



UNEVOC

United Nations
Educational, Scientific and
Cultural Organization

International Centre
for Technical and Vocational
Education and Training



Entrepreneurial learning in TVET

Discussion paper



UNESCO-UNEVOC International Centre for TVET

UNESCO-UNEVOC is a key component of UNESCO's international programme on technical and vocational education and training, and supports UNESCO Member States by strengthening partnership, capacity development, and knowledge sharing and development. This is done in collaboration with the UNEVOC Network, a global platform of TVET institutions.



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This discussion paper has been prepared in the context of UNESCO-UNEVOC's initiative to mainstream entrepreneurial learning in TVET.

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Written by

Elin McCallum, Bantani Education

Coordinated by

Miki Nozawa, Nickola Browne and Wouter de Regt (UNESCO-UNEVOC)

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Acronyms

CARICOM	Caribbean Community
Cedefop	European Centre for the Development of Vocational Training
EU	European Union
ILO	International Labour Organization
ISCED	International Standard Classification of Education
JA	Junior Achievement
MOOC	Massive open online course
NBTE	National Board for Technical Education (Nigeria)
NGO	Non-governmental organization
OECD	Organisation for Economic Co-operation and Development
OVEC	Office for Vocational Education Commission (Thailand)
PQS	Para Quitarse el Sombrero (Peru)
SEECEL	South East European Centre for Entrepreneurial Learning
SMEs	Small and medium-sized enterprises
TVET	Technical and vocational education and training
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization
VET	Vocational education and training

Introduction

Globalization and technological progress have led to the world changing at an unprecedented pace, affecting the way we live, work and learn. UNESCO-UNEVOC's 2018 Global Learning Forum on 'Managing Skills in a Time of Disruption' identified digitalization, migration, demographic changes, and the transition to a green economy as significant factors in the changing profile of work and skills needs. As young people seek to acquire new skills to navigate their way towards successful futures, global research shows that transformative entrepreneurial competences such as self-efficacy, creativity and problem-solving (World Economic Forum, 2015) have emerged as qualities that are important for the world of work. In the face of these new developments, education and training systems are struggling to keep pace with rapidly changing skills needs.

As a result of its direct link to the labour market, technical and vocational education and training (TVET) plays an important role in equipping the modern workforce with in-demand skills. TVET strives to align itself with labour market forces and often serves as the learning bridge between education and the world of work by 'developing knowledge, skills and competences of individuals for their employment, careers, livelihoods and lifelong learning' (UNESCO, 2015). Within these competences, entrepreneurial learning offers a realistic and achievable means of developing the transferable skills that society and the economy are demanding of citizens. For many, it is a crucial chance to develop and practice the entrepreneurial skills needed to create their own career paths as TVET graduates.

'Entrepreneurship is when you act upon opportunities and ideas and transform them into value for others. The value that is created can be financial, cultural, or social.'

Danish Foundation for Entrepreneurship¹

Entrepreneurial competences are important contributors to the United Nations Agenda for Sustainable Development², particularly Sustainable Development Goal 4, on quality education, and Sustainable Development Goal 8, on decent work and economic growth. Furthermore, they provide the appropriate skills required by citizens around the world to innovate and initiate actions geared towards the achievement of all seventeen goals.

This discussion paper aims to inspire the introduction of entrepreneurial learning in TVET towards a fully mainstreamed approach, whereby entrepreneurial learning is integrated into the role, function and delivery of TVET systems for the benefit of all learners. It is presented as a modular document, allowing each chapter to also serve as a mini-guide on a specific topic.

The paper provides insight into the different approaches to mainstreaming entrepreneurial learning and illustrates the contribution of the key pillars that make up the entrepreneurial learning ecosystem. This is supported by a series of practical examples from TVET systems around the world, illustrating how entrepreneurial learning is being transformed into reality by governments, TVET systems, communities, networks, institutions, teachers, trainers and TVET learners. This paper explores five elements of the entrepreneurial learning ecosystem:

- 1 Developing policy for entrepreneurial learning
- 2 Curricula and pedagogies
- 3 Supporting teachers and trainers
- 4 Learning modes other than formal curricula
- 5 Career paths and start-ups

The examples and commentaries within this paper have been collated from a wide range of sources – including the 2018 UNESCO-UNEVOC Virtual Conference on Entrepreneurial Learning (UNESCO-UNEVOC, 2019), which provided contributions from UNEVOC Network members and various relevant experts – and are supported by web-based research and interviews with colleagues around the world.

1 Danish Foundation for Entrepreneurship: <https://eng.ffe-ye.dk/knowledge-centre>

2 United Nations Sustainable Development Goals: <https://www.un.org/development/desa/disabilities/envision2030.html>

What is entrepreneurial learning in TVET?

The term ‘entrepreneurial learning’ is now used in education and training to reflect a broader understanding of the competences that can be developed through TVET and that are important for TVET graduates across life, work and venture creation.

Since the 1980s, entrepreneurship has been increasingly emphasized as a driver of innovation, job creation, economic growth and social well-being. In education, entrepreneurship was originally introduced in university business schools as a basis for teaching business leaders and managers to succeed in the corporate world. However, the concept of entrepreneurship in education has now evolved to embrace broader human competences that are relevant to all levels of education and training.

This global shift in understanding is increasingly evident in TVET. The 2018 UNESCO-UNEVOC Virtual Conference on Entrepreneurial Learning (UNESCO-UNEVOC, 2019) elicited a multiplicity of perspectives on what entrepreneurial learning means for TVET. Nevertheless, all participants stressed the importance of employability and well-being alongside the business-creation context. There was agreement on the unique features of TVET that support entrepreneurial learning, highlighting the strong focus on the real-life relevance of what is learned, the holistic nature of learning and the prevalence of practical learning as a positive starting point for introducing practical entrepreneurial learning. These viewpoints from TVET educators and trainers are reflected in research and policy from various regions of the world.

‘Two key dimensions of the modern workplace, innovation and entrepreneurship, must be addressed in TVET programming to ensure a flexible workforce that is constantly learning and adapting.’
(CARICOM, 2014)

‘Entrepreneurial learning’ is often used interchangeably with other terms, from entrepreneurship education to enterprise education, from intrapreneurship to employability, from soft skills to employability skills. However, for TVET, it is most important to reach a better understanding of the specific competences to be developed.

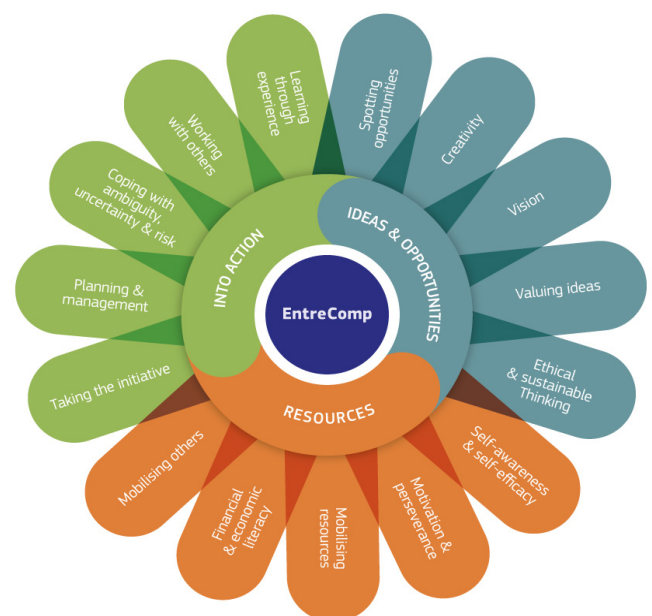
Entrepreneurial competences are commonly viewed as a mix of knowledge, skills and attitudes, including self-confidence, networking, understanding risk, working with others,

creativity, a sense of initiative, problem-solving, the ability to marshal resources, and financial and technological knowledge (OECD, 2018a; UN, 2016).

