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Taking Stock

Defining an Excellence Framework for Vocational Education:

An international literature review prepared for the Food and Fibre Centre of Vocational Excellence

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November 2021

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Executive Summary

This literature review traverses recent international studies looking at aspects of good and excellent practices in vocational education and training (VET) across multiple jurisdictions. Cutting immediately to the chase, we find a plethora of definitions and descriptions of VET excellence (especially relating to elements of VET[1]), but relatively fewer attempts – and certainly no agreement – on how to robustly measure it.

Our review of the literature identified several common features in terms of the 'direction of travel' for VET systems. This is particularly in light of discussion and debate about the fourth industrial revolution and associated future of work, labour markets, and technology change. More recently, the COVID-19 pandemic has accelerated trends and given urgency and impetus to investment and innovation in VET systems and delivery, as well as policy effort and attention to skills and workforce development issues.

By identifying commonalities in terms of desirable elements of VET systems – the trends and megatrends – we have been able to identify contrasts between current states or traditional approaches, and future desired states.

To parse an enormous available literature to support this review, we developed a 'maturity model' rubric inspired by the European Training Foundation's cross-country study on Centres of Vocational Excellence. We situate "excellence" by looking also at "acceptable minimums" through "good" and then, finally, to "excellence" in terms of a range of VET elements and practices.

We then applied Tomaševski's "4As" framework (2001) as a structuring tool to populate a set of rubrics. The 4As framework has been applied in educational contexts over the last 20 years, including a recent UNESCO study on the effectiveness of TVET systems to meet the needs of disadvantaged learners. Despite being originally developed for a different educational context, we found that applying a mental model of "available, accessible, acceptable, and adaptable" was a useful way to distil the elements of VET systems and processes described around the world and develop some descriptors on that basis.

We have attempted to prioritise elements of VET systems – broadly categorised around the people, provision, and processes that underpin VET - to populate a draft 'excellence framework'.

This work forms an early part of a 'taking stock' set of research efforts undertaken as part of the establishment and benchmarking phases for the new Food and Fibre Centre of Excellence. This report deliberately excludes New Zealand-based examples. We fully appreciate that there will be differences when the framework is considered in terms of Aotearoa, its VET system, and the people, products and processes that comprise it. But this review has not been designed to discover what is different, but to discover what is universally regarded as excellent.

Our hope is that by developing these rubrics to make some sense of our international search it might also provide a useful set of indicators for VET stakeholders here in New Zealand, potentially as an evaluation (or self-evaluation) tool to test aspects of VET processes, practices, systems, policies, and stakeholder behaviours.

[1] We use the acronym "Vocational Education and Training" as the commonly understood term in New Zealand, but we note that TVET – Technical and Vocational Education and Training is used more widely and internationally. For the purpose of this review, we consider and treat them synonymously.

Defining an Excellence Framework for Vocational Education

Excellent Vocational Education and Training (VET) develops high quality skills and competencies that lead to quality employment and career-long opportunities, and create an innovative, inclusive, and sustainable workforce.

Defining vocational excellence

Taking the key terms in turn: *Vocational* excellence refers to "high quality and relevance to the world of work and to the attractiveness of the educational offer to learners and to employers." [2]

Excellence variously refers to subjective measures of satisfaction – particularly of industries and employers or stretch in terms of systems going beyond the minimum expectations. In the immediate post-COVID environment (as well as industry 4.0, automation and the 'gig' economy) this is characterised by the emerging role for VET systems and institutions to prepare people for an irrevocably changed labour market landscape and new ways of working. More generally, excellence in VET tends to be applied independently or in combination to terms of a number of desirable system features, including but not limited to:

- Sustainable financing
- Responsiveness to labour market and industry needs
- Offering continuous and lifelong learning opportunities
- Clear pathways and permeability to allow progression and career change
- Formalising and credentialising skills and experience.
- National-level employer recognition
- Developing employability, mobility, and portability in the workforce.

Mega- and meta-trends

We also found multiple references to current and future trends in vocational education, some hastened and/or disrupted by the COVID-19 global pandemic. These include:

"Formalising the informal"

There is increasing recognition that informal and non-formal learning occurring in workplaces is developing skills and experience that can be recognised through credentials and qualifications, including through recognition of prior learning. Existing skills, developed through work experience can also be augmented for the purposes of upskilling and reskilling, career change, or redeployment, but more generally as part of continuing vocational education, and to support lifelong learning.

Diversity and Inclusion

We find increasing acceptance that inclusive vocational education is a marker of excellence. This especially makes sense when VET is framed in terms of maximising the potential of the available skills

[2] ETF – Centres of Vocational Excellence https://www.etf.europa.eu/en/publications-and-resources/publications/centres-vocational-excellence-engine-vocational-education

in the labour market. This particularly goes to equity issues and ensuring that VET systems and delivery are accessible to, and supportive of diverse groups in society and the economy. This creates a focus on how well the system is developing employability and attending to the needs of vulnerable groups – i.e., those needing most support to enter and succeed in the labour market, because they have been traditionally excluded, or historically been underserved or underrepresented.

Sustainability

VET systems are seen as core to moves towards sustainable societies and green economies, through developing workforces underpinned by sustainable development as well as adoption of green technologies. A significant and growing literature is developing in this area as part of global initiatives to address climate change as to embed sustainable skills and concepts as part of education and training for industries.

Digitisation

The rise of digital technologies is changing vocational education, along with the industries that VET systems serve. This creates opportunities and challenges to deliver VET in new ways (mobile onsite learning, simulation, AI, virtual reality).

The blend of technical competencies and core capabilities

A future of work dynamic, recognising that the changing world of work requires constant upskilling – therefore core skills such as the ability to learn itself, adaptability, and cross-cutting capabilities – e.g., communication and digital literacies, are increasingly seen as desirable elements of VET systems and programmes, and a core area where partnerships and integrated between workplaces and providers become critical.

Centres of Vocational Excellence

In addition to reports and examples of excellence in VET, we find growing international references and studies relating to Centres of Vocational Excellence as a type of VET system entity. However, we note that the concept, role, and functions of COVEs differ significantly between jurisdictions and within the contexts of their VET systems. We have included these references below and recommend that further analysis of this be undertaken, to inform the work of New Zealand's newly established COVEs, but this is not within the scope of this report.

Longer range forecasts

In addition to the above, we found longer-range studies that set out possible scenarios for VET – notably CEDEFOP's Vocational Training in Europe 1995 – 2035[3]. Further work could be undertaken to analyse such long-range reports (particularly where part of the 'future' window is now in the past), however this has not been part of our scope. We note that in the Aotearoa New Zealand context, iwi tend to develop long range and multi-generational plans, including for their workforce development. Demographic and societal change have delivered Aotearoa New Zealand to an inflection point in terms of its cultural and multi-cultural make-up, particularly with respect to the partnership between Crown

[3] Vocational Training in Europe – 1995 to 2035 https://www.cedefop.europa.eu/en/publications-and-resources/publications/3083

and Māori established through Te Tiriti o Waitangi. This will require redesigning the way that VET is developed and delivered in New Zealand.

The pandemic era has also created considerable uncertainty, though is generally characterised as an acceleration of existing trends in VET, particularly in terms of mode of delivery. Finally, many developed countries, including New Zealand, periodically undertake VET system reforms which deliver short term uncertainty that inhibits long range analysis.

References.

A regional approach for the development of TVET systems in the light of the 4th industrial revolution: the regional association of vocational and technical education in Asia https://www.tandfonline.com/doi/full/10.1080/14480220.2019.1629728?src=recsys

CEDEFOP - Spotlight on VET 2020 compilation https://www.cedefop.europa.eu/en/publications-and-resources/publications/4189

CEDEFOP – The Importance of being vocational: challenges and opportunities for VET in the next decade https://www.cedefop.europa.eu/files/4186_en.pdf

CEDEFOP - Osnabrück Declaration 2020
https://www.cedefop.europa.eu/files/osnabrueck_declaration_eu2020.pdf

Changing the TVET paradigm: new models for lifelong learning https://www.tandfonline.com/doi/full/10.1080/14480220.2019.1629722

Creating Centres of Excellence to Fill Critical Skills Gaps
https://development.asia/explainer/creating-centers-excellence-fill-critical-skills-gaps

ETF - Centres of Vocational Excellence An engine for vocational education and training development https://www.etf.europa.eu/en/publications-and-resources/publications/centres-vocational-excellence-engine-vocational-education

EU: Mapping of Centres of Vocational Excellence – CoVEs
https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8250

Excellence in VET
https://www.apprenticeship-toolbox.eu/attractiveness-excellence/excellence-in-vet)

Key competences in initial vocational education and training: digital, multilingual and literacy https://www.cedefop.europa.eu/en/publications-and-resources/publications/5578

OECD reviews of vocational education and training Learning for Jobs: POINTERS FOR POLICY DEVELOPMENT https://www.oecd.org/education/skills-beyond-school/LearningForJobsPointersfor%20PolicyDevelopment.pdf

