

Practical skills online – how far can you go?

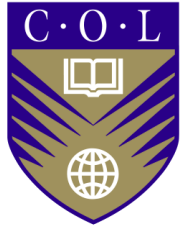
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COMMONWEALTH of LEARNING



COMMONWEALTH *of* LEARNING



To help Commonwealth governments and institutions use distance and open learning for sustainable livelihoods



Distance learning: Increase access through flexibility and affordability



Open TVET?



Pre COVID 19


GLOBAL LABOUR MARKET CHALLENGES

 People WITHOUT WORK	SKILLS MISMATCH 	WORK keeps CHANGING 
<p>over the next decade at least 475 million jobs need to be created</p> <p>to absorb 73 million youth currently unemployed and the 40 million new annual entrants to the labour market</p>	<p>in 2018, across the globe 45% of employers reported difficulty filling jobs</p> <p>Supply-driven skills development is producing unemployable graduates</p>	<p>1.44 billion workers are in vulnerable employment</p> <p>by 2030 the jobs of 400-800 million people could be displaced by automation</p>
<p>Youth unemployment is 3x the rest of the population – in developing and developed countries</p>	<p>over the next two decades 15-60 million new jobs will be generated as we move to a greener economy</p>	
EMPLOYMENT AND ENTREPRENEURIAL SKILLS	Beyond ACCESS RELEVANCE & QUALITY	LIFELONG LEARNING

Source: UNESCO Strategy for TVET (2016-2021), <http://www.unesco.org/images/0034/013450/13450246220a.pdf>

Source: UNESCO Strategy for TVET (2016-2021), <http://unesdoc.unesco.org/images/0024/002452/045220a.pdf>

World Economic Forum (2016) Solving the talent shortage: Build, buy, borrow and bridge, <https://www.weforum.org/publications/Solving-the-talent-shortage-Build-buy-borrow-and-bridge>

World Economic Forum (2016) What is the future of work, <https://www.weforum.org/agenda/2016/01/what-is-the-future-of-work/>



Post COVID 19

 col.org
GLOBAL LABOUR MARKET CHALLENGES

 People WITHOUT WORK	SKILLS MISMATCH 	WORK keeps CHANGING 
<p>over the last decade at least 475 million jobs have been lost on youth currently employed and the 40 million new annual entrants to the labour market</p>	<p>TVET INSTITUTIONS CLOSED, WORKPLACE LEARNING AFFECTED, PRACTICAL SKILLS DEVELOPMENT A CHALLENGE</p> <p>Supply-driven IDLE WORKERS skills development STUDY AND TEACH ONLINE FOUNDATION FOR IMPROVED TRAINING SYSTEMS</p>	<p>1.44 billion RAPID UPSKILLING FOR SERVICE SECTOR WORKERS by 2030 the jobs of 400-800 million people could be displaced by automation IDENTIFY AND RESPOND TO NEW SKILL NEEDS 15 million will be generated as we move to a greener economy</p>
EMPLOYMENT AND ENTREPRENEURIAL SKILLS	Beyond ACCESS RELEVANCE & QUALITY	LIFELONG LEARNING

Source: ILO Monitor: COVID-19 and the world of work. Sixth edition, Sept 2020 https://www.ilo.org/global/topics/coronavirus/reports-and-press-releases/WCMS_755014/lang-en/index.htm

Source: World Bank Group TVET systems' response to COVID-19: Challenges and opportunities <https://openknowledge.worldbank.org/handle/10985/35750>