Several models of entrepreneurial learning have been developed by different organizations. The most widely used definition and model is EntreComp, the Entrepreneurship Competence Framework, developed by the European Commission as a reference guide for the twenty-eight countries of the European Union (European Commission, 2016a)³. EntreComp offers an adaptable model that breaks entrepreneurial learning down into fifteen competences across three competence areas (Figure 2), explicitly relating these competences to life, work and business settings. Intended to be representative of the competences for citizens, it allows education systems, institutions and educators to better understand and implement the practical development of entrepreneurial competences through curricular and extracurricular learning.

Frameworks such as EntreComp provide examples of the competences that should be taught and what the associated learning outcomes could be. EntreComp offers a flexible framework that can be either adapted or copied within formal or non-formal learning settings. It identifies detailed insights into the competences and their applicability to distinct learning contexts, from life skills development to learning related to business start-ups.

Figure 1 - The EntreComp model



Source: European Commission, 2018

³ EntreComp is now used by international organizations (UNIDO, UNCTAD) and at the national level across Europe, Africa, Asia and South America.

Developing entrepreneurial learning through an ecosystem approach

Using an ecosystem approach can increase the recognition and potential of entrepreneurial learning as a route to educational, community and economic growth.

‘Developing an enabling entrepreneurial ecosystem for young people is the key to unleashing the potential of youth entrepreneurship’

(UNCTAD, 2015)

The United Nations has advocated building entrepreneurship ecosystems to support the 2030 Agenda (UN, 2015) and the Sustainable Development Goals (UN, 2016), and there are a number of guidance documents to steer development (UNCTAD, 2015). These advocate a focus on areas such as promoting awareness and networking, access to finance, improving regulatory environments, technology transfer and innovation, as well as enhancing entrepreneurial learning across education systems (for more information see UNCTAD [2015]).

Developing a model of the entrepreneurial learning ecosystem in TVET

The ecosystem model for TVET shown in Figure 2 identifies the elements commonly regarded as supporting and driving quality implementation of entrepreneurial learning. While reflecting TVET, these elements are also relevant to a whole education and training system approach to embedding entrepreneurial learning across all levels of learning. Policy-level actors impact the ability to create a clear progression of entrepreneurial competence development from primary through to TVET and tertiary education. Institutional actors such as education leaders, teachers and trainers have a powerful influence on the governance and implementation of policy and curriculum frameworks at local level.

Figure 2 - Entrepreneurial learning ecosystem in TVET



Source: Compiled by UNESCO-UNEVOC

The eight elements of a TVET entrepreneurial learning ecosystem (Figure 2) are explained as follows.

- 1 Policy:** Policy-level actions and strategies support and shape entrepreneurial learning in TVET, and can provide the basis of support to the entrepreneurial learning ecosystem. This might include policy-makers from a wide range of sectors, such as education, employment, environment and the economy. Alongside these might be the policy-level organizations that shape the education system, such as agencies addressing quality assurance and the formalization of sectors or professional standards.
- 2 Resources:** This refers to exploring and securing diverse types of resources to actively support the development of entrepreneurial learning in TVET, addressing both financial and non-financial resources and including both public and private sources.
- 3 Governance and partnerships:** TVET leaders can be instrumental in creating and sustaining a positive and enabling environment for entrepreneurial learning at the institutional level. Partnerships with the community and businesses bring the real-life relevance and practical vocational perspectives needed both for TVET as a whole and for entrepreneurial learning in particular.
- 4 Teachers and trainers:** Teachers and trainers are often the most significant factor in learners' access to high-quality entrepreneurial learning. An ecosystem approach explores access to training and support for pre-service and in-service TVET teachers, trainers and managers as a prerequisite for mainstreaming entrepreneurial learning. This approach also considers whether curriculum frameworks encourage entrepreneurial learning in their teaching.
- 5 Curricula and pedagogies:** Curricula can either support or hinder entrepreneurial learning. This area of the ecosystem can highlight the priority given in nationally or locally defined curricula to the characteristics and pedagogies of teaching and learning that impact on the quality and effectiveness of entrepreneurial learning in TVET.
- 6 Learning modes other than formal curricula:** Entrepreneurial learning can also be embedded in the wider range of non-formal learning, including extracurricular learning activities and online learning channels.
- 7 Assessment and recognition:** The explicit use of entrepreneurial learning outcomes through assessment and recognition can support the visibility and delivery of entrepreneurial learning, enhance employability and provide clear evidence of entrepreneurial competences for TVET graduates and employers.

- 8 Support to career paths/start-ups:** Entrepreneurial learning is an important channel for developing competences for employment, while career guidance can be a route to help TVET graduates realize the added value of these competences within their future careers. A start-up is a viable career option, and TVET institutions can support this pathway by providing or signposting links to relevant networks. They can also offer advice, mentoring, development space and financing models for TVET learners seeking to take the next steps in starting their own ventures (social or business enterprises).

Implementing the components of entrepreneurial learning in the TVET ecosystem

The eight elements of the ecosystem model highlight the areas where action is needed if entrepreneurial learning is to be mainstreamed in TVET. For each element there is a need for evidence-based actions and for learning from both research and existing practice. While information is available about entrepreneurial learning in TVET in different parts of the world, it is fragmented and may lack the depth of detail or contextualization necessary to drive change across diverse regions, societies and economies.

A mainstreamed approach implies the seamless integration of entrepreneurial learning into these ecosystem factors. It may take a concerted effort from policy to grassroots level to understand the breadth and depth of the ecosystem, ensuring equality between smaller actors and the larger organizations who may see themselves as leaders in the process:

- Initial mapping of the ecosystem through to creating a defined vision for the development of an entrepreneurial learning ecosystem;
- Limited engagement of stakeholders through to having strategic engagement or steering groups at national and local level;
- Small-scale pilot initiatives through to large-scale implementation over multiple cycles;
- Partial evidence-based through to having comprehensive impact data to inform continued work;
- Low level of recognition of TVET as a member of the wider entrepreneurship ecosystem through to the recognition of TVET as a significant contributing partner.

This approach allows the recognition and engagement of different actors as effective drivers and enablers of and contributors to entrepreneurial learning. However, the exact nature of the entrepreneurial learning ecosystem and the priorities identified as a result will depend on the individual needs of each region, country or locality. Each ecosystem is unique to the context and factors that vary in intensity and relevance at any one time (Isenberg, 2011).

Developing policy for entrepreneurial learning

Policy actions for entrepreneurial learning support the different areas of the entrepreneurial learning ecosystem and drive mainstreaming of this work into TVET systems and institutions. At policy level, there is a clear need to coordinate efforts across relevant policy portfolios. A cross-governmental approach can enable collaboration, development of a common vision, and coordinated policy priorities (UNCTAD, 2015).

'The [policy] aim should be to carefully balance different objectives – education, employability, innovation – to prepare learners to succeed in an unknown future'

(OECD, 2018a)

Routes towards policy development

Countries may choose to develop a specific policy primarily focused on entrepreneurial learning, or consider developing a wider policy linked to broader education- or economy-related themes in which entrepreneurial learning is included (European Commission, 2016b). Policy approaches to supporting entrepreneurial learning, as identified by the European Commission, can be applied or adjusted depending on the national context.