Skills Beyond School: Synthesis Report
https://www.oecd.org/education/skills-beyond-school/Skills-Beyond-School-Synthesis-Report.pdf

Skills Development Vital to Enabling Transition to Industry 4.0 in Southeast Asia — ADB Study https://www.adb.org/news/skills-development-vital-enabling-transition-industry-4-0-southeast-asia-adb-study

Strengthening the Responsiveness, Agility and Resilience of TVET Institutions for the Post-Covid 19 era https://unevoc.unesco.org/home/COVID-19+response

The Importance of being vocational challenges and opportunities for VET in the next decade https://www.cedefop.europa.eu/en/publications-and-resources/publications/4186

TVET Systems' response to COVID-19: Challenges and Opportunities https://openknowledge.worldbank.org/bitstream/handle/10986/33759/TVET-Systems-response-to-COVID-19-Challenges-and-Opportunities.pdf?sequence=1&isAllowed=y

UNESCO-UNEVOC Medium-Term Strategy for 2021–2023 (MTS-III) https://unevoc.unesco.org/pub/UNEVOC_MTS-III_EN.pdf

Excellence Frameworks

Overview

To support this review, we developed a rubric adapted from Tomaševski's "4-A" framework (2001). This framework originated in human rights literature and has been applied in educational contexts over the last 20 years, including a recent UNESCO study on the effectiveness of TVET systems to meet the needs of disadvantaged learners.

We were simultaneously struck by the European Training Commission's multi-country study relating to Centres of Vocational Excellence (CoVEs) across several international jurisdictions. Along with developing a typology for CoVEs, it revealed 'good' practices, and 'acceptable minimum' practices, as well as excellent practices.

This implies a 'journey' to excellence and, as such, a maturity framework approach might be the appropriate tool as a way to guide our analysis of the literature against prioritised VET processes and learner segments.

Secondly, the description and application of excellence in VET tends to apply to different aspects of systems, for instance excellent programmes or initiatives or teaching practices – in other words the elements and features of systems, rather than those systems overall. To put it another way, a single sentence answer to "what is an excellent VET system" might well be developed but have little value given the underlying complexity of those systems.

We have therefore taken an approach to prioritise elements of VET systems – people, provision, and processes, to develop a set of rubrics that populate a draft 'excellence framework'.

Our hope is that by populating such a rubric to guide our work it might also be tested with stakeholders and serve a further purpose as an evaluation (or self-evaluation) tool to test aspects of VET processes, practices, systems, policies, and stakeholder behaviours.

We considered and prioritised a number of aspects of VET systems and delivery, to apply to the excellence framework. This framework was initially developed to provide some structure to a search of an extremely large literature. At the highest level it can be categorised at three levels:

> People: the characteristics and attributes of stakeholders in the VET system. Somewhat behaviouristic, we searched for descriptors and examples of when these groups demonstrated excellence – in other words, when the VET system is excellent, what are employers doing? What are educators doing?
>
> Provision: what are the characteristics and attributes of VET provision and delivery that have been identified as excellent, considering VET is delivered to diverse and differently located groups, and though different modes and blends of delivery, and underpinned by a range of curriculum development and assessment methodologies? In short, what has been shown to be excellent in the "stuff" of VET.
>
> Processes: What support and contextual processes support VET systems? This immediately leads to exploration of funding and financing models, but also learner support and pastoral care processes, as well as questions of how systems capture and respond to learner and stakeholder "voice".

Excellence Framework

People	Provision	Processes
1. Educators 2. Employers	3. Modes of delivery 4. Digital and distance learning 5. Work-based learning 6. Learners – underserved 7. Learners – mid-career 8. Methods – pastoral care 9. Methods - assessment	10. Funding models and incentives 11. Skills recognition and credentials

This initial set of rubrics is by no means comprehensive and represents a selective set of VET "elements" we iteratively developed. We do think this approach could be applied and evolved over time to consider other elements of vocational education and training.

The rubrics ought also to be read "right to left". The descriptors of "excellence" subsume and include the descriptors for "good" and "acceptable minimum". Each and every rubric in this report also has an embarrassment of research and examples of excellent practice that we did not find through our desk-based methodology. So, for both the selection of rubrics included in this framework, and many others that might additionally be developed, these shorthand descriptors are necessarily high level.

Excellence Frameworks: People

Educators

Attributes of educators working in the VET system.

Indicator	Acceptable minimum	Good	Excellent
Availability	Educators are available, with domain knowledge.	Professionally trained educators available, both pedagogical training and domain skills/knowledge.	Educators are appropriately skilled and qualified.
Accessibility	Educator is available to learners and providing structured training.	Educators are accessing pre-service educator training.	Educators are networked and connected in the industry for which they are providing training
Acceptability	The tutor/trainer is competent in domain knowledge.	The educator is trained in effective pedagogical practice. The educator demonstrates effective learning transfer.	Educator delivers exceptional outcomes to learners. Educator is a trusted and respected partner of industry practitioners.
Adaptability		Educator is engaged in professional learning and development.	Educators are engaged in continuous upskilling in terms of domain and practice. Educator modifies practice to meet individualised learner need.

The literature on VET educators points to the critical importance of pre-service training to ensure there is pedagogical and andragogical "craft" along with specific technical or domain knowledge relating to the industry. Competence and mastery of the skills being taught is required but is far less useful without the ability to effectively impart skills and knowledge through effective teaching and learning craft. Recent studies also point to the rapidity of technological change, which creates a higher emphasis on skills updating and continuous learning, to ensure the educator's competencies remain current and relevant. In other words, in the 21st century, being qualified is one thing, remaining qualified is another.

A strong opinion remains in VET that vocational skills are best imparted by expert practitioners – industry experts themselves – which is often expressed as an ideal. But that this must be supported by professionalisation of the teaching workforce (e.g., Spottil 2011). Industries often perceive that learning on the job is superior from other forms of learning – because it delivers general professional and employment capabilities while delivering technical skills, and in an authentic environment, but arguably the trade-off is the effectiveness of the instruction.

This is particularly salient in the case of work-based learning when the employer is the teacher – accurately determining which skills can be developed through application and practice in the workplace, alongside aiding and abetting employers with effective teaching practices, is a critical way to ensure the skills development is most effective and delivers productivity improvements.

Examples

Singapore: ITE Academy, Institute of Technical Education - Learning to Do, Learning to Be: A New Paradigm in Teaching and Learning

In 2015, ITE Academy conceptualized its Discipline-Specific Pedagogies (DSP) Model. This is an explicit and structured adaptation of the German and Swiss Dual Training Approach to guide teachers in exploring and developing innovative ways of delivery to suit the local contexts of various industries.

DSP provides a systematic process for the careful selection of teaching strategies that best facilitate students' acquisition of knowledge, skills, and values specific to the context, content, and practices of their chosen profession. The model draws from Shulman's idea of signature pedagogies as "the types of teaching that organize the fundamental ways in which future practitioners are educated for their new professions". It advocates an integrated teaching and learning approach that hinges on work situations and professional and trade practices to promote the acquisition of "trade-specific DNA" in students.

https://www.adb.org/sites/default/files/publication/719856/teacher-development-case-studies.pdf

Malaysia: The Development of TVET Educator Competencies for Quality Educator

Malaysia is taking steps to strengthen policy guidance and regulatory frameworks for technical and vocational education and training (TVET) and to improve its governance and programme implementation for economic transformation and sustainable development. The transformation requires that TVET educators are well prepared to face the challenges of globalization so that Malaysian educators can stand tall and be committed to support an education system that can fulfil the needs and aspirations of a nation. The objective of this paper is to propose the effective competency of a TVET Educator in a Malaysian context based on the four series of focus group discussions (FGD). This paper explains the development process of the TVET Educator competencies, and the final component generated from the professional and expert in TVET Educator's Education. The outcome this study concludes the three main components for a TVET educator standard, namely: personal traits and professionalism; teaching and learning and training; and skill, technical, and innovation. The development of these competencies is to ensure that the quality TVET Educators produce competent TVET graduates who are capable to meet the requirement of industries and professional bodies. Nevertheless, it is important for the TVET providers, industries, communities, and the Government to collaborate towards achieving a status of high-income nation.

https://penerbit.uthm.edu.my/ojs/index.php/JTET/article/view/2291

Malaysia: Malaysian TVET Lecturer and Industrial Training Through National Occupational Standard Skills (NOSS)

The aim of this study is to provide reflective thinking on the NOSS for TVET lecturers which have been developed by the faculty members of engineering and technology across Malaysia through DSD‟s

accreditation and to provide an exposure about NOSS for TVET lecturers or educators in higher learning institution in Malaysia.

Participatory collaborative research between MTUN universities and DSD has been performed. The research has been conducted using multiple techniques such as content analysis to gain general idea of TVET lecturer core competencies, focus group interview and coffee table workshop session with 21 specialist TVET practitioners and educationists.