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Open TVET

TAFE^{NSW}

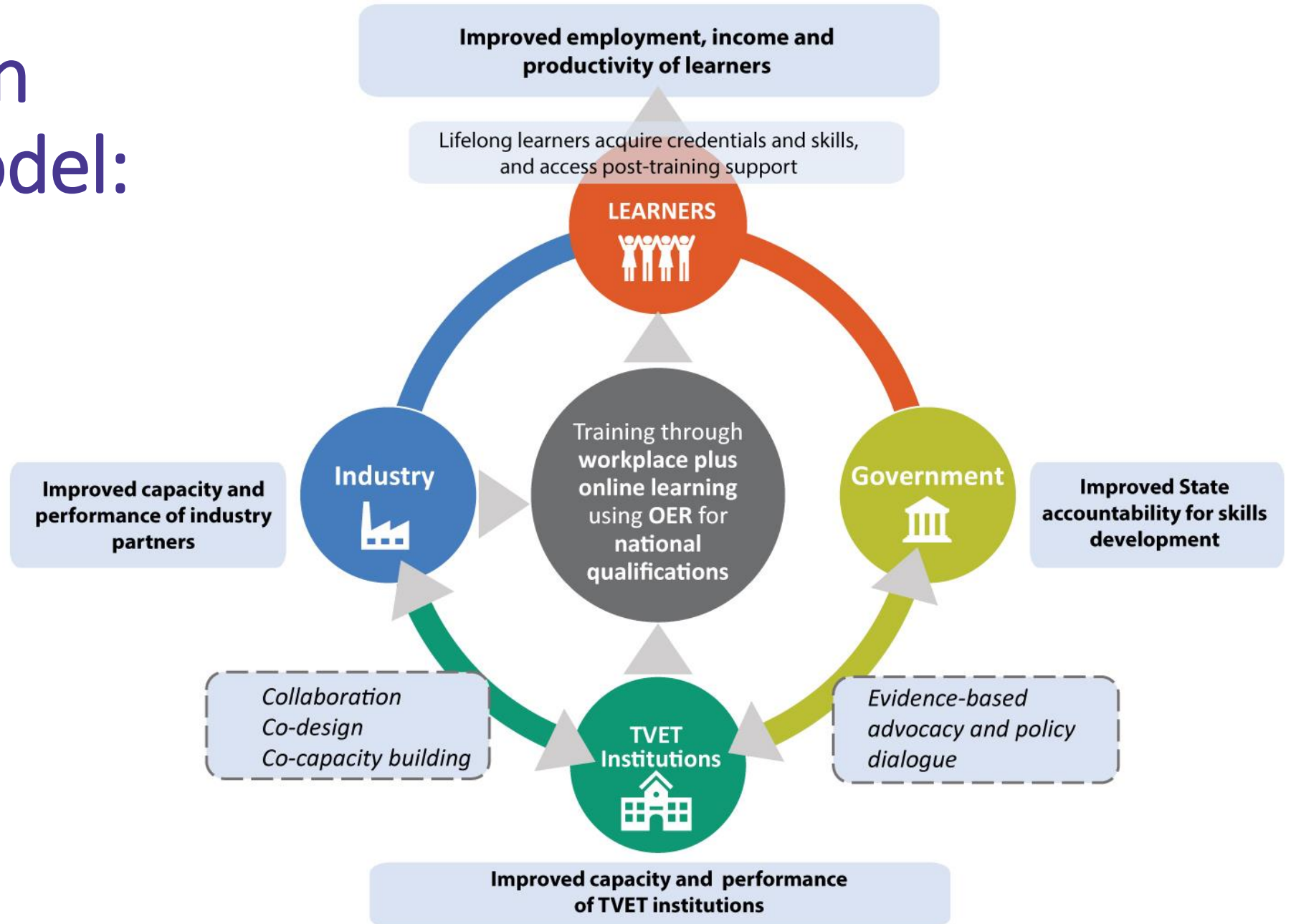
oten

Open Polytechnic
KURATINI TUWHERA

BCITO
buildingpeople



COL's Skills in Demand model: Pathway of change



Country	Partners - TVET and industry	Skill in demand	From pilot to scale
Nigeria	<p>Yaba College of Technology</p> <p>Computer and Telecommunication Engineers Association of Nigeria (COMTEAN)</p>	<p>Computer and mobile phone repair, business skills</p> <p>Projected demand for ICT skills</p>	<p>Pilot 80MCs + 500 apprentices</p> <p>Scale 2022 – 1,200 + 12,000 2023 – 3,000 + 30,000 pa</p>
Zambia	<p>Luanshya Technical Business College</p> <p>Nakadoli - informal furniture co-operative</p> <p>Kubu Crafts - formal furniture making company</p>	<p>Carpentry and upholstery, business skills</p> <p>Furniture making industry - one of nine 'quick wins' for job creation</p>	<p>Pilot: 11 MCs, 50 apprentices</p> <p>Scale: > 1,000 co-operatives, 100,000 trained</p>
Tuvalu	<p>Tuvalu Atoll Science, Technology and Training Institute (NZ Building and Construction Industry Training Organisation)</p> <p>Public Works Department</p>	<p>Construction</p> <p>Build and maintain Tuvalu infrastructure, including post cyclone, emigration choices</p>	<p>Pilot: 60 unskilled construction workers Now extended to schools</p> <p>Scale: Higher level construction skills, other skills, other countries</p>

Co-design – workplace plus online learning

- Genuine partnership based on trust, developed over time
- Project design workshop
- Collaborative design and development of
 - High level design
 - Assessment process
 - Learning activities
 - Digital resources
- Agree support process and roles