- 1 Specific** policy/strategy focuses primarily on entrepreneurship learning, often developing a common vision across government, reflecting policy priorities for a range of ministries such as education, innovation and economic development, and bringing together related actions from these policy areas. In India, the National Policy for Skill Development and Entrepreneurship (2015) was launched alongside a new ministry to fulfil the vision of a 'Skilled India', including actions relevant to a range of policy portfolios.
- 2 Broader education-related** policy/strategy incorporating objectives for entrepreneurship learning, such as education and training, youth or lifelong learning strategies. In Bhutan, the country references entrepreneurial learning in both the National Education Framework (2009), which highlights curricula and TVET, and the National Youth Policy (2010), where there is an emphasis on promoting entrepreneurial capacity both in and out of school.

- 3 Broader economy-related** policy/strategy featuring entrepreneurship learning, such as entrepreneurship, employment, industry or small and medium-sized enterprises (SMEs) development strategies. The Twelfth National Economic and Social Development Plan in Thailand (2017) explicitly supports community entrepreneurship through support for community training centres and connecting industrial clusters with community economies.

Each of these approaches to developing a new policy or strategy has advantages and disadvantages (Table 1).

Table 1 - Overview of policy approaches – advantages and disadvantages

Policy approach	Advantages	Disadvantages
<p>Specific strategy primarily addressing entrepreneurial learning</p>	<ul style="list-style-type: none"> • Common vision across government • Outcomes and impact reflect policy drivers for all ministries involved • Direct engagement from stakeholders on the theme 	<ul style="list-style-type: none"> • May not be embedded in policies that directly target education and training audiences • May not translate into engagement by all ministerial partners or government departments
<p>Education policy explicitly mentions entrepreneurial learning as an objective</p>	<ul style="list-style-type: none"> • Highlighted as a priority within education policy • Directly embedded within policies directed at the learning system 	<ul style="list-style-type: none"> • May not be recognized as a contributor to economic and employment policies or outcomes
<p>Both specific strategy AND other policies (education, economic and/or employment) explicitly mention entrepreneurial learning</p>	<ul style="list-style-type: none"> • Comprehensive approach reflecting combined government policy • Specific strategy translated into tailored approaches in key areas such as education, careers, employment and economic growth 	<ul style="list-style-type: none"> • Without a common vision, not all policies may be properly linked
<p>Education policy implicitly mentions knowledge, skills and/or attitudes associated with entrepreneurial learning</p>	<ul style="list-style-type: none"> • Entrepreneurial knowledge, skills and attitudes included within curricula objectives 	<ul style="list-style-type: none"> • Education and training audience may not recognize entrepreneurial learning as a thematic priority • May not be recognized as a contributor to the economic and employment agenda • May not reflect competence approach
<p>Wider policy (economic or employment policy) explicitly mentions entrepreneurial learning</p>	<ul style="list-style-type: none"> • Entrepreneurial learning recognized as a framework condition for employment, social and economic growth • Can be part of a joined-up approach with education policy 	<ul style="list-style-type: none"> • May not be directed at education and training audience • May not directly engage education policy areas

Source: European Commission (2014)

Policy-driven development of the entrepreneurial learning ecosystem

Countries follow divergent paths that are influenced by local contexts and policy realities. In some countries, such as Wales and Denmark, stand-alone entrepreneurship education was established in the early 2000s and has since been mainstreamed into wider policies, including those on education, innovation and economic development (European Commission, 2016b). In both these countries, policy development began through a cross-government policy initiative and was advanced using comprehensive stakeholder engagement to build the entrepreneurial learning ecosystem. A similar approach has been taken in the Basque Country in Spain (Box 1).

Policy can also mainstream entrepreneurial learning in education systems to drive change. In Nigeria, education policy required the TVET regulatory authority and the National Board for Technical Education (NBTE) to ensure that all TVET federal polytechnics introduced entrepreneurial learning (Box 2).

The Nigerian government saw entrepreneurship as one of the tools for addressing rising youth unemployment and social exclusion, and identified the National Board for Technical Education (NBTE), a UNEVOC Centre, as a route for advancing the development of entrepreneurial learning in TVET institutions.



Box 1 - A multifaceted approach to entrepreneurial learning in TVET (Basque Country, Spain)

The Basque Country, an autonomous community in Spain, used a joined-up policy vision, stakeholder engagement and practical implementation to mainstream its commitment to entrepreneurial learning in TVET, and created a dedicated government agency to coordinate and implement this across the TVET sector.

This small region of Europe has faced the challenge of transforming its economy, and government policy has identified entrepreneurial learning as one of the pillars of its education system. The first multi-annual TVET plan, launched in 1997, resulted in the introduction of a company-creation programme for the TVET sector in 2000. This has been built upon in subsequent plans, and entrepreneurship was named as one of four strategic aims in the third Basque Vocational Education and Training Plan 2011-2013. Entrepreneurship is now a mainstreamed term that occurs throughout the newly launched fifth Basque TVET plan 2019–2021, which at policy level is closely aligned to a range of wider policies, from smart specialization to gender equality. This ongoing development is part of and reliant on the well-established and well-renowned ecosystem of support for entrepreneurship in the Basque Country involving all institutions and stakeholders, specifically supported at policy level by the Basque Inter-Institutional Entrepreneurship Plan 2020.

Tknika, the Basque Institute for the Innovation of the Vocational and Educational Training System, is a government agency and UNEVOC Centre, and the primary driver of the entrepreneurial learning ecosystem for the TVET system. It is responsible for the promotion of innovation, creativity and entrepreneurship for all vocational education and training (VET) centres in the Basque Country. Through Tknika, the Basque regional government has provided a platform for mainstreaming entrepreneurial learning in TVET and for TVET to be seen and valued as a high-profile contributor to the wider entrepreneurship ecosystem.

Link: <https://tknika.eus/en/>



Box 2 - A policy-level approach to integrating entrepreneurial learning in TVET (Nigeria)

A National Council of Education resolution on entrepreneurship education was issued in 2006 and later confirmed through recommendations in a White Paper on entrepreneurship education issued by the Presidential Committee on Entrepreneurship. The resolution directed NBTE, which supervises ten types of TVET institutions in Nigeria, to fully implement entrepreneurship education across all TVET institutions under its supervision, including:

- Development and integration of entrepreneurial education into curricula
- Establishment of an entrepreneurship development centre in each institution
- Training for trainers to deliver entrepreneurship courses
- Capacity-building for coordinators, teachers and managers of entrepreneurship programme centres

To achieve this vision, NBTE introduced new criteria into the TVET institutional accreditation process that each institution undergoes every five years. From 2012, the implementation of institutional entrepreneurial development centres became a prerequisite for programme accreditation, and each TVET institution going through re-accreditation was required to fulfil these new criteria. There are now vibrant entrepreneurial development centres on every campus across the country, with a range of practical entrepreneurial experiences such as college businesses and Enactus⁴, a global platform providing experiential learning in social action for TVET and university student teams. These activities complement the advice and microfinancing initiatives provided for aspiring student entrepreneurs.

To date, around 1,200 TVET lecturers have been trained, alongside 56 rectors of TVET institutions. Under the supervision of NBTE, twenty-eight federal polytechnics now have an entrepreneurial development centre. These centres are regarded as a driving force in entrepreneurial training and start-up support.