The minimum requirements and other characteristics for higher TVET lecturers were identified, which led to the acknowledgment of nine core competencies for NOSS TVET lecturer. Furthermore, a proposal on Master of Technology (MTVET) for TVET Lecturer and Instructor in Malaysia embedded with NOSS for TVET Lecturer has also been proposed.

https://core.ac.uk/download/pdf/268004333.pdf

Employers

Attributes of employers relating to how they contribute to the VET system.

Indicator	Acceptable minimum	Good	Excellent
Availability	Employers are aware of and accessing VET system opportunities.	Employers are actively supporting local or regional skills initiatives	Employers are equal partners in a tripartite approach to VET design and delivery Employers are fully engaged and contributing as part of a skills and training ecosystem.
Accessibility	Employers are engaged with local VET providers.	Employers are engaged with the wider VET network, including schools.	Innovative public-private partnerships (PPP); full workplace integration of education and training
Acceptability	Employers are demanding quality VET products and services.	Employers are supporting the development of VET to consistent, quality assured, and national skills standards.	Employers demonstrate high trust and satisfaction with outcomes and results of VET, irrespective of delivery mode.
Adaptability	Employers are active in local skills initiatives.	Employers are partnering with multiple community and education stakeholders.	Employers offer flexibility in terms of VET stakeholder partnerships – e.g., work experience, apprenticeships,

			internship, careers initiatives

Employers play a number of critical roles in VET systems – indeed, employer involvement (and valuing) of VET activity is arguably what makes it "vocational" in the first place.

The direct involvement of employers varies in VET systems – between being relatively passive recipients of graduates of a VET system they see as external to them, through to being deeply engagement in defining and delivering skills for industry.

It's notable that systems where the employer engagement is strongest are seen as "the gold standard" systems, and OECD results tend to bear this out in terms of its adult skills surveys.

The reason is simple – if vocational education is defined by its relevance to industry, then industry must have a strong say in what is delivered, and ideally form a core part of the delivery network.

A major strength of the dual systems in Western Europe is the high degree of engagement and ownership on the part of employers and employee representatives who have well understood and critical roles as system partners – both in terms of defining and delivering VET. That demand-side engagement develops strong professional identity and improves the perception of VET options and pathways.

Examples:

Malaysia: PPPs for TVET in Malaysia – Case Study

"INSTEP Established in 1981, INSTEP (Institut Teknologi Petroleum PETRONAS) was set-up with the aim to accelerate human capital development to support the growth of PETRONAS as well as Malaysia's oil and gas industry. Currently, the training institute also serves international clients from more than 15 countries as part of its aspiration. INSTEP has since played a pivotal role in the oil and gas technical training services. One of INSTEP's strengths lies in the customisation of learning programmes according to customers' needs. Its flagship programme and instructors have accreditations from BTEC and OPITO, making INSTEP graduates globally marketable. Other examples of such partnerships include a collaboration between PETRONAS and the Manpower Department's (under the Ministry of Human Resources) Industrial Training Institute or ILP and Samsung Malaysia Electronics setting up Samsung Tech Academy at ILP to train skilled technicians."

(https://www.dakchyata-nepal.org/sites/default/files/PPPs%20for%20TVET%20in%20Malaysia%20-%20Case%20Study.pdf)

United Kingdom: Investors in People certification

"Initiatives to encourage employer active participation in the continuous training and upskilling of their employees"

They currently have four different types of accreditations: We invest in people (3 years), We invest in wellbeing (3 years), We invest in apprentices (3 years), and We invest in people (1 year).

(https://www.investorsinpeople.com/)

Global: Business cooperating with vocational education and training providers for quality skills and attractive futures

- Workplace-oriented qualification for unemployed, Austria
- Coop Food School, Denmark
- Trimola Campus and Robola lab project, Finland
- Dual Study Programmes, Germany
- Higher Technical Institutes, Italy
- Educate for Business, Latvia/Lithuania
- Techwise Twente, The Netherlands
- Cooperative Education, Serbia
- Step Ahead, Slovakia, Czech Republic & United Kingdom
- Labour Foundation of the Construction sector, Spain
- Tech Partnership, United Kingdom
- Nestlé needs YOUth, Global

https://ec.europa.eu/social/BlobServlet?docId=18591&langId=en

Excellence Frameworks: Provision

Modes of Delivery

Indicator	Acceptable minimum	Good	Excellent
Availability	VET programmes exist to meet a specific and evidenced need.	VET programmes offer a range of learning modes to meet learner needs	Delivery models are fully flexible and bespoke to individual learners.
Accessibility	Timetabled face to face delivery. Technology-enabled remote learning options offered as alternate modality	Technology-enabled remote learning as a default modality.	Fully flexible blends of F2F, online and workplace-based learning modalities. Use of augmented and virtual learning tools (VR, AI, simulation)
Acceptability	Students are offered support and guidance Overall quality of delivery is consistent and aligned to standards.	Overall quality of TVET and consistent operating methods by TVET providers Learner and educator peer support network Sharing of effective practices	Involves the learner in content development. Close cooperation with external stakeholders to allow students to practise real-world tasks in actual workplaces
Adaptability	Supports formal teacher-led learning.	Supports self-directed multi-mode learning.	Supports Learner-centred, self-determined, autonomous, supporting formal and informal learning.

We find varying typologies of delivery modes for VET. Singapore's Institute for Adult Learning, for example, identifies classroom learning, workplace learning, work-based learning, and technology enabled learning. New Zealand and wider typologies identify similar modalities.

All these delivery models are increasingly influenced, enhanced, augmented, or driven by digital technologies, and the future is blended. For example, the use of Learning Management Systems for campus-based learning is widespread, to provide access to asynchronous and self-directed learning as part of predominately campus-based delivery. There is an increasing use of digital learning over-paper-based learning in home-based learning, and an increasing use of digital tools and mobile learning as part of work-based learning.

We find few examples of "single-mode" VET which would be characterised as excellent – particularly in 'dual model', VET typically involves a college and a workplace. Work placements and partnerships with employers appear increasingly a feature of institution-led delivery as well, and digital learning is an increasingly ubiquitous augmentation for both campus-based and work-based learning.

Within modalities – classroom, distance, and digital - there is significant innovation and good practice design and delivery – the next section of the excellence framework drills down into these.

Given the nature of VET is underpinned by connections with labour markets and workforce skill requirements, then markers and indicators of VET excellence relate more often to programme flexibility and adaptability: in other words, learning can reach the learner, matched to their circumstances, using flexible permutations and delivery models.

The recent COVID crisis has highlighted the importance of VET systems resilience, and in particular it is now a truism that the COVID crisis has accelerated trends already occurring in TVET as a result of other dynamics, such as the fourth industrial revolution and the digital revolution. In practice, this has seen more learning go online – and in respect of VET, there is increasing improvement in the ability of such tools to deliver practical and applied skills, through simulators, augmented/virtual reality, or artificial intelligence.[4]

Worth noting here too is the increasing use of digital learning management systems which support learners irrespective of location. These systems support asynchronous learning and learning reinforcement, but also remote learner support, and offer new ways to assess and demonstrate skills directly, reducing the necessity for proxies for skills, such as traditional "big box" qualifications.

Examples:

Netherlands: Aligning skills development with market needs

The case of a Dutch social housing association and a vocational training centre illustrate what is required to achieve enterprise-TVET collaboration: understanding market needs; developing a joint training programme between the association and the school; and improving the programme on the basis of lessons learned through implementation. It also needs soft skills: passion and dedication towards developing a training programme; skills to engage stakeholders (e.g., teachers, school/enterprise management); and endurance and willpower to overcome difficulties - to name just a few. Many efforts and much time are required, but the implementation of a new programme benefits trainees, enterprises, and society as a whole.

https://www.ilo.org/skills/projects/stwp/WCMS_615114/lang--en/index.htm

[4] VET in a time of crisis: Building foundations for resilient vocational education and training systems https://read.oecd-ilibrary.org/view/?ref=132_132718-fdwmrqsgmy&title=VET-in-a-time-of-crisis-Building-foundations-for-resilient-vocational-education-and-training-systems-&_ga=2.113853063.1849917381.1628214308-798710817.1626733962

Finland: OMNIA Individual Learning Pathways

The Finnish TVET system's guarantee of individual study programmes with individualised learning times to achieve a TVET qualification, improving flexibility for students, delivered through close cooperation with external stakeholders, and developing a peer support network for teachers to share effective practice.

(https://unevoc.unesco.org/pub/nqc_omnia_individual_learning_pathways.pdf)

FINLAND: Case Study of Resilient Model of Training During COVID-19

This case study examines how technical and vocational education and training (TVET) was organized during the state of emergency caused by the COVID-19 pandemic in Finland. The disruption accentuated the importance of flexibility within the education system to make it resilient. Finnish TVET, created as a hybrid solution combining school-based, work-based, and online-based learning environments, remained responsive and functional throughout the difficult time in spring 2020. To urgently improve the resilience of education, this case study emphasizes the necessity to improve system-level flexibilities across all levels and all types of TVET, including alternative modes of delivery and hybrid learning opportunities, as the one size fits all approach increases rigidity and redundancy of education and training. Flexible measures are key to improve resilience, also beyond the COVID-19 pandemic.