Co-capacity building – COL, TVET, industry

- COL capacity building
 - Industry plus educator teams
 - Develop templates – SARA, storyboarding
 - Workplace plus online learning
 - How to videos
 - Virtual mentoring
 - Demonstrate, practice, ongoing feedback until competent
 - Moodle implementation course
 - Online courses in development
 - Technology support
 - Moodle development space
 - Moodle instance
- Workplace supervisor training



Practical skills pedagogy

- Move from difficult and conscious to innate
- Build muscle memory (cf sports training)
- Blend with
 - How to think – theory, experience, problem solving
 - How to be – attitude, craftsmanship
- Observation and imitation
- Practice – ‘feel the wood’ ‘read the dough’
- Importance of feedback



How far can you go online?

- Observation – videos
- Part imitation through simulations/VR with automated feedback
 - Step wise introduction to complex processes
 - Gamification
 - Options for diverse experiences
 - Require equipment as for workshops
- Online support resources
 - Checklists, processes, templates, manuals
- Online portfolio of evidence of competence
 - Videos, conversations, job sheets etc
- Only real materials offer the practice to
 - ‘feel the wood’ ‘read the dough’
 - Experience and problem solving, craftsmanship
 - Online works when the ‘real materials’ are digital



<https://awo.aws.org/2016/04/virtual-reality-is-revolutionizing-welding-education/>



No simulations, VR or AR?

- Only take you so far, still imperfect
- Cost to license or develop, limited openly licensed options
- Cost to use – equipment, devices and data
- Workplace context enables affordable practice
- Long term - could be a wonderful supplement to COL's model



<https://pxhere.com/en/photo/1523905>

Develop digital resources – Zambia, Nigeria

- Practical skills development
 - Online video demonstration, resources, instructions, some support
 - Workplace imitation, practice, feedback, support
- Practical assessment of workplace activities
 - Portfolio of digital evidence of competence, naturally occurring where possible
- Theory
 - Online resources and support
 - Assessed online, professional conversations
- Openly licensed to achieve scale



5. → To troubleshoot a failing SATA cable in a desktop PC. Select the tools needed to fix the problem from the set of tools listed below.

¶



Correct: Screw driver, Multimeter, Static-strip watch, Cable tester ¶

Feedback: Correct! ¶

Feedback: Try again. ¶

¶

Yabatech Mobile Repair

Participants

Badges

Competencies

Grades

General

Source Documents

Occupational Health and Safety in GSM and Mobile Phones Repairs and Maintenance

Communication in GSM and Mobile Phones Repairs and Maintenance

Replacing faulty mobile phone spare parts with new or fairly used



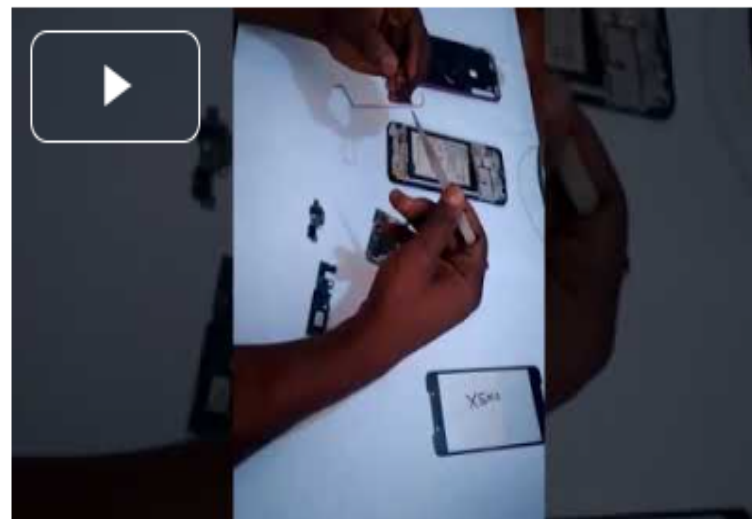
Preview

Edit

Reports

Grade essays

How to match the correct GSM and mobile phone parts



Lesson menu

- [Introduction](#)
- [Components Installation Guide](#)
- [Health and Safety Procedure Checklist for Component installation](#)
- [Mobile Phone Manuals](#)
- [Process and Techniques of Removing and Replacing damaged parts](#)
- [Removing damaged parts and replacing with new or fairly used Mobile Phone spare parts](#)
- [Step by step procedures of how to match mobile phone parts](#)
- [How to match the correct GSM and mobile phone parts](#)

Activate Windows
Go to Settings to activate Windows.