Link: <https://net.nbte.gov.ng/>

4 <https://enactus.org>

Curricula and pedagogies

Driving change in the classroom begins with the development of an effective curriculum and the provision of teaching tools. By nature, TVET is often very practical in nature, but the entrepreneurial learning curriculum goes beyond this to provide the active learning experience through which TVET students understand and develop their entrepreneurial competences. The curriculum in TVET also includes apprenticeships and other types of work-based learning, where there is significant value.

Indicators of an entrepreneurial learning curriculum

There are six well-recognized indicators of an entrepreneurial learning curriculum based on a review of relevant research (UNESCO/ILO, 2006; European Commission, 2014; OECD, 2015, 2018):

- 1 Designed to allow learners to test and use their entrepreneurial competences
- 2 Explicitly highlights the value of entrepreneurial competences to learners
- 3 Brings in real-life relevance to learning
- 4 Delivered through practical pedagogical approaches
- 5 Involves external partners or stakeholders (in design, delivery and/or assessment)
- 6 Has a focus on formative assessment for learning (such as teacher–student feedback, self-assessment, peer assessment or community/stakeholder feedback)

'For vocational education and training schools, a key driver is the enhanced contacts with employers, which result from activities that develop entrepreneurship skills'

(OECD, 2015)

The teaching and learning approach can depend on the wider curriculum objectives or the desired impact, for example learner engagement or youth employment. It may also depend on the constraints of the TVET system itself, the ability to engage stakeholders, how qualifications are evidenced or whether there is flexibility in how learning is delivered. Different courses, particularly for TVET, will have an increased connection with the business environment and this can be exploited to enhance the entrepreneurial learning curriculum and its real-life relevance. Apprenticeships can be adapted to develop entrepreneurial competences, adding to the value of the work-based educational experience (UNCTAD, 2015).

Approaches to entrepreneurial learning in the curriculum

The transversal nature of entrepreneurial learning means that it can take place in any subject and at any level of education. The structure of learning can be tailored to allow delivery through one (or more) of three approaches:

- 1 As a separate subject or course
- 2 Integrated into subjects or courses
- 3 As a cross-curricular activity involving students from multiple courses

It can also be useful to consider the development of an entrepreneurial learning curriculum in terms of scope for change, with valuable interventions achievable at micro-level (learning methods that can easily and immediately be included in existing lessons or subjects), meso-level (requires adaptation of existing teaching and learning approaches) and macro-level (requires a certain amount of structural change, either at the TVET institutional level or at policy level) (European Commission, 2014). In Chile, one UNEVOC Network member has designed an educational model that encompasses all three of these approaches (Box 3).



Box 3 - Embedding entrepreneurial learning at institution level (Chile)

Departamento Universitario Obrero Campesino (DUOC UC) is a UNEVOC Centre that manages 17 TVET campuses across Chile providing higher professional technical education to over 100,000 students, and linked to the Pontifical Catholic University of Chile.

It has developed an education model that has entrepreneurial learning built into the core of its approach and structure, with a clear emphasis on the importance of entrepreneurial mindset and skills through both pedagogy and learning. The teacher's role is emphasized as that of a guide and facilitator of learning, rather than in terms of a teacher-led approach. The pedagogical focus is on active learning, which is contextualized, for example:

- linking educational practice to the working experience by relating learning to problems of professional practice;
- using real problems to encourage practical work by studying possible solutions and evaluating their implications;
- emphasizing and reflecting on the meaning and relevance of what a learner has learned.

Supporting this, two mandatory entrepreneurship courses are included in every undergraduate course. The first is held in the fourth semester and uses challenge-based learning and the design-thinking methodology to take students through an ideas-into-action learning experience. The second, in the final semester, builds on this through a focus on the lean start-up approach to prototyping and launching ideas. Alongside these mandatory courses are elective entrepreneurship courses and extracurricular activities such as competitions, workshops, innovation challenges and business link activities.

Link: <http://www.duoc.cl>

Entrepreneurial learning in practice

Choosing the right pedagogical approaches or techniques can drive effective entrepreneurial education. Learning should be designed to ensure that skills and attitudes based on entrepreneurial competences can be strengthened and recognized through defined entrepreneurial learning outcomes.

Authentic learning

Authentic learning means applying knowledge in real-life contexts and situations. It can translate into entrepreneurial learning in real-life working environments (such as work-based learning where entrepreneurial competences are explicitly developed) or working in teams to create viable solutions to real-life business or community challenges (see Box 4 for an example).

Student-directed learning

This method requires a move from a teacher-led approach, where the teacher imparts knowledge to the student, to a model in which the teacher takes a more facilitative, guiding approach to student learning. One way to achieve this is through an enhanced project-based learning experience or a business-/venture-creation experience (see Box 5 for an example).

Multidisciplinary learning

In this type of learning, students from across disciplines are given the opportunity to work and learn together as part of their curriculum. Projects are often co-designed by a team of teachers and provide students with the opportunity to interact and innovate together through experiential approaches. This can be undertaken via structured curriculum cooperation or through add-on activities such as an 'entrepreneurial week' or themed weeks where all curriculum subjects focus on contributing to a whole-school, multidisciplinary, practical entrepreneurial experience for students (see Box 6 for an example).



Box 4 - Community-based authentic learning (Brazil)

Fatec Sebrae is part of the Sebrae-SP Alencar Burti Business School, offering free higher-level vocational education in São Paulo, Brazil. The three-year vocational management course has entrepreneurial competences as the basis of learning, using the EntreComp model as a practical tool to analyse and enhance the specific entrepreneurship competences developed. A key activity for the students is the non-governmental organization (NGO) development intervention action, which involves student teams working with NGOs, a learning activity that combines entrepreneurial learning with social responsibility.

The task is for each student to research and identify an NGO that they can use their skills to support, and to share the learning experience and impact of their actions with their lecturer at Fatec. The types of NGO and the interventions developed by students vary widely, from supporting literacy training or staff development, to organizing social media campaigns or financial compliance. The link to entrepreneurial learning is made through the need for students to spot opportunities to create value for others, and to mobilize their own knowledge and skills to design, plan and implement an action through analysis of and in collaboration with the NGO. Reflection is an important part of how student learning is assessed, allowing insight into the progression of learning through the experience gained over the lifetime of the project. Lecturers have used principles of design thinking and effectuation to build entrepreneurial thinking, confidence and actions.

The design of the curriculum overcomes a common challenge – that of how lecturers can engage external partners to work with students – by tasking the student team with identifying the NGO for the collaborative project. Students gain real-world experience of working with external partners and a practical understanding of how to collaborate and negotiate with the NGO to put an idea into action. They also experience potentially life-changing engagement with organizations tackling social and economic challenges across communities.

Link: <http://fatecsebrae.edu.br/sobre/>



Box 5 - Self-directed learning (Brazil)

The Pernambuco Federal Institute of Education, Science and Technology (IFPE) is part of CONIF – the Federal Network of Professional, Scientific and Technological Education – a UNEVOC Centre in Brazil. As one of the oldest federal institutes in Brazil, with sixteen campuses, it offers technical education courses at upper secondary level, as well as undergraduate and postgraduate degree-level courses.

With a strong focus on entrepreneurship across the institute, professors from three faculties decided to initiate a self-directed and interdisciplinary learning project, which aims to encourage students with different knowledge and skills to develop entrepreneurial products through self-directed teamwork. The project involves students from three campuses with specializations that include computer graphics, infographics and computer maintenance and support. Students are divided into groups and each group

has student representatives from the three campuses, to ensure communication and coordination. The project is student-led and students are required work independently to define their project ideas. They are also required to develop strategies to transform their ideas into businesses. At the end of the semester, these products are assessed by teachers.