(https://www.gcedclearinghouse.org/sites/default/files/resources/210056eng.pdf)

South Korea: The Strategic Alliance Between Sungkyunkwan University and The Samsung Group: South Korean Exceptionalism or New Global Model?

"Samsung's strong position on SKKU's board, and multiple channels of collaboration, also facilitates the rapid creation and scaling-up of specific research and education programs to meet Samsung's changing needs. Typically, a new academic department can be setup in a matter of months. Samsung might provide much of the financing and some key staff, but the execution is ultimately left to the university. The rapid opening and occasional restructuring of departments, while highly political at most universities, appears to have become a relatively smooth process."

(https://www.triplehelixassociation.org/helice/volume-4-2015/helice-issue-12/the-strategic-alliance-between-sungkyunkwan-university-and-the-samsung-group-south-korean-exceptionalism-or-new-global-model)

Singapore: Collaborative Virtual Reality (CVR) Simulation Training

In Singapore, the School of Engineering at Institute of Technical Education (ITE) College Central is implementing a collaborative virtual reality (CVR) simulation training learning package in their aerospace technology course. CVR has been implemented since 2018 as a solution to provide a simulated virtual training environment in high-risk events such as engine fire, fuel leakage with running engines.

Developed using gaming laptops and virtual reality Oculus Rift sets, the CVR simulation training is able to provide a safe aircraft working environment which is immersive and authentic.

The highlight of the learning package is the collaboration among aircraft maintenance students to practice engine ground run procedures, via its two modes of practice in CVR simulation training; step-by-step procedural guided mode and assessment of competency with feedback and time limit mechanism.

Coupled with overall cost reduction related to aircraft fuel, maintenance, crew costs and space, CVR simulation training is a practice that could sustain vocational training and learning in the aerospace industry.

https://sea-vet.net/images/seb/practices/doc1/898/collaborative-virtual-reality-simulation-training.pdf

United States: Online, Blended and Technology-Enhanced Learning: Tools to Facilitate Community College Student Success in The Digitally Driven Workplace

Community colleges have embraced distance education as a means to provide increased flexibility and access to their large numbers of non-traditional students. Retention rates and student achievement measures alone may not reflect all of the benefits and opportunities that online learning, blended or hybrid learning, and technology-enhanced learning may afford these students. Online learning resources should be viewed as a tremendous value-added benefit for community college students, not only for the content conveyed, but also for fostering the digital readiness, cultivating the professional personas, and encouraging the self-directed learning needed to succeed in the digitally driven workplace.

https://clutejournals.com/index.php/CIER/article/view/10039/10144

Digital and Distance Learning

Indicator	Acceptable minimum	Good	Excellent
Availability	VET offers asynchronous remote learning options.	On-site (campus or workplace delivery) is supported and reinforced by digital and distance learning.	Distance and online TVET allows inclusive, relevant and community driven TVET.
Accessibility	Distance TVET is accessible online through common digital and mobile technologies.	Digital Devices and connectivity are provided to support learner engagement.	Distance learning provides a learning support ecosystem to support learner engagement, achievement, and wellbeing.
Acceptability	Distance and e-learning provides secure and reliable, and verifiable learning environment.	Distance and on-line TVET is underpinned by good instructional design to support learning transfer.	Distance TVET employs sophisticated simulation to replicate real world circumstances.
Adaptability	Learning can be delivered online if necessary.	Learning can be delivered through distance and digital according to learner choice.	Providers are able to adjust blend of learning seamlessly to suit changes in learner circumstances.

While the open and distance learning movement has been operating for more than a century, over the last few decades it has been fundamentally transformed through the rise of digital technologies. However, when discussing digital and technology enabled learning it is critical to distinguish between "gadgetry" and its use: this rubric is therefore concerned with aspects of how learning through such tools looks when it is excellent.

The increasing sophistication of digital technologies – across our lives and our workplaces, means that TVET can be offered fully online, sometimes using extremely sophisticated gamification, simulation, virtual reality tools.

At a more general level it's increasingly ubiquitous to see work-based or classroom-based learning augmented by digital learning tools.

Traditionally campus-based models have been challenged by the increasing demand to provide digital alongside traditional classroom-based delivery. This can sometimes reflect more of a duplication of the offline learning into the online format (which increases costs) than a well-designed complementary and reinforcing and learner support functions between online and offline learning.

The Commonwealth of Learning's guidance for blended TVET stands as an extremely valuable contribution to countries considering COVID responses, particularly in the developing world. (Neal, 2020) makes an interesting distinction between" emergency remote teaching" and "optimal blended

learning – and from a maturity standpoint, for countries to move from rapid transitions to online teaching and learning to a "new normal" for blended classroom, on-the-job, and online.

Technology must be harnessed to support transformative lifelong learning in TVET; however, we must not see it as a panacea or a silver bullet. Transformational, learner-centred philosophies should be at the heart of technology-enabled learning. The quality and usefulness of ICT-enabled teaching and learning 'depends upon careful attention to the issues of accessibility and equitability, principles of adult learning and instructional design and appropriateness of the delivery and support services' (Latchem, 2017, p. 28).[5]

Examples:

Canada: Supporting inclusive teaching and learning through distance education

"FADIO (Formation à distance interordres) is a cluster of educational institutions located in the Eastern Quebec region of Canada that have joined forces to share their expertise in pedagogy and technology in order to become frontline players in distance education.

Distance education is a useful tool for reaching students who might otherwise be excluded from traditional learning settings. It also creates digital spaces for the sharing of pedagogical and technical insights beyond the confines of the classroom. This model has been particularly successful in Quebec, as it provides easier access to continuing education and skills development for a population dispersed over a vast territory. As lower enrolment rates and increasingly hectic lifestyles require a more flexible learning schedule, distance education offers a viable solution that can be adapted to the learner's needs"

(https://unevoc.unesco.org/up/PromisingPractice_FADIO.pdf)

United Arab Emirates: Learning from Afar - ACTVET's virtual learning experience

In UAE, a strategy known as the 'Schools Business Continuity Plan' had already been developed in order to mitigate risk and reduce disruption to education in high-risk instances such as a pandemic. Thus, UAE's Minister of Education immediately introduced 'Learning from Afar', an initiative based on the emergency strategy with the aim of ensuring continued learning during the COVID-19 pandemic.

Implemented by the Abu Dhabi Centre for Technical and Vocational Education and Training (ACTVET, their ultimate goal is to increase the number of skilled Emirati youth in rewarding career paths and foster life-long learning and personal development.

https://unevoc.unesco.org/pub/promising_practice_actvet.pdf

[5] Changing the TVET paradigm: new models for lifelong learning https://www.tandfonline.com/doi/full/10.1080/14480220.2019.1629722

Classroom-based delivery

Indicator	Acceptable minimum	Good	Excellent
Availability	Campus-based options offer pre-employment training.	Classroom teaching effectively simulates/replicates workplace realities (tools and technologies)	Classroom VET offers continuity and complementarity with workplace delivery
Accessibility	Barriers to entry are addressed to support a wide range of learner participation.	Support is provided to support/facilitate access to campuses (e.g., transport)	Class-based is supported by asynchronous delivery options.
Acceptability	Teaching provides underpinning theory that is relevant to real world practice	Teaching is embedded in real world practice	Teaching is underpinned by, and reinforcing of, industry-based practice.
Adaptability		Timetabling and delivery options are flexible to enhance participation and achievement	Learners are provided a range of adaptive pedagogical practice.

"Bricks and mortar", face-to-face education remains a mainstay of VET delivery due to many natural advantages – cohort-based and peer-supported learning, an immersive learning environment, and a low-risk environment to practice and upskill pre-employment or lower-stakes situations. At the delivery level, understood good practices are always evolving, in terms of pedagogical methods that enhance skills development. Examples include how well teaching is embedded in practice, and active partnerships between educators and active industry practitioners to ensure currency and reduce skills mismatch.

However, the model is challenged to deliver lifelong learning, due to the financial and opportunity cost for people in the workforce to engage, and the high capital costs of delivery, for increasingly sophisticated technical training.

The extent to which classroom-based teaching is fit for purpose also strongly depends on the learner circumstance: A school leaver might well have the time and opportunity to undertake pre-employment training for an industry they have yet to enter. A working person that wants to change career may find a classroom-based option palatable, but only after hours. A person already working in that industry requiring upskilling may prefer learning through their own workplace, but perhaps also can undertake a short and sharp refresher or augmentation of their existing skillset through a classroom-based learning opportunity, but likely only with the support of their employer.

