***embedding strategies*** include:

a) ***Embed new ways of working***:

a. Develop cost effective, sustainable models to increase access to and quality of TVET.

b. Plan for scale and introduce new business models.

c. Modify funding policies to align with strategic aims.

d. Encourage innovation through targeted competitive funding.

b) ***Invest in national technology solutions to provide:***

- A digital home for learners that connects learners to enrolment information, their course of study, their lifelong portfolio, peers, and employment opportunities.
- A 24/7 digital support service for learners, from pre-enrolment, through the learner's study journey to employment, with data analytics to identify possible learner needs and communication tools through which a learner support team can respond to these needs.
- A digital support service for employers, to enable employers to view apprentices' progress, upload evidence, and arrange training.
- A digital materials library for quality assured learning and assessment materials.

c) ***Invest in open educational resources (OER)[4]:***

- Reuse and repurpose existing OER for learning andr competency-based assessment.
- Invest in filling TVET OER gaps, including multimedia to cater for lower literacy learners, and simulations, games, AR, VR and AI to support practical and soft skills development at a distance.
- Establish platforms and national resource centres to curate and develop local content aligned with national qualifications frameworks.

d) ***Build capacity for and through online learning:***

- Support capacity and capability building, using a blend of distance, online and on-the-job learning, for
  - government and institution leaders to understand new business models for greater efficiency and effectiveness and manage the change to new ways of working;
  - learning designers to be able to curate, repurpose and develop national OER;
  - champions to drive change within TVET institutions, community organisations and workplaces;
  - teachers, workplace supervisors/mentors and assessors to be able to support and assess learners in blended TVET contexts.
- Maintain and build a highly qualified workforce of vocational teachers, trainers, assessors and verifiers through blends using distance and online learning.

e) ***Prepare and support learners:***

a. Prepare learners for blended TVET.

b. Design and resource a learner support ecosystem with clearly defined roles and responsibilities.

c. Consider disaggregation of learner and academic support, where specialised learner support roles track student engagement with the LMS and follow up on disengaged learners. At scale, this can be achieved through centralised call centres and online chat functions.

[4] OER are educational materials which are licensed so that they are free to reuse and repurpose to suit different needs. OER offer the potential to share and reuse learning resources to develop skills which are similar across the globe and increase the availability and quality of resources for TVET in the same way that is happening for textbooks and university courses.

Conclusion

In many countries, TVET has traditionally been labeled as 'not being able to be done by distance'. Well-designed blends of TVET, particularly when combined with workplace learning, can use technology to increase quality and access, reduce costs and be more inclusive. COVID-19 provides the catalyst for countries to understand and act on this potential. Countries that implement strategies for blended TVET are more likely to be able to upskill the 500 million people who have already been unemployed or underemployed before the pandemic, the 400 million estimated to have since lost work, and the millions who are predicted to need reskilling in response to future technological changes.