Link: <http://portal.conif.org.br/br/component/content/article/162-rede-federal/1576-projeto-estimula-emprededorismo-entre-os-estudantes?Itemid=609>



Box 6 - Multidisciplinary learning (Serbia)

In Subotica, a town in western Serbia, students of the Subotica School of Chemical Technology gain entrepreneurial competences by setting up real companies. This technical secondary school places a strong focus on project-based learning to develop TVET students' entrepreneurial skills and mindsets. The aim is to enhance student employability as well as their market understanding of their vocational field and how to start a business.

The school provides vocational courses in pharmaceutical technology, chemical laboratory technology and environmental protection technology. Students have the opportunity to organize themselves into small teams to set up and run a student company selling soap products to the local community. This is a multidisciplinary curriculum activity, allowing students to apply learning from across their course to a practical entrepreneurial experience. This will include understanding the legal background of their product, researching the market, using raw materials, manufacturing, product testing, quality control, designing packaging, labelling, budgeting and sales. Students work in teams of four, with each member allocated a role: production, marketing, finance and managing director. Learning follows the entrepreneurial process, with students working through the company journey of designing, creating and taking a product to market. At the final stage, the student companies introduce and present their product to other students, trainers and social partners at a student business competition.

The institution now supports the work with a dedicated space for these teams which includes the manufacturing equipment for soap production. All the activities are implemented through work-based training, and the entrepreneurial project-based approach develops a variety of competences, including teamworking, networking, communication, problem-solving, decision-making and working with others. The teacher plays an important role as an adviser to the teams, supporting the development of these entrepreneurial competences through student-led activity while monitoring the production process and evaluating the vocational knowledge and entrepreneurial skills developed. Through the practical and entrepreneurial application of students' vocational knowledge, these activities build entrepreneurial spirit and readiness to face the challenges and risks posed by the competitive market.

Link: <http://srednjeskole.edukacija.rs/drzavne-srednje-skole/svi-gradovi/subotica/hemijsko-tehnoloska-skola>

Preparing and supporting teachers and trainers

Teachers and trainers are the catalysts for change within any education system, and the mainstreaming of entrepreneurial learning across TVET requires a robust supply of well-trained educators. Without training, teachers may lack the confidence and ability to effectively incorporate entrepreneurial competences and relevant curriculum pedagogies into their teaching. Indeed, a lack of available teacher training has been linked to the slower implementation of entrepreneurial learning across education systems in Europe (EUP4Y, 2017).

‘The teacher is the most influential actor in the actual implementation of the curriculum’

(OECD, 2015)

There have been repeated calls to provide specialist training in entrepreneurial learning for teachers and trainers (European Commission, 2016b; UNESCO/ILO, 2006; OECD, 2018a). There is also increasing evidence that shows the importance of training TVET leaders and managers to support and drive change (UNCTAD, 2015). In some countries, teacher networks have formed to compensate for the lack of teacher training, as a result of the less active role played by public policy (OECD, 2018a).

‘[T]eachers need to understand key entrepreneurial attitudes and skills and require training in entrepreneurship in order to promote these skills, focusing on experiential learning and project work, identifying best answers, rather than providing students with solutions’

(UNCTAD, 2015)

The challenges to introducing high-quality teacher and TVET leader training include the resourcing of such an initiative, the costs of training and the costs of replacement teaching staff where needed. Another factor can be the immediate association of entrepreneurial learning with business training, potentially resulting in teachers and trainers not seeing training as relevant to their current teaching priorities and thus not taking part (UNESCO/ILO, 2006).

Routes to professional development for TVET staff

Support for effective teaching in entrepreneurial learning can be provided through a range of approaches, both including and beyond the traditional training model (European Commission, 2014; UNCTAD, 2015; OECD, 2018a). In the 2018 UNESCO-UNEVOC Virtual Conference on Entrepreneurial Learning, four main avenues were identified.

- 1 **Pre-service training:** This takes place either before starting a teaching career or through induction training.
 - In Uganda, entrepreneurship education was incorporated into initial teacher training after it was included as an elective subject in secondary education and a core subject in all TVET courses (Uganda, 2014).
- 2 **In-service training:** Also known as continuing professional development, this can take place through online, blended or in-person training or mentoring.
 - Tknika, a UNEVOC Centre in the Basque Country, has developed the Irekin initiative, a comprehensive teacher-training strategy available to TVET institutions in the Basque region⁵. The programme aims to prepare teachers to act as model entrepreneurs for students. The training consists of six stages, with teachers working on the entrepreneurial initiative and undertaking activities at the TVET centre in an innovative way. The programme also identifies and disseminates good practices that act as examples for other teachers.
 - In Egypt, the Ministry of Education and UNIDO’s Entrepreneurship Curriculum Programme have supported staff training for technical schools in Luxor and other regions, addressing theoretical and practical knowledge about entrepreneurship education, as well as entrepreneurial competences, learning outcomes, assessment tools and a specific syllabus for entrepreneurship classes (European Commission, 2016b).

⁵ More information about the Irekin initiative can be found at <https://tknika.eus/en/cont/proyectos/irekin-initiative-oriented-toward-entrepreneurial-teachers/>. A short video on teachers’ opinions of the Irekin initiative can be found at https://youtu.be/I0zYW_QyJZY

- Across eight countries in South East Europe, mentors were identified to support teachers' efforts to embed entrepreneurial learning. This was a specified task for all entrepreneurial (vocational) secondary schools participating in the South East European Centre for Entrepreneurial Learning (SEECEL) educator development programmes for schools and TVET institutions (SEECEL, 2014).

3 Teacher work placements and mobility: The use of placements and mobility can broaden educators' professional experience, their understanding of industry and their sector-specific industry knowledge.

- The European Union offers TVET teacher mobility for short- or long-term placements in TVET providers or companies in other countries⁶.

4 International training courses and collaborations:

- The International Labour Organization (ILO) leads a global initiative, Know About Business (KAB), across 118 countries. Often delivered in TVET institutions, the educational programme includes support to train teachers and trainers delivering the programme⁷.



Box 7 - Building international TVET collaboration on research and training for TVET teachers and trainers (China)

Shaanxi Polytechnic Institute, China has developed collaborative programmes focused on teacher training with Waikato Institute of Technology (WINTEC), New Zealand. The collaboration began in 2015 with a train-the-teachers programme. This led to the launch in 2019 of a joint Innovation and Entrepreneurship Education Centre, enabling the two institutions to learn from each other and work together to upgrade the quality of teacher training and curricula for entrepreneurship education. In 2019, Chinese trainers visited New Zealand for a two-week professional development course on entrepreneurship education, and the two institutions will also be carrying out innovative research to identify the characteristics and standards of creative, innovative and entrepreneurial teachers, and support the implementation of entrepreneurial teaching practices.

Link: <http://en.sxpi.edu.cn/>

Increasing opportunities to internationalize practice and share resources can also support teacher training and development. In China, institutions have been actively working beyond borders to create new teacher-training opportunities (Box 7).

International development agencies can be conduits for practice-sharing and new development. The Office for Vocational Education Commission (OVEC) in Thailand recently partnered with the British Council to establish a new way forward for teacher training and curriculum design in TVET (Box 8).

The content of and approach to professional development may need to be adapted to the specific context and training needs. However, it is possible to bring together a range of options relevant to those involved in the design of new initiatives (European Commission, 2014; EASSESS, 2018; OECD, 2018a) (Table 2).