The delivery of VET is therefore tending to increasingly blended models: of campus-based, work-based, or workplace-based and digital learning. Excellence in these cases refers to complementarity of both programme design and delivery: The programme overall is reinforcing and relevant. Learners are not repeating material in classrooms they have already learned on the job, and equally, learners are not learning material that is entirely irrelevant or out of date.

At the delivery level, much is available on the expert pedagogical practices that can be taught and applied to endure the teaching is effective.

"Focus on skills mastery and recognising that this does not come from qualifications or ability alone but requires a mindset of continually striving towards greater excellence through knowledge, application and experience". Institute for Adult Learning, Singapore.

Examples

Germany: DEULA Witzenhausen

The educational centre "DEULA Witzenhausen GmbH, Lehranstalt für angewandte Technik" is the Government-approved demand and customer-oriented education and training institution. DEULA Witzenhausen is one of 16 training institutions that form a cornerstone of the dual training system in the agri-/horticultural sector in Germany. The German system of dual education is based on. a) practical in the job training of apprentices by "master-farmers" (Landwirtschaftsmeister) usually over three years, accompanied by b) theoretical training in vocational training schools (Berufschule) usually one day per week over three years, and c) 4-5 modular 1-2-weeks practical training courses in operating and maintaining farm equipment / machinery in accordance with the Good Agricultural Practice Standards by the DEULA training centres. DEULA Witzenhausen is thus an apprenticeship and practice-oriented school for vocational training in the fields of agriculture, horticulture, landscape gardening and associated professions.

https://www.deula.de/fileadmin/Redakteure/Witzenhausen/Presentation_institution.pdf
https://www.deula-nienburg.de/en/home.html

Work-based Learning

Indicator	Acceptable minimum	Good	Excellent
Availability	Employers are offering workplace experience linked to structured training opportunities	Employers are delivering structured WBL linked to the formal system, including apprenticeships.	Enterprises are operating as part of the skills and training system through structured training opportunities, on their own and in partnership.
Accessibility	WBL is being used to support new entrants to industries.	WBL is accessed through an identified group of firms or brokered through intermediaries.	WBL is offered systematically and on-demand through employers and in partnerships.
Acceptability	WBL leads to externally referenced standards or industry credentials.	Workplace learning leads to quality assured and industry recognised credentials. WBL is supported by active teaching, assessment, and quality management processes	Work-based learning develops technical competency, and wider employability, progression, and industry permeability.
Adaptability	WBL is offered through a structured learning programme linked to the workplace.	WBL offers flexible opportunities to train and achieve, including duration.	WBL can be offered through bespoke blends of learning to fit workplace and learner circumstances.

Work-based learning experiences, such as apprenticeships, can be extremely effective in skill and competency development as they offer the opportunities to learn in real world situations. From a systems perspective, WBL – both formal and informally delivered – is a key underpinning of workforce skills development. However, an employer must always choose to operate in a way that makes the firm part of a wider skills delivery system for their industry, or sector, or community.

Skills can be developed and applied, and while full productivity is the aim, the skills development is in any case automatically linked with a job and a desired labour market outcome, which improves skills matching and therefore, more efficient provision of TVET.

Dual systems, such as those in Canada and Germany, have a primary role for companies, with a supporting role via vocational colleges to supplement learning, or provide underpinning theory of foundational knowledge that is best taught in a cohort arrangement. The learners in dual systems are generally already working in the industries. In other systems, work-based learning tends to be arranged and administered by the educational institution, to connect learners to workplace experiences, that in

the best cases, then result in transition to employment with those employers, or within those industries.

Many further jurisdictions point to the important role of intermediary entities to work between education providers and employers, to support and connect the partners in the learning process. This reinforces links between theoretical and practical learning, and provides support and oversight of the learner through the training process. These intermediary functions are sometimes described as brokers, connectors, or translators between the world of education and the world of work.

Within all these structures and administrative variables, some elements are common, in terms of excellent practices. These especially include deliberative acts of teaching by employers – such that there is active training, not just skills development by osmosis: this implies a level of professional learning for employers as teachers, to extract the best return from their own investment in training and skills.

Innovative uses of technology, such as online delivery of theory-based lessons in e-apprenticeship models, and digital tools to track learning, can be used to reduce the costs, enhance access, and improve the quality of work-based learning experiences.

In order to encourage lifelong transformative learning, institutions should adopt expansive rather than restrictive apprenticeship models to give appropriate emphasis to learning, reflection and personal development.

ICT can also be used to deliver micro-learning that is relevant to learners' immediate needs in the informal sector.

Community-based organisations have an important role to play in facilitating lifelong learning in TVET for marginalised groups, particularly those outside the formal economy and education sector. Involving the learner and their community in content development can empower them and give them a sense of ownership over their own development, which can be a transformative process.

Peer-to-peer social learning and collaboration can be facilitated to promote continuous, lifelong learning. With the growing ubiquity of social media, community-based organisations involved in skills training can look to platforms like Facebook, or WhatsApp to encourage and facilitate informal learning. In such a model, learning should be seen as part of a holistic approach to development which includes the strengthening of social capital, and increased access to financial capital.

Examples:

Daimler: Vocational Training in detail

The best thing about theory is putting it into practice. Daimler presents students with lots of different ways to do just that: through internships, dissertation placements and temporary work placements.

On a Daimler traineeship you will develop a whole spectrum of skills that will push you forward in your future career, e.g., self-initiative, independence, and communication and problem-solving skills. We support your personal and professional progress with selected techniques to promote development,

including training workshops and challenging assignments in diverse departments. That also includes learning and working in a team. For instance, trainees from twelve vocational groups worked on a special project over the course of a year designing and producing an F-CELL roadster, a sleek two-seater car powered by fuel cells.

https://www.daimler.com/career/pupils/vocational-training/vocational-training-at-daimler/

Ireland: Developing Best Practice in Work-Based Learning - An Evaluation of the Career Traineeship Pilot

Career Traineeship (CT) is a model of combined work-based and classroom-based learning aimed at providing a course of specific skills development for career progression in distinct economic sectors and occupations. It seeks to build on national and international best practice in work-based learning (WBL) initiatives for job seekers, with a model of training provision that is employer-led and directly responsive to skills demand in the local and national economy.

The CT model consists of four core pillars which include Needs Identification, Employer Partnership, Collaborative Programme Development and Integration of Directed and Work Based Learning. A critical and distinguishing feature of the model is that applications of it will have a genesis in nationally and locally identified needs, requiring a response involving core modules but with the flexibility to address local employer requirements. It is being piloted in a number of regions of the country in a partnership process involving primarily SOLAS, ETBs and local employers

https://www.solas.ie/f/70398/x/8948babc28/developing-best-practice-in-work-based-learning-an-evaluation-of-the-career-traineeship-pilot.pdf

Norway: Stories of learning: a case study of Norwegian plumbers and apprentices in TVET at the construction site and in a training agency

Through a dual model, based on 2 years of education in upper secondary school followed by two and a half year of apprenticeship training, Norwegian plumbing education has become an integrated part of the Technical Vocational Education and Training (TVET). Competence and skills are described in national plumbing curriculum. However, there is little information on how learning and training, interaction and relations between craftsmen and apprentices take place and develops at the workplace. The objective of this article is to identify significant learning processes by studying apprentices in a training agency and in communities of plumbers at the building site.

https://www.pedocs.de/frontdoor.php?source_opus=20631

Learners

Underserved learners

Indicator	Acceptable minimum	Good	Excellent
Availability	Provision stipulates and supports the needs of disadvantaged learners.	Provision and supporting policies address the needs of disadvantaged learners.	Provision and supporting policies deliver equitable outcomes for underserved learners.
Accessibility	VET curriculum and learning environments are accessible and inclusive to disadvantaged learners (migrants, women, ethnic minorities, and indigenous learners)	Barriers to learning addressed: financial support, transport, cost of living, learning materials, tools. Systems monitor and address poor quality practices in institutions or workplaces.	Access is fully equitable (e.g. proportionate to population, or meeting targets for groups).
Acceptability	Local and representative groups and organisations are consulted and are supportive.	Local and representative groups and organisations are involved in design and delivery.	Local and representative groups and organisations are active participants in VET design, delivery, quality management and learner support.
Adaptability	The teaching timetable is flexible to address the needs of learners	The curriculum is culturally relevant and tailored to the intersectional needs of learners.	Personalized support interventions and flexible delivery models address the cultural and intersectional needs of learners

Examples

Cambodia: Good Practices in TVET for disadvantaged young people in rural Cambodia

The ongoing quest for quality in its various forms is an important challenge for TVET. The VTDYP was a quality program in many ways. It was based on a model that reflected the complexities of working with disadvantaged young people, their families, and communities. It responded to their need for employment – to earn a living and to build a future. For many students whose formal education had been cut short it was more than a skills training program - it was an educational experience. They learned how to communicate, to think and plan - to make decisions, take responsibility - and they experienced different perspectives to life. For many trainees it was - in their words - a “life changing” experience that had “changed everything”! Enterprise trainers also praised the program for its capacity to meet their industry requirements and to energize their enterprises. The highly practical nature of the program suited their approach to business and their systems of training and assessment.

http://tvet-online.asia/wp-content/uploads/2020/03/berry_etal_tvet11.pdf

Australia: Improving participation and success in VET for disadvantaged learners

Improving the educational outcomes of the various disadvantaged groups, such as Indigenous Australians, people with a disability, learners with low prior educational attainment and individuals from non-English speaking backgrounds, is a focus of many government policy initiatives centred on social inclusion. This research takes a regional approach to investigate the educational outcomes for disadvantaged groups, to account for variation in the characteristics of local populations, industries, infrastructure, and communities, and then identifies effective practices for improving outcomes for disadvantaged learners.