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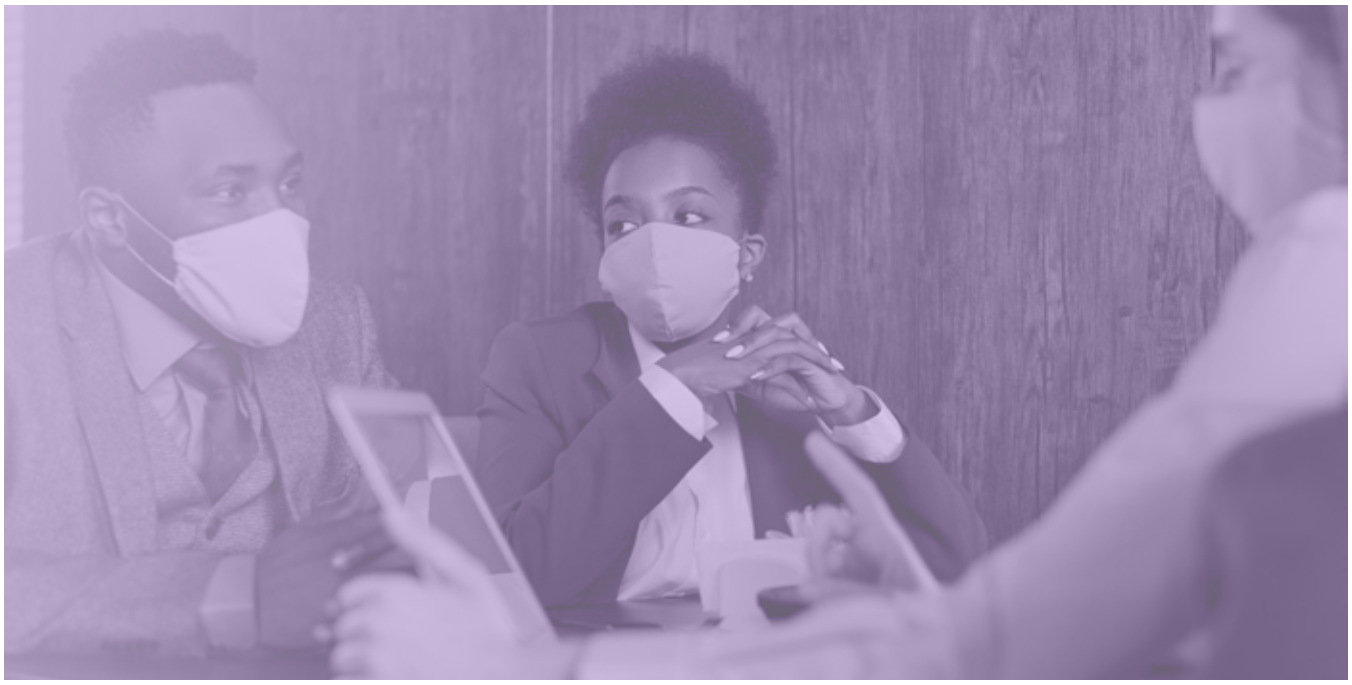
Appendix: Case studies of blended learning for TVET models

In practice, many combinations make up an effective |and efficient blend for TVET. The following case studies give examples of what COL partners and others are doing across the four blended learning models introduced above.

Because TVET includes development of skills along with acquiring knowledge, it always uses a blend of approaches. While the framework within this document has three categories, they are really a continuum with blurred boundaries. These final case studies describe blends which include learning in all three 'places'.



TVET provider or community classroom, enhanced with technology

Before COVID-19, many TVET institutions were moving to blend online and technology enabled learning with classroom teaching and practical training in workshops. Community based training organisations have been able to offer similar approaches, using their centres as classrooms to teach theoretical, practical and soft skills. Benefits from including technology in the blend are greater flexibility for learners, more time to focus on practical and soft skills in face-to-face teaching time, greater number of students able to be trained with the same finite physical infrastructure, and the ability to develop digital skills using technology.

For ten years, COL has been working with a growing number of TVET institutions in Kenya, Nigeria and Zambia to integrate technology into their campus-based programmes to increase access to quality TVET. Institutions use technology within classroom and workshop teaching on campus. There have also been moves to use more flexible approaches to reach artisans in the informal sector by offering short courses outside normal teaching hours in community settings. COL has built the capability of policy makers, institutional leaders, institutional champions, and teachers to implement the changes to use technology. Progress has been made in development of institutional policies, new

organisational structures, such as champion roles and distance learning centres, and collaborative partnerships with industry and other institutions to support learners' distance study. Teachers have learned to find and use digital learning materials to support learning, such as videos to show students how to use tools correctly, and teaching them to search for online resources themselves. Student feedback is that they find this more engaging, and completion rates have increased. Barriers have been inadequate infrastructure and resistance to change. As Kenya, Nigeria and Zambia respond to COVID-19, it is the institutional champions and leaders who saw the potential of distance and online learning up to ten years ago, who are being called upon by their governments to lead the strategy development and capability building to help other TVET institutions move quickly to use technology to offer some learning to their students.