Box 8 - Creating new professional development and curricula for entrepreneurial learning (Thailand)

In 2016, the Thai Ministry of Education's Office for Vocational Education Commission (OVEC, a UNEVOC Centre) and the British Council began a collaboration to support the design of student learning programmes and professional development activities for TVET teachers and incubation managers. Building peer support partnerships between three UK and five Thai TVET institutions has resulted in strong links between the two countries. Activities have included action learning workshops with TVET educators and the design and facilitation of a four-day professional development programme with thirty Thai educators across five Thai TVET institutions. As a result of the training, participants reported greater confidence in their ability to engage and enable students and colleagues to embrace their institution's enterprise agenda. OVEC has now adopted the standards and curriculum developed through this initiative.

Links:

OVEC: <http://www.vec.go.th>

British Council: <https://www.britishcouncil.me/en/programmes/education/vocational/entrepreneurship/vocational-education-thailand>

⁶ https://ec.europa.eu/programmes/erasmus-plus/programme-guide/part-b/three-key-actions/key-action-1/mobility-vet-staff_en

⁷ https://www.ilo.org/employment/units/rural-development/WCMS_159163/lang--en/index.htm

Table 2 - Suggested elements for teacher training in TVET

Building understanding of entrepreneurial learning
<ul style="list-style-type: none"> • Challenging the myths surrounding entrepreneurial learning • Developing whole-institution, cross-curricular vision and policy statements • Embedding the ethical and moral dimensions of entrepreneurship • Engaging TVET managers to create an entrepreneurial culture in TVET institutions • Addressing the 'hidden curriculum' of TVET bureaucracy and engendering a 'can-do' attitude
Designing entrepreneurial learning
<ul style="list-style-type: none"> • Auditing existing learning provisions and planning future development • Designing real-life, relevant entrepreneurial learning and reflection on learning • Involving students in the design of a new curriculum • Engaging support from the local community and from the business world • Achieving coherent, progressive, comprehensive and inclusive curriculum coverage
Delivery of entrepreneurial learning
<ul style="list-style-type: none"> • Supporting student-centred active learning opportunities • Addressing the diversity of student learning styles • Confirming knowledge of entrepreneurial pedagogies/tools for teaching and learning • Ensuring student entrepreneurial competence development, e.g. working within a team, problem-solving, decision-making, risk-taking • Providing students with experience in business planning and development, e.g. production process as a mini-business • Engaging support from the local community and from the business world • Identifying off-site learning opportunities • Facilitating local business or community involvement
Assessment and evaluation of entrepreneurial learning
<ul style="list-style-type: none"> • Using formative assessment to support student progress through assessment for learning • Encouraging student self-review and peer review • Generating local business or community feedback • Reviewing progress and forward planning for programme improvement • Designing dissemination and celebratory events

Source: adapted from a contribution by the Centre for Education and Industry, University of Warwick (European Commission, 2011)

Supporting effective teaching for entrepreneurial learning

At a structural level, there is a need to provide the basic elements that teaching staff require to effectively implement entrepreneurial learning requirements (OECD, 2015). This adds value and impact to the provision of training, and ensures that teachers feel supported. Although the specific supporting materials may vary from region to region, the elements identified by the Organisation for Economic Co-operation and Development (OECD) can be adapted to a wide range of contexts. Some of the basic supporting elements for teaching staff are briefly explained in the following paragraphs, with country-specific examples.

Tailored education material, such as general teaching materials and subject-specific pedagogical materials, including guidance on how to blend development of technical and entrepreneurial competences:

- The Enhancing the Curriculum (ETC) Toolkit was started by the University of South Wales and is now curated by Enterprise Education UK, an organization supporting entrepreneurial learning in TVET and higher education⁸. The ETC Toolkit is a resource 'built by educators, for educators' and offers a range of free-to-access and subject-specific how-to guides and case studies to enable teachers to embed entrepreneurial learning into subject-based and multidisciplinary curricula⁹.
- In Ukraine, new curriculum design for schools and school-based TVET is being led by networks of teacher educators. They are designing a new competence-based curriculum for 'The New Ukrainian School', with an emphasis on the development of entrepreneurial and digital competences through practical entrepreneurial experiences (Ukraine, 2016).

Guidelines and contact-making channels that facilitate collaboration with external partners to encourage real-life relevance of planned teaching, learning and assessment:

- In Wales, the Big Ideas Wales Role Model network comprises over 300 diverse social and business entrepreneurs who provide interactive presentations to raise awareness of entrepreneurship and the skills involved. These sessions can be booked for events or classroom activities by all types of education and training institutions, including TVET providers, youth organizations, schools and prisons¹⁰.

Professional networks to build understanding and provide access to new practices:

- The UNESCO-UNEVOC TVeT Forum is an online discussion board where TVET experts from around the world can share information and knowledge about all aspects of TVET. Discussions also cover entrepreneurial learning and associated topics, and supporting activities may be offered, such as the Virtual Conference on Entrepreneurial Learning held in 2018¹¹.

8 <http://www.enterprise.ac.uk/>

9 <https://www.etctoolkit.org.uk/>

10 <https://businesswales.gov.wales/bigideas/where-do-i-start/role-model-profiles>

11 <https://unevoc.unesco.org/go.php?q=About+the+TVET+Forum>

Learning modes other than formal curricula

Beyond formal curricula, there are increasing opportunities to embed entrepreneurial learning into non-formal learning modes such as extracurricular online learning and MOOCs (massive open online courses). These enable TVET providers to deliver learning in new and interesting ways, with the potential to enhance student engagement through diverse learning channels, to increase the quality and diversity of learning resources, and to ensure that TVET is accessible to more learners.

Building entrepreneurial learning into extracurricular activities

Extracurricular activities for students are an important route for developing entrepreneurial skills and encouraging more student-led learning opportunities beyond the curriculum (European Commission, 2017). The UNESCO (2015) Recommendation concerning TVET identifies extracurricular activities as a key activity for TVET institutions (Table 3), and the academic recognition of extracurricular activities as a means of increasing learner engagement and reducing early leaving. Extracurricular activities, unlike formal education, do not engage all students and are usually voluntary. Equal access to activities can depend on such factors as the organization (culture of inclusion, level of extracurricular provision), the activity (group size, cost, skill level required, selection-based participation), and the individual/family (gender-based barriers, family responsibilities, transport, access to finance, disabilities). If inclusion is to be achieved, it is vital that accessible extracurricular opportunities are provided for all TVET learners.

Extracurricular activities supporting entrepreneurial learning may not be explicitly related to business, and instead could link to wider themes such as active citizenship, community

actions or environmental sustainability. For example, Enactus (Box 9) offers the chance to link entrepreneurial learning to social actions and was particularly highlighted as a TVET activity among participants from Nigeria in the 2018 UNESCO-UNEVOC Virtual Conference on Entrepreneurial Learning.

Other activities are more focused on business, providing practices or mock start-up experiences to students across secondary schools and TVET institutions. Junior Achievement (JA) (Box 10) follows a similar approach to Enactus, with global coverage and a wide range of business sponsors. It offers a range of programmes, most commonly offering the chance for student teams to develop mini-companies.

Developing entrepreneurial competences through online learning

Technology-supported learning is driving rapid change in education, as increasing numbers of students access learning online. It is changing the status quo of pedagogy, learner engagement, and access to knowledge and validation of learning¹², and significantly impacts cost efficiency by enabling economies of scale, flexibility of learning and increased geographic reach. Such learning can be delivered online to specific groups within TVET institutions or through MOOCs (Box 11). Increasingly, TVET institutions are following universities and other learning providers into MOOC provision to students around the world.