Existing materials - Tuvalu



[Gateway](#) [Level 1 BCATS - 2021](#) [Level 2 BCATS - 2021](#) [Level 3 BCATS](#) [Site Notes and Changes](#) [Consent to Assess](#)

[Home](#) / [Level 3 Unit Standards](#)

Level 3 Unit Standards

Welcome to Level 3 BCATS!!

Until 2017, the only building and construction-related unit standards and qualifications designed for secondary schools have been at Levels 1 and 2, with some Level 3 unit standards (intended for those undertaking apprenticeships) available for those doing Gateway.

There are eight Level 3 BCATS unit standards, which are:

- Flexible enough so that teachers/students can select their own projects in any of BCITO's 15 sectors providing they meet the Stage 3 BCATS project criteria.
- Able to be achieved by undertaking projects in any of BCITO's trades.
- Able to be achieved in school workshops, training establishments, outdoor areas, and/or in the workplace during industry placements ('work experience').
- Explicit that attaining commercial competence is not a requirement.
- Suitable for students to take as a subject as well as for those participating in 3+2, Gateway, or Youth Guarantee programmes.
- Responsive to the reality that some students will likely be enrolled for a full school year, whereas others may be able to

Select Unit

[Assessment Guidelines](#)
[Stage 3 BCATS Guide](#)
[L3 BCATS poster](#)
[Student Work Diary](#)
[29677 - Safety](#)
[29678 - Materials](#)
[29679 - Documentation](#)
[29680 - Communicate](#)
[29681 - Measure & calc](#)
[29682 - Tools, machinery](#)
[29683 - Other trades](#)
[29684 - Stage 3 project](#)

BCATS. 29677



Safety

Follow safe workplace practices and contribute to a health and safety culture in a BCATS environment.



2 CREDITS

BCITO
buildingpeople



Online/offline design



Aptus

This mini-PC requires only battery power and can host up to 128GB of educational content and facilitate interactive, virtual learning anywhere.

Watch on  YouTube



Working within national TVET systems

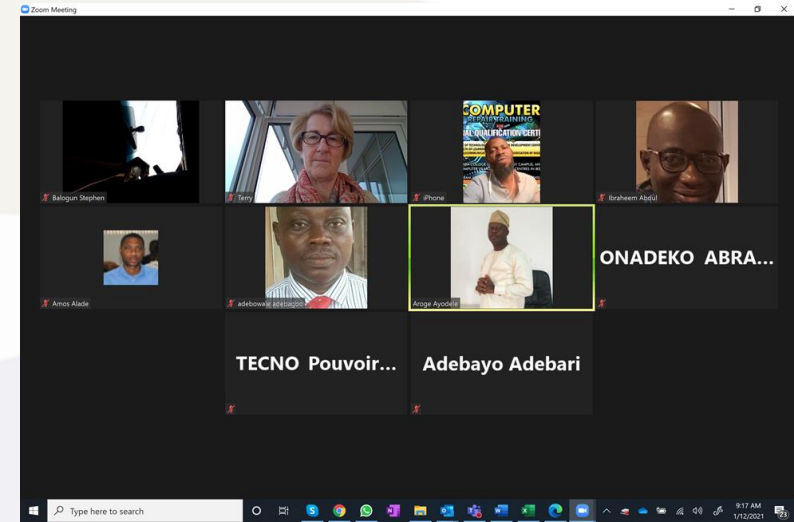
Quality assurance processes

- Registration of workplaces to meet standards
 - Assessor training
 - Assessment of competency
-
- Practical skills - competency important, not how it was achieved
 - High stakes examination (Nigeria, Zambia)
 - Validated online portfolio (NZ)
 - Moves to online portfolios increase flexibility and affordability



Influencing policies for TVET

- Initial government support
- Government agency involvement in advisory groups
- Events
 - Webinars
 - Launch events
- Monitoring and evaluation



Conclusions

Online development of practical skills is not yet possible (except for digital skills)

Online assessment of practical skills developed at a distance is possible through online portfolios of digital evidence

Distance TVET is possible using online for theory, learner support and as a repository for resources (learning and evidence of competence), and workplace infrastructure and people to practice and assess practical skills

Workplace plus online learning models require significant up-front investment in capacity building and resources development, but offer the promise of increasing access through affordability and flexibility, while maintaining quality and relevance when embedded in national TVET systems

For disadvantaged learners, openly licensed simulations and VR could support online development of the first steps towards practical skills



Thank you

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