Regional case studies:
Case studies one and two: a tale of two cities — Bendigo and Shepparton regions
Case study three: Albany and the 'Great South West'
Case study four: Huon — Bruny Island, Southern Tasmania
Case study five: Yorke Peninsula
Cast study six: Rocklea — Acacia Ridge
Case study seven: Lithgow – Mudgee
Case study eight: Perth

https://www.ncver.edu.au/__data/assets/pdf_file/0030/2096175/Improving-participation-and-success-in-VET-for-disadvantaged-learners.pdf

Mid-career learners

Delivery for adult learners and career changers

Indicator	Acceptable minimum	Good	Excellent
Availability	Recognises strong potential demand for education and training of adults	VET is tailored to adult learners	Specifically tailored/personalised VET is capturing and recognising, formalising, and building on skills and experience gained in education and/or workplaces.
Accessibility	VET eligibility policies and programmes enable access for adult learners	Bridging support is available for learners with limited prior educational success	VET is accessed at low opportunity cost through workplace learning, APL, and personalised pathway design
Acceptability	Delivers learning that is up to date with industry needs.	Delivers learning matched to industry demand for	Delivers high quality industry credible learning and credentials, including

		recognised credentials	via informal prior learning.
Adaptability	Options available for working adults to train.	Flexible modes of study available for working adults.	Provides additional technology/assistance to enable flexible study around life/work circumstances. Captures, recognises and formalises recognition of prior skills and experience.

Examples:

South Korea: Adult online learning and capacity-building

"The Korea Open Courseware (KOCW) is the largest platform for open educational resources (OER) in the Republic of Korea. It was set up to assist individuals wishing to access higher education learning resources by providing materials from over 224 universities and institutions from across the Republic of Korea and abroad. The platform was officially launched in 2009 and hosts videos of lectures, as well as documents, images, and other learning aids.

Although the KOCW platform provides a wide spectrum of higher education resources, the Korean Ministry of Education and KERIS identified a lack of relevant resources in technical and vocational education and training (TVET). They subsequently worked with both employers and employees to map out areas for digital and technical skills training

The Korean Ministry of Education and KERIS established the Content Development Project for Adult Learners' Capacity in 2018. The project was launched via the KOCW platform and provides adult learners with OER in a broad range of TVET subjects."

Open educational resources for adult learners
(https://unevoc.unesco.org/pub/promising_practice_keris.pdf)

Methods

Pastoral care models

Indicator	Acceptable minimum	Good	Excellent
Availability	Learners are supported to achieve through accessing or brokered to learning support.	Providers or intermediaries regularly engage with learners to provide and/or broker their support needs.	Learner support processes continuously 'walk the journey' with the learner, supporting both learning and wider support needs.
Accessibility	Learners know how to access learning support services.	Learners can access learning support services through multiple channels	VET Learners are supported to access bespoke learning support functions, matched to circumstances.
Acceptability	Learner support needs are a central focus of VET delivery.	VET provision focuses on the "whole learner" and delivers personalised support.	Educators / employers interpersonal activity incorporate learner support needs as an element of VET delivery
Adaptability	Learners are aware of the available support and ways to access it.	Learners can flexibly access learning support information and services, via personal support, and remote options.	Systematic pastoral care practices are multifaceted, addressing wider wellbeing and environmental factors.

"Pastoral care" relates to the support structures and processes in TVET that support learner participation, achievement, and success, beyond the specific education and training itself. It can be provided through addressing barriers to learning, and even access to learning, but more typically refers to the support learners receive from their providers and/or intermediaries, to support the learning.

Increasingly, research is indicating the critical need to focus on students' wider wellbeing as a critical precondition for learner success – or non-success. An individual's needs can depend on a range of background factors, and life and employment circumstances. We observe increasingly sophisticated use through digital learning systems to monitor learner progress and engagement, which can automatically flag and alert to learning issues, which maybe a signal a requirement for pastoral care – however the care itself is a particularly human-centred activity, and evidence shows that continuity of care (a stable relationship throughout the TVET programme) is also linked to greater levels of learner engagement and success.

Research also links peer learning support flexibility, resilience to change and diversity, which are also linked to better learner outcomes.

Examples:

Australia: Pastoral Care Intrinsic to The Learning Approach

VFA Learning offers a unique pastoral care and learning support program to maintain student engagement, so they successfully complete their education and training. VFA Learning offers supported progression for students who have completed school, with a unique pastoral care service called SWAP (Student Wellbeing Assistance Program). SWAP is focused on assisting students throughout their studies by supporting good study habits and attendance at classes.

https://www.education.vic.gov.au/skillsfirst/Documents/SkillsFirstQualityCS/SFQualityCaseStudyVFALearning.pdf

https://vdc.edu.au/wp-content/uploads/2018/07/Final_User_Guide-April-2018.pdf

Australia: Holmesglen Institute' Apprentice Support Centre

Holmesglen established the Apprentice Support Centre in 2016 with the assistance of a Victorian Government Community Service Fund grant. The Centre provides holistic support services to apprentices and pre-apprentices studying at the institute that recognises the unique needs of this cohort. It aims to break the cycle of apprentice attrition by proactively identifying and supporting apprentices at risk of non-completion. The centre is staffed by experienced tradespeople who also have teaching qualifications. They use a mentoring approach to engage with apprentices and have particular skills in providing pastoral care and building empathetic relationships. They also support teaching staff to identify learners who may be at risk of disengagement and promote referrals.

The Apprentice Support Officers are engaged across four key areas: Pastoral Care, Mentoring, Financial Support and Course and Learning Support.

https://wfcp.org/wp-content/uploads/2018/10/best_practice_guide_volume2.pdf

https://www.education.vic.gov.au/skillsfirst/Documents/SkillsFirstQualityCS/SFQualityCaseStudyHolmesglen.pdf

United States: iPASS in Practice - Four Case Studies

The Integrated Planning and Advising for Student Success (iPASS) initiative—which has provided up to $225,000 to each of 26 colleges to help them adopt technologies for improving education planning, advising, and student risk targeting and intervention by 2018—was launched in 2015 with funding from the Bill & Melinda Gates Foundation and The Helmsley Charitable Trust. It followed on the heels of a similar initiative, undertaken from 2012 to 2015 at 19 colleges, in which several lessons were learned:

- Emerging technologies have the potential to allow students to create and follow academic plans effectively, receiving support when they struggle.
- Technology alone is not enough to achieve project goals. Deep changes in institutional structures, systems, and attitudes are required.
- High-quality advising and student support may be facilitated through a set of core SSIPP principles, which call for advising to be sustained, strategic, integrated, proactive, and personalized

https://ccrc.tc.columbia.edu/media/k2/attachments/ipass-four-case-studies.pdf

Assessment

Indicator	Acceptable minimum	Good	Excellent
Availability	VET uses formative assessment to support progression and effective learning.	Outcomes-based assessment allows recognition of prior learning or current competency.	Learners have on-demand access to assessment services, including recognition of prior learning (RPL) and credentialisation of informal learning
Accessibility		There is equity of access to assessment for learners.	People can access on-demand services to recognise and credentialise formal and informal learning.
Acceptability	Assessment methods are reliable and linked to recognised credentials	Assessment methods and practices are valid and reliable.	Assessment delivers transparent outcomes-based information about learner skills and knowledge.
Adaptability		Multiple methods and adaptive assessment tools support fit-for-purpose assessment for the learner situation	Integration and convergence between delivery and assessment delivers direct evidence of skills to next users such as recruiters and employers.

Assessment methods and processes provide the key link between skills development and its demonstration. In VET delivery, assessment is concerned with validating skills, competencies, and capabilities, and it plays out in both formative ways (to support the leaching and learning process) and summative ways, to link to external forms of proof of skills. Good practices emphasise validity – the assessment measures what it seeks to measure, and reliability – the process is repeatable. Assessment is also a space being disrupted by technological developments – sophisticated digital learning and learning management systems can support learner progression and success through automated and adaptive assessments.

At a macro level, good and emerging practices are reinforcing the importance of effective and efficient methods to "formalise the informal". Learners should not have to repeat learning, which means systems need to be available and encouraged to efficiently 'capture' skills and experience through

recognition of prior learning, or assessment of current competencies, through demonstration, professional conversation, or digital portfolios.