In Peru, the Fundación Romero is pioneering online entrepreneurial learning relating to skills and business to audiences across the country, with a specific focus on reaching out to those in remote areas (Box 12).

12 <https://www.teachthought.com/the-future-of-learning/elements-of-a-digital-classroom/>

Table 3 - Examples of extracurricular activities in TVET

Examples of extracurricular activities in TVET:	
<ul style="list-style-type: none"> • Youth parliaments • Social action projects • Youth-led networks • Ideation workshops • Debating clubs • Mini-companies • Competitions • Peer-to-peer mentoring • Volunteering • Makerspace challenges 	<ul style="list-style-type: none"> • Fab labs • Business plan competitions • Hackathons • Student bootcamps • Pitching workshops for business ideas • Young entrepreneur clubs • Job/entrepreneur shadowing • Entrepreneurial networking events • Presentations by entrepreneurs • Student-led consultancy companies



Box 9 - Entrepreneurial learning through social action (Global)

Enactus (Entrepreneurial action for others creates a better world for us all) is a global initiative originating in the United States and currently active in thirty-nine countries, with support from a number of high-profile multinational companies. Through national coordinators and usually working via extracurricular engagement within TVET and university institutions, it establishes a student team in each institution and links the team with academic leads and external business stakeholders. Each team creates a portfolio of socially innovative projects for social impact at local, national or even global level, building on these each year and presenting the impact of their work in interinstitutional competitions. The methodology is designed to develop entrepreneurial and socially aware future leaders.

Link: www.enactus.org



Box 10 - Using mini-company methodology to deliver extracurricular entrepreneurial learning (Global)

Junior Achievement (JA) works in all regions to support the social and economic potential of young people by educating them in entrepreneurial skills, work readiness and financial literacy. Working with volunteers from the world of business, JA delivers hands-on experiential learning, with the most widespread programme being the mini-company programme. Young people work in teams to come up with an idea for a business, allocate roles to all team members and continue to run their business over a twelve-month period. Delivered to over 10 million young people every year, JA programmes are often extracurricular, but may also be embedded in the core curriculum in some countries.

Link: www.jaworldwide.org



Box 11 - MOOCs supporting future social innovators (European Union)

Tomorrow's Land is a European Union-funded project involving third sector, private sector and technical university partners from across Europe. The project aims to develop future social innovators who can support the development of a more inclusive and innovative society. To achieve this, partners have co-created a MOOC with modules mapped to social innovation-related learning pathways:

- Creative thinker path / Switch on your creativity
- Implementer path / Understand the wider context
- Connector path / Build relationships
- Catalyst for change path / Lead with a servant approach
- Techie path / Be collaborative, be digital

Links:

Mapping: <http://www.tomorrowsland.eu/mapping-tomorrowsquos-land.html>

MOOC: <http://www.tland-learning.eu>



Box 12 - Online entrepreneurial learning (Peru)

Fundación Romero was established in 2011 by the Romero Group, a group of Peruvian private sector companies. They wanted to respond to the economic and social challenges in Peru through their vision to promote an entrepreneurial spirit and give more Peruvians the opportunity to be entrepreneurs. Their initiative now provides online learning in entrepreneurial learning and business education, ensuring equal access for the most remote and poorest areas of Peru.

The programme is called *Para Quitarse el Sombrero (PQS)*, roughly translated as *Tip Your Sombrero for Success*. The first action, launched in 2011, was the creation of a specialized news platform for entrepreneurs, providing news, business ideas and advice for aspiring and established entrepreneurs. This was quickly followed in 2012 by the PQS Awards, which was aimed at finding and rewarding the best business ideas from across Peru and which attracted 1,000 business ideas in its first year. However, these awards brought to light the large gap that exists in the quality of ideas between those from urban areas such as Lima and those from more remote regions of Peru. In response, in 2014 Fundación Romero launched the *Virtual Campus Romero* – the first initiative of its kind in Peru – to provide online education accessible to the most remote and poorest areas of Peru. Courses are accessible to all and the campus now has 140,000 people registered for its courses, which include training in entrepreneurial skills, setting up a business and specialist courses on marketing and financials.

The project has expanded its services significantly in the six years since launching, increasing its impact through reach and increased opportunities for institutions and aspiring entrepreneurs to engage. Through the PQS Portal platform, Fundación Romero now shares news and success stories with 420,000 people per month. It also engages with institutions through the PQS awards, which runs nationally and involves more than 400 educational institutions each year. Between 2012 and 2017, these awards received 21,000 business ideas from 63,000 participants. The campus recently extended its offer to include the PQS *Incubadora*, a four-month specialized start-up programme with workshops, mentoring, online training and access to angel investment networks. Accessible to all, the programme received 600 applicants in 2018, of which 50 start-ups will be selected based on their innovation and growth potential.

The organization now works closely with the national Ministry of Education as well as national and international organizations such as Colleges and Institutes Canada (CICan). It also partners directly with TVET institutions to evaluate training offers and engage students in its programmes. Learning from experience, Fundación Romero has modified the programme to better fit its audiences, and the programme is now being mainstreamed into policy, wider education and the national support available for entrepreneurs. Its impact is visible: it has achieved greater equality of access to high-quality educational opportunities for all, while supporting individual economic success and impacting economic growth at the national level.

Link: www.fundacionromero.org.pe/

Support to career paths/start-ups

Student career guidance is about supporting young people to take their next steps into the world of work or self-employment. It needs to take account of the diversity of destinations, to embrace the new and evolving world of work that young people face both now and in the future, to encourage reflection on experiences and to be able to respond to individual needs. As the workplace evolves, so too must career guidance, with a new emphasis on non-traditional careers and on start-ups as a career choice. This is especially the case for TVET, where the proximity of students to the labour market should open up all career opportunities available to them, including start-up opportunities for business or social enterprise.

Support for aspiring and new entrepreneurs

TVET institutions can offer support by developing career pathways that inspire new entrepreneurs to take the next step. This might include providing the chance for students to become aware of the opportunity, develop entrepreneurial skills, meet entrepreneurs, participate in business challenges, and follow start-up support to develop and launch their own social or business enterprises. Contributions during the 2018 Virtual Conference on Entrepreneurial Learning (UNESCO-UNEVOC, 2019) echoed these initiatives, and also placed emphasis on specific areas of business support such as access to microfinancing, the availability of business incubators and the opportunity to be part of entrepreneur networks and peer-to-peer support. Many highlighted that it is imperative to prepare TVET graduates for an entrepreneurial career, particularly in the face of high rates of youth unemployment and the economic necessity of securing an income.

‘BongoHive provides a range of start-up and tech programmes ... in addition to start-up programmes, they organize issue-specific workshops and seminars, support community developer groups on a variety of topics such as gaming and robotics, and host a wide range of industry networking events’

Participant from Zambia (UNESCO-UNEVOC, 2019)

Developing a pipeline of students interested in becoming social or business entrepreneurs is an important first step towards providing an entrepreneurial pathway. These activities can be open to TVET learners who already have ideas, as well as those who are interested in entrepreneurship but may not know how to go about finding a viable idea to develop. In Canada, Bow Valley College, a UNEVOC Centre, has followed this approach (Box 13).

In cases where students are already committed to becoming entrepreneurs, it may be important to support them to follow their studies while developing their business at the same time. Fundación Paraguaya, a UNEVOC Centre, has developed the Sustainable Schools Initiative, where students are supported and advised on how to create a sustainable business idea to pursue once they graduate. An innovative route to support nascent start-ups during studies has also been developed at Fontys Hogeschool in the Netherlands (Box 14).