COL worked with Kampabits, a youth-based organization in Uganda to train marginalised youth from non-formal settlements in graphic design and software development, with a focus on preparing them for employment. The training used digital learning materials including repurposed OER and new multimedia for the training. Kampabits provided access to computers at their centre so that learners without access to their own devices could access the digital material and develop ICT skills. As well as accessing the computers, learners benefited from a safe space for study, support from teachers and being able to interact with peers. Another strength of the programme was links between Kampabits and employers in deciding the skills to be taught and in providing opportunities for learners to move into employment. Through this learning context, 60% of the 93 learners, including 10 persons with disabilities were supported to develop skills and move into employment (Gaeta and Bustamante, 2019).

On-the-job training, supplemented with classroom and distance and online learning

At the national level, through its Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA), Zambia has established a blended approach that includes distance learning, workplace learning and block courses on campus. Technical institutes work with companies to train apprentices towards national qualifications. They develop print-based distance learning materials, using checklists developed by TEVETA to assure quality. Learners work through these materials to understand theory, and complete assessment activities to develop and then demonstrate knowledge. Assessors from the TVET institution mark these workbooks and provide clarification of concepts during block courses. Workplace supervisors train apprentices in practical skills, with weekly visits from teachers from the TVET institutions to support them as they do the training. Over the two years of study, learners attend six two-week block courses on campus. They undertake practical assessment activities as defined by TEVETA, and institution assessors verify supervisor feedback on learners. Together this contributes 40% of an apprentice's final assessment, the rest being assessed by TEVETA through an external assessment activity.

Two case studies from New Zealand, in the building and the health care industries, illustrate how learners develop practical skills through on-the- job training while building their theoretical understanding through distance learning (Alkema and Neal, 2019). Within the same national system, both using a blend of distance and workplace learning, the two organisations operate differently.

Careerforce, the healthcare training organisation, uses an employer led model where the primary responsibility for learner support and teaching resides with the employers. Employers can decide what suits their company's context to get trainees started and keep them motivated. Two examples are peer-mentoring and dedicated nurse educator. Learners access the online materials at home or at work, with many downloading the materials at work because they do not have strong digital skills or lack access to technology at home. Trainers, assessors, mentors and buddies support trainees to work through the materials and to develop their practical skills. Learners complete assessments online and workplace assessors and verifiers confirm that trainees have the necessary practical skills. Careerforce workplace advisors connect with the trainers and assessors, rather than directly with trainees, and workplaces report to Careerforce that competencies have been achieved.

For carpentry, the Building and Construction Industry Training Organisation training advisors connect directly with learners for support and for assessment. Employers are the primary trainers and also offer support. Training advisors encourage learners to work through the books and use the technical information in the learning materials as background to inform conversations they have with their training advisors and employers, but using books is not compulsory and does not form part of the final assessment. The advisors visit trainees regularly (every three months) and are available by phone and email. They are an interface between the learning materials, the apprentice and the employer. Professional conversations between the training advisor and the apprentice are both formative (performed as a casual chat) and summative (assessment purposes). This encourages reflection and integration of theory with apprentices' practical work, which is then verified by observation, examples of evidence provided through photos or diaries, and conversations with the employer. It relies on the training advisors being well trained educators.

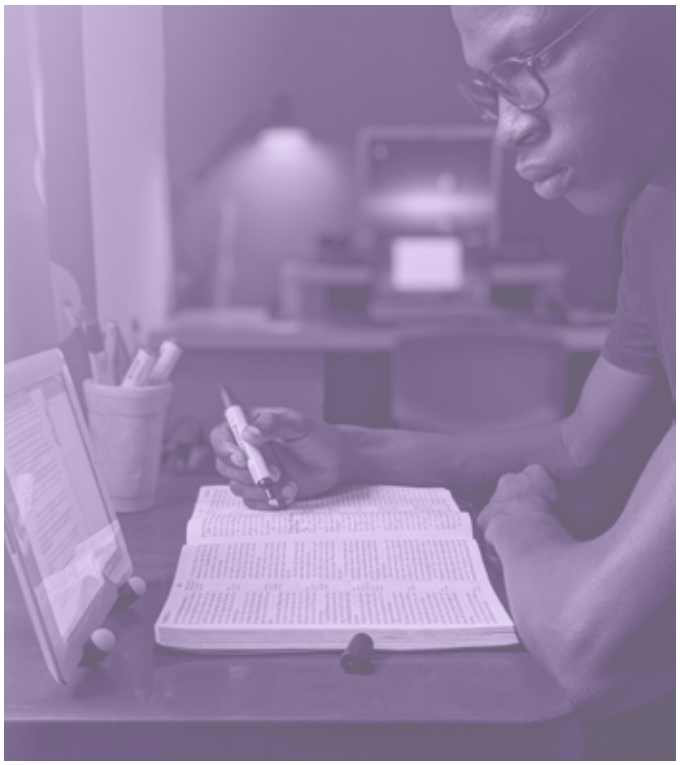
COL is working with formal TVET institutions in Kenya, Nigeria and Zambia to implement distance and workplace learning models to formalise informal apprenticeships. ILO identifies formalising informal apprenticeships as a key strategy for improving employment in Africa and Asia for five reasons –