Examples:

Malaysia: Assessment for Learning (AFL)- Practice in TVET

Assessment is seen positively as a support of student learning, and in assisting the students to bridge the gap between their current achievement and their expected goal. AFL recognizes the influence that assessment has on motivation and self-esteem of students and provides them with constructive feedback. Besides, AFL encourages active involvement of students in their learning, and it depends on the teachers' diagnostic skills to make it work.

This practice is indeed important to the Vocational Education Transformation (VET) Program, which supports the national economic transformation agenda in churning out skilled and trained manpower. Actions should be taken to provide a new assessment that emphasizes on mastering knowledge, building intellectual capital, nurturing a culture of progressive attitude, and encouraging the practice of high virtues, ethics, and moral values.

https://www.researchgate.net/publication/282972113_Assessment_for_Learning_Practice_in_TVET

Finland: Work-based learning and skills demonstrations during COVID-19

From early on in the COVID-19 pandemic, there was national level consensus in Finland that students' learning and graduation was paramount. The onset of the pandemic and subsequent social distancing measures, however, caused many institutions and workplaces to close their doors. The development of COVID-safe working practices became crucial. In Finland, TVET providers are afforded a high level of autonomy that allowed them to respond rapidly to the new reality caused by the pandemic and to adopt innovative ways of working for learning and assessment. TVET providers adjusted their programmes in accordance with local needs and worked closely with companies to tailor actions based on the level of disruption. In some sectors and locations, work-based learning and apprenticeships continued as initially planned, whilst amendments to students' learning plans were inevitable in others.

https://unevoc.unesco.org/pub/promising_practice_oep.pdf

Excellence Frameworks: Processes

Funding Models and Incentives

Indicator	Acceptable minimum	Good	Excellent
Availability	Government is subsidising or fully funding the programme	The private sector is contributing financially to VET delivery towards wider industry and education outcomes.	Flexible public-private funding models are meeting programme and delivery costs.
Accessibility	VET providers can meet compliance costs associated with entry and participation	Employers can access financial and other support to ensure quality delivery.	Funding is available to incentivise VET and discourage free riding. Employers can participate seamlessly.
Acceptability	Funding is available to support sustainable delivery	There are policy checks and balances in place to prevent supply side or demand side distortions.	Funding settings provide long-term certainty to support workforce development, are long-sustainable and genuinely offsetting costs.
Adaptability		Funding model successfully caters for fixed and variable costs on delivery models and programme blends.	Diverse funding arrangements allow companies to contribute at different levels and according to needs. Funding model provides ability to meet targeted or individualised needs. Funding model flexes to meet costs and incentivise quality training outcomes.

The Financing of TVET is fundamental to its delivery, let alone sustainability. However, at the macro level, public policies that underpin the funding or subsidisation of TVET vary wildly according to political systems, further complicated by the level of formality in the economy, followed by the formality of the education and skills system, if there is one.

In terms of "good" or excellent practices", such conversations also quickly become ideological, in terms of the prudent or effective use of public resources.

However, we observe a number of studies that point to better outcomes when the necessary social partners in TVET are contributing – government, employers, and employees – and that includes financially. So, it is not a political judgement to say that it is a good thing when public funding is applied to the effort to create a skilled workforce via a TVET system. It is not, therefore, a political statement to say it is even better when the private sector is contributing to that self-same effort, because the upskilling of individuals within the economy leads to positive economic and social outcomes, and both private and public benefits.

The examples below in the main demonstrate the case that public-private partnerships drive desired behaviours and incentives in VET, but it is a balance not easily struck, and the risks of perverse incentives are always high, which necessitates careful monitoring and quality management. VET financing, whether it is a local scheme or a national system, should encourage and reward the right behaviours in terms of VET participation and contribution.

At the outset then, employers need to know what support is available to them and be supported to meet compliance costs. In an excellent system, the awareness of available supports and opportunities as part of the VET system partially negates the need for such support – the employers know that to do, and the barriers to entry, compliance costs, and quality requirements are not disproportionate or onerous.

"All systems consistently demonstrate the benefits of public-private support for TVET, offering "needs-based" public sector subsidies and private sector financing through user fees to a wider group of participants and firms." USAID: TVET Models, Structures and Policy Reform: Evidence from The Europe & Eurasia Region

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Examples

Singapore: SkillsFutureSG

SkillsFuture is a national movement that provides opportunities for Singaporeans to develop to their fullest potential at different stages of their lives regardless of their starting point. This helps realise all Singaporeans to reach their goals and aspirations through a holistic system of education and training.

The SkillsFuture policy administers a range of skilling and training initiatives. Employers offering structured work-based learning can access subsidies to support this, at better rates than those that apply provider-based VET, acknowledging that employers lack the training infrastructure of dedicated VET institutions.

To further incentivise learners, a lifelong learning payment is provided to citizens as a form of voucher that can be used to undertake upskilling or further training.

https://www.ssg.gov.sg/skillsfuture.html

Funding assistance schemes: https://www.ssg-wsg.gov.sg/employers/funding-assistance-schemes.html?_ga=2.175706658.1453321306.1634597347-215736684.1631138967

Thailand: Tax Exemptions for Investment in Training

The Government of Thailand offers specific courses for in-company trainers. When a company sends an employee to one of these courses, all costs related to this course can be deducted from their taxable income at 200%. In addition, all the costs of training activities for company employees, if conducted by a trained in-company trainer, can be deducted at 200%. The same applies to all training costs relating to a company's involvement in Thailand's dual vocational training system. Materials and machinery used for training purposes are also exempt from VAT and import duties.

https://sea-vet.net/images/seb/e-library/doc_file/787/giz-2020future-asean-agenda-compendium.pdf

Skills Recognition and Credentials

Indicator	Acceptable minimum	Good	Excellent
Availability	VET provision leads to a credentialised outcome.	VET delivers outcomes-based credentials relating to a set of industry agreed standards.	Development of skills and credentials for adults maintain pace with industry needs, workforce requirements, and with schools and pre-employment credentials development.
Accessibility	Low skilled individuals have options to credentialise basic skills	Modular credentials are responsive to transitions and lifelong learning	Allows direct demonstration of skills, e.g., e-portfolio
Acceptability	Credentials are recognised and accepted beyond individual enterprises. Assessment procedures are valid and reliable. Credentials enjoy localised recognition (beyond single enterprises)	Externally quality assured credentials Formal credentials are nationally recognised, or VET delivers industry certifications with national or international portability.	Transparent recognition framework. Responsive to transitions in line with goal of lifelong learning Mutual recognition at national, regional, and international levels.
Adaptability	Links to labour market outcomes / uptick	Credentials can be achieved flexibly including recognition of current competency (RCC) and RPL Supports pathways within industry, horizontal and vertical progression	Flexible learning and assessment pathways Validation and accreditation of informal and non-formal learning. Develops and recognises transversal skills.

UNESCO's landmark "Unleashing the Potential"[6] publication in 2015 highlighted important features of qualifications and credentials in VET systems, including the increasing convergence between traditional qualifications and the need for systems to recognise a wider range of skills and experiences. More broadly, it also suggested that VET systems seek a broader view of desired outcomes from VET frameworks, beyond economic productivity and profitability, towards broader measures of environmental sustainability and social inclusion.

It noted that the increasing use of e-portfolio and digital learning management tools had the potential to develop new forms of skills recognition – allowing more direct demonstration of skills than relying on the pure proxy of a certificate.

In that context it also noted the need for systems to recognise and accredit non-formal and informal learning, via RPL and through assessment procedures developed in co-operation with providers. However, while the value add of credentialing learning is fairly evident from the learner and the government's perspective, the value proposition of formal credentials may be less obvious to the private sector, including in the case where industries have developed well-recognised certifications and credentials outside of formal education systems (the ICT sector).

The trend in qualifications is clearly towards recognising shorter chunks of learning, and the world has gone outcomes based in terms of qualifications frameworks and regional meta-frameworks.

Modular, stackable, and granular credentials are seen as more fit for purpose in a world of lifelong learning, career change and upskilling. Digital badging and micro credentials are increasingly available as part of formal systems, to offer "just in time" learning that carries lower opportunity costs to existing workers. However, there remains active debate about the role of full-scale qualifications. Full or larger qualifications may be more 'fit-for-purpose' for school-leavers or new entrant workers, based on industry preferences for workers with a broader skills base, cognitive abilities or theoretical underpinnings.

Examples:

South Korea: Academic Credit Bank System (ACBS)

"One of the key features of the Academic Credit Bank System (ACBS), established in 1998, is to help learners to translate their learning experience into credits so that they can accumulate credits and transfer them to further learning and obtain a higher education degree"

(https://uil.unesco.org/fileadmin/keydocuments/LifelongLearning/en/KoreaCaseStudy1EducationalSectorAcademicCreditBankSystem_ACBS_.pdf)

(https://www.cb.or.kr/creditbank/info/nInfo7_1.do)

Hong Kong: Recognition, Validation and Accreditation (RVA) of workers on Hong Kong's watch and clock industry.