Box 13 - Creating a development pathway for aspiring entrepreneurs (Canada)

Bow Valley College is a UNEVOC Centre and open-access institution in Alberta, Canada, with 16,000 learners from diverse and international backgrounds. Since 2014 the college entrepreneurship support programme, pioneered by Craig Elias, Entrepreneur-in-Residence, has developed a range of advice and support to encourage nascent entrepreneurs from across the college who have ideas or are simply interested in exploring the idea of becoming an entrepreneur. The activities include the following:

- Founders' lunches take place around two weeks after the beginning of the year. They are informal networking opportunities aimed at registering students' interest in entrepreneurship activities.
- Wannabe Wednesdays are weekly opportunities for students to meet entrepreneurs and hear their stories or to help tackle a problem faced by a fellow student in developing their own business idea.
- VentureQuest is a college-based business ideas competition in which students have the chance to work with others, create a network of socially focused entrepreneurs, and develop a business idea. The finalists compete for cash prizes and in-kind support to take their ideas forward.
- Innovation Rodeo is an entrepreneurial summit involving four days of international speakers on entrepreneurship, innovation challenges and pitch competitions.

All of the activities are designed to develop students' entrepreneurial mindsets and skills, and to inspire them towards a start-up as a career path. Activities focus on building curiosity, initiative, creativity, leadership, adaptability, collaboration, critical thinking, risk assessment, problem-solving, persistence, communication and ethics. Significant impact has been seen among international students and new Canadian citizens (those born abroad), who represented twenty-six out of the forty finalists at the 2018 VentureQuest. The college's work has been recognized at a global level, winning gold in the entrepreneurship category at the World Federation of Colleges and Polytechnics Awards of Excellence.

Links:

https://wfcpc.org/wp-content/uploads/2018/10/best_practice_guide_volume2.pdf
www.bowvalleycollege.ca



Box 14 - Using a student entrepreneur agreement to support aspiring and new entrepreneurs through their studies (The Netherlands)

Fontys Hogeschool is one of the largest universities of applied science in the Netherlands, with over 44,000 students at campuses across 12 cities and towns. It is an international institution, delivering some of its higher professional education programmes in English and with students from over eighty countries. To build flexibility of learning and encourage student entrepreneurship, the institution has established a student entrepreneur agreement accessible to students in any of the thirty-nine subject disciplines. This agreement is designed to enable students who wish to start a business or social enterprise, or to continue to run an existing venture, to combine their studies with business activities. A series of tailored support and study adaptations have been created to allow the students the best chance of success. These include:

- Support from an external coach
- Entrepreneurship workshops
- Opportunities to make running a business a recognized student internship experience
- Special adaptations to curricula and examination timetables to allow for business commitments
- Adapted first-year diploma requirements to ensure the students have time to run their business alongside completion of the required study credits

Acceptance in the programme is subject to a multistage application to ensure the commitment of the student and the viability of the business or social enterprise. This includes an application form alongside a business model canvas and value proposition design, and is followed by a presentation at an independent screening commission involving business coaches and entrepreneurs.

Link: <https://fontys.edu/Fontys-helps-1/The-Fontys-Student-Entrepreneur-Agreement.htm>

Key reflections

- The **ecosystem approach** is an effective method of mainstreaming entrepreneurial learning in TVET. UNESCO-UNEVOC identifies eight core elements that drive the implementation of entrepreneurial learning in education and training systems, namely policy, resources, governance and partnerships, teachers and trainers, curricula, learning modes other than formal curricula, assessment and recognition, and support to career paths/start-ups. Developing an entrepreneurial learning ecosystem approach in TVET can support the recognition and engagement of different actors as effective drivers and enablers of and contributors to entrepreneurial learning in TVET.
- At **policy level**, **cross-sector policies** enable a comprehensive range of stakeholders to build the entrepreneurial learning ecosystem. Policies also play an important role in mainstreaming entrepreneurial learning in TVET by **legalizing and regularizing** it in the education system.
- There are **six well-recognized indicators** of an **entrepreneurial learning curriculum**:
 - allows learners to test and use their entrepreneurial competences
 - explicitly highlights the value of entrepreneurial competences to learners
 - brings in real-life relevance to learning
 - is delivered through practical pedagogical approaches
 - involves external partners or stakeholders
 - has a focus on formative assessment for learning
- **Professional training and effective support for TVET teaching staff** should not be neglected. Aside from the traditional pre-service and in-service training, teacher work placement and mobility as well as international training courses and collaboration are emerging routes for teacher training. Effective support may also include adequate time for planning entrepreneurial learning pedagogies, tailored education materials, guidelines and contact-making channels for interacting with external partners, and professional networks.
- **Non-formal learning methods** such as extracurricular activities and online learning can be regarded as emerging opportunities for entrepreneurial learning. They offer opportunities to deliver entrepreneurial learning through creative and diverse approaches, with the potential to enhance student engagement by diversifying learning channels and increasing both the accessibility and the quality of learning resources.
- **Start-up support**: With the emerging interest in start-ups as a career choice for TVET graduates, TVET institutions should provide career support for potential TVET entrepreneurs. This might include raising students' awareness of existing opportunities, developing their entrepreneurial skills, enabling them to meet entrepreneurs, and fostering their participation in business challenges or other support mechanisms for starting social or business enterprises.

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Glossary

Attitudes	Motivators of performance. They include values, aspirations and priorities.
Competence	A set of knowledge, skills and attitudes.
Entrepreneurial learning	Education through entrepreneurship, focusing broadly on personal development, mindset and skills to become entrepreneurial.
Entrepreneurship	Acting upon opportunities and ideas and transforming them into value for others. The value that is created can be financial, cultural or social.
Intrapreneurship	Entrepreneurship within an organization.
Knowledge	The body of facts, principles, theories and practices that is related to a field of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual.
Learning outcomes	Statements of what a learner knows, understands and can do after completion of learning. Statements can be designed and used for educational planning and curriculum development or for different types of accountability, e.g. legal or professional accountability.
Practical entrepreneurial experiences	Educational experiences in which the learner can come up with ideas, identify a good idea and turn that idea into action. Such activities require the involvement of external partners in the design and/or delivery of this learning, to ensure relevance to the real world. Practical entrepreneurial experiences provide students with a supportive environment, where mistakes are embraced and failure is a learning tool, so that students gain the confidence and experience to turn their ideas into action in the real world. These experiences should be a student-led initiative, either individually or as part of a small team, should involve learning-by-doing and should producing a tangible outcome.
Resources	In the context of this work, a term that encompasses personal resources (namely, self-awareness and self-efficacy, motivation and perseverance), material resources (for instance, production means and financial resources) or non-material resources (for instance, specific knowledge, skills and attitudes).
Skills	The ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).
Stakeholders	Individuals, groups and organizations with direct and indirect interest in value-creating activity and its impact.
Student	A learner at any level of education.
System	A dynamic complex whole made up of a set of interacting components that influence one another. A system is defined by the boundaries that distinguish it from the environment that surrounds it and interacts with it, and it is characterized by a structure, a purpose and a way of functioning.

Uncertainty

A situation that involves imperfect and (or) incomplete information, and that affects the predictability of outcomes. Uncertainty entails a risk of undesired effect or loss, the probability and magnitude of which cannot be calculated.

Value creation

The outcome of human activity to transform purposeful ideas into action that generates value for someone other than oneself. This value can be social, cultural or economic.



Sustainable
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Goals