- Informal apprenticeships are widespread, up to 90% of skills development in some countries.
- Informal apprenticeship is a proven training system providing relevant skills.
- Decent work deficits in informal apprenticeships need to be addressed.
- Upgrading informal apprenticeships is a cost-effective way to improve young people's employability.
- Quality apprenticeships can dynamise local economies.

COL is building on ILO's experience formalising informal apprenticeships, through the use of distance and online learning. It offers consistent, quality teaching of theory and supports and assesses learners where they are, thus increasing access through lower costs and more flexibility, while maintaining national standards. The first projects are training artisans in pedagogical skills and developing skills in carpentry, and computer and mobile phone repair.

Fully distance and online learning

Some skills can be developed fully online, using well -designed activities to give learners the opportunity to apply their knowledge in a non-campus context. Examples include inviting them to find a context where they live and work in which to apply it, offering a case study in which to apply their learning, or using the online environment as the context within which to build digital skills, such as graphic design or coding.



An example is assessor training in the Caribbean. COL has worked with the Caribbean Association of National Training Agencies (CANTA) to develop a fully online course to train assessors. CANTA identified lack of trained assessors as a barrier to quality while moving to competency-based assessment across the TVET sector. They started with face-to-face training but faced challenges of trainees not being able to attend workshops, because of cost, travel between islands, and not being able to take a week off work. This was also a way that the CANTA members who were further advanced in implementing the new system could support countries that were just starting. Online trainees achieve the same regional assessor qualification as those trained face-to-face. Participants in the face-to-face training worked with an instructional designer to develop the online modules. The online modules introduce theory to learners who do knowledge reinforcing activities, including an essay, automated quizzes and facilitated discussion forums where they can discuss topics with their peers. The course ends with a practicum that learners do in their own contexts. They do the practicum face-to-face with assessees but submit the evidence online to an online assessor. Their portfolio of evidence needs to include planned assessments, developed assessment instruments, completed pilot tests reports, conducted assessments, reviewed assessments, recorded assessment results, and documented reflections. The course is now being offered to the fifth cohort. The online model has proven successful in achieving the same level of competency for those who complete, and in training assessors who otherwise could not access training. However, completion rates have been lower than for face-to-face training. Two thirds of the pilot cohort successfully completed it, but since then rates have been lower. CANTA is working on managing learner and employer expectations, so that employers and potential learners understand that the workload is comparable to face-to-face workshops and trainees need similar release time and greater intrinsic motivation.

A growing number of private sector organisations are offering fully online courses to support learners to develop skills for employment. COL is working with Udemy and Coursera to offer online courses to marginalised learners in Africa and Asia. The strength of these repositories of courses is that learners have many options and can choose the courses which match their career aspirations. Motivated learners can study different courses for a fixed period of time and are able to learn as much, or as little, as they wish. The online systems have dashboards showing detailed analytics of course choices, participation, progress and completion. This helps learner support roles know when and with whom to intervene. COL has supplemented the online study with support from local community organisations to recruit learners and help them select relevant courses and move beyond study to employment.

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The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to promote the development and sharing of open learning/distance education knowledge, resources and technologies.

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