Hong Kong Qualifications Framework RPL mechanism recognised work experiences and competences acquired by practitioners in the workplace. This lays a good foundation for the development of a wider scope of Recognition, Validation and Accreditation (RVA) of non-formal and informal learning"

[6] https://link.springer.com/article/10.1007/s11159-016-9589-y

(https://uil.unesco.org/case-study/rva/hong-kong-sar-china-case-study-training-and-world-work)

Acknowledgements

The authors extend grateful thanks to Adam Barker and the team at Scarlatti Research for the partnership over this piece of work, along with support, guidance, and editorial assistance –the iterative approach turned out to be worth it. Equally, we thank Paul Hollings and Doug Neilson of the Food and Fibre Centre of Vocational Excellence for their wisdom and steering, and willingness to explore our evolving approach to developing this excellence framework.

Further references:

Apprenticeship for adults: Results of an explorative study
https://www.cedefop.europa.eu/en/publications-and-resources/publications/4179

Blending Classroom with Work and Technology: How to Design an Blended Curriculum
https://www.ial.edu.sg/content/dam/projects/tms/ial/Find-resources/Learning-resource-and-tools/blended-learning-guide/Blended%20classroom%20with%20work%20and%20technology%20(IAL)%201st%20edition%20(1.2).pdf

Comparative Analysis of the European Qualifications Framework and the New Zealand Qualifications Framework: Joint Technical Report
https://europa.eu/europass/system/files/2020-05/EQF-NewZealand%26Europe-EN.pdf

Comparing International Vocational Education and Training Programs
http://ncee.org/wp-content/uploads/2018/03/RenoldVETReport032018.pdf

Creating continuity between school and workplace: VET teachers' in-school work to overcome boundaries, Mårtensson, Åsa, Journal of Vocational Education and Training November 2020.
https://www.tandfonline.com/doi/full/10.1080/13636820.2020.1829009

Digital credentialing: implications for the recognition of learning across borders
https://unevoc.unesco.org/home/UNEVOC+Publications/lang=en/akt=detail/qs=6105

Disadvantaged learners and VET to higher education transitions
https://www.ncver.edu.au/__data/assets/file/0023/8663/disadvantaged-learners-2718.pdf

Diversifying funding sources for TVET
https://unevoc.unesco.org/up/vc_fin_synthesis.pdf

Education, Skill Training, and Lifelong Learning in the Era of Technological Revolution
https://www.adb.org/sites/default/files/publication/559616/ewp-606-education-skill-training.pdf

Empowering adults through upskilling and reskilling pathways Vols 1 and 2
https://www.cedefop.europa.eu/files/3081_en.pdf
https://www.cedefop.europa.eu/files/3082_en.pdf

Engaging Employers in Apprenticeship Opportunities
https://www.oecd-ilibrary.org/employment/engaging-employers-in-apprenticeship-opportunities_9789264266681-en

Engaging the private sector in skills development (Guidance note: A DFID practice paper)
https://assets.publishing.service.gov.uk/media/57a08abde5274a27b2000735/10-Skills-Development-How-To-Note-1.pdf

Ensuring the quality of certification in vocational education and training
https://www.cedefop.europa.eu/files/5551_en_0.pdf

European guidelines for validating non-formal and informal learning
https://www.cedefop.europa.eu/files/3073_en.pdf

Financing of education and technical and vocational education and training (TVET) in Latin America and the Caribbean https://repositorio.cepal.org/bitstream/handle/11362/44599/4/S1900376_en.pdf

Financing TVET: A Comparative Analysis in Six Asian Countries
https://www.afd.fr/en/ressources/financing-tvet-comparative-analysis-six-asian-countries

Funding Mechanisms for Financing Vocational Training: An Analytical Framework
https://ftp.iza.org/pp110.pdf

Germany's dual vocational training system: a model for other countries?
https://www.eunec.eu/sites/www.eunec.eu/files/attachment/files/2013_study_german_vet_system.pdf

Global education monitoring report, 2020: Inclusion and education: all means all
https://unesdoc.unesco.org/ark:/48223/pf0000373718

Good Practice in VET Teaching and Learning – a guide to practitioner perspectives
https://vdc.edu.au/wp-content/uploads/2018/07/Final_User_Guide-April-2018.pdf

Guide on making TVET and skills development inclusive for all
https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_755869.pdf

Guiding at-risk youth through learning to work
https://www.cedefop.europa.eu/en/publications-and-resources/publications/5503

Human Rights Obligations: Making Education Available, Accessible, Acceptable and Adaptable.
https://www.right-to-education.org/resource/primer-no-3-human-rights-obligations-making-education-available-accessible-acceptable-and

ILO: Recognition of prior learning: Key success factors and the building blocks of an effective system
https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_625895.pdf

Increasing Adult Learning Participation: Learning from Successful Reforms
https://read.oecd-ilibrary.org/employment/increasing-adult-learning-participation_cf5d9c21-en#page1

Individual Learning Pathways
https://unevoc.unesco.org/pub/nqc_omnia_individual_learning_pathways.pdf

Innovating technical and vocational education and training
https://unevoc.unesco.org/pub/innovating_tvet_framework.pdf

Innovation and Digitalisation: A report from the ET2020 Working Group on Vocational Education and Training
https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8365

International experience in TVET-industry cooperation for China's poorest province https://www.tandfonline.com/doi/pdf/10.1080/14480220.2019.1629730

Making apprenticeships and workplace learning inclusive of persons with disabilities https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_633257.pdf

Measuring Technical Vocational Education and Training (TVET) Efficiency: Developing a Framework https://files.eric.ed.gov/fulltext/EJ1120877.pdf

Osnabrück Declaration on vocational education and training as an enabler of recovery and just transitions to digital and green economies https://www.cedefop.europa.eu/files/osnabrueck_declaration_eu2020.pdf

Overview Of National Qualifications Framework Developments in Europe https://www.cedefop.europa.eu/en/publications-and-resources/publications/4190

Pathways of progression: linking technical and vocational education and training with post-secondary education http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Beirut/images/Education/LinkingTVETHED.pdf

Policy note: Online and Distance Learning in TVET https://en.unesco.org/sites/default/files/wcms_732618.pdf

Quality assurance in vocational education and training: A collection of articles https://www.etf.europa.eu/en/publications-and-resources/publications/quality-assurance-vocational-education-and-training

Rethinking Pathways to Employment: Technical and Vocational Training for The Digital Age https://www.g20-insights.org/policy_briefs/rethinking-pathways-to-employment-technical-and-vocational-training-for-the-digital-age-2/f

Seven Questions about Apprenticeships https://www.oecd.org/publications/seven-questions-about-apprenticeships-9789264306486-en.htm

Skilling, upskilling and reskilling of employees, apprentices & interns during the COVID-19 pandemic: Findings from a global survey of enterprises https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_794569.pdf

Strategies for blended TVET IN RESPONSE TO COVID-19 https://www.thecommonwealth.io/wp-content/uploads/2020/07/StrategiesforblendedTVETCOVID19.pdf

Student Engagement in Distance-based Vocational Education https://www.jofdl.nz/index.php/JOFDL/article/view/413

Submission on Developing an Outcomes Framework for New Zealand's Vocational Education and Training System

https://ako.ac.nz/assets/Submissions/submission-developing-an-outcomes-framework-for-new-zealands-vocational-education-and-training-system.pdf

Teaching and learning in VET: Providing effective practical training in school-based settings
https://read.oecd-ilibrary.org/view/?ref=1060_1060333-w2tp9xc54b&title=Teaching-and-learning-in-VET-Providing-effective-practical-training-in-school-based-settings&_ga=2.78736020.1245973474.1626140190-681305327.1626140190

Technical and vocational education and training for disadvantaged youth
https://unevoc.unesco.org/pub/tvet_for_disadvantaged_youth.pdf

The impact of disadvantage on VET completion and employment gaps
https://www.ncver.edu.au/research-and-statistics/publications/all-publications/the-impact-of-disadvantage-on-vet-completion-and-employment-gaps

The next steps for apprenticeship
https://www.cedefop.europa.eu/files/3087_en.pdf

The potential of Online Learning for adults: Early lessons from the COVID-19 crisis
https://read.oecd-ilibrary.org/view/?ref=135_135358-ool6fisocq&title=The-potential-of-Online-Learning-for-adults-Early-lessons-from-the-COVID-19-crisis&_ga=2.153594810.300202413.1630970636-1468833811.1630970636

TVET Models, Structures and Policy Reform Evidence from The Europe & Eurasia Region
https://www.tvet.ps/files/file/library/world/TVET_Models.pdf

Unlocking the Potential of Migrants: Cross-country Analysis
https://www.oecd.org/publications/unlocking-the-potential-of-migrants-045be9b0-en.htm

Vocational Education and Training (VET) and Adult Learning
https://www.oecd.org/education/skills-beyond-school/vet.htm