



Innovative VET Scalable Micro-Credential Solutions that Engage, Explore, Explain, Elaborate and Evaluate

D2.3

A VET Practitioner Development Guideline

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<https://www.stimuli2.no/project/five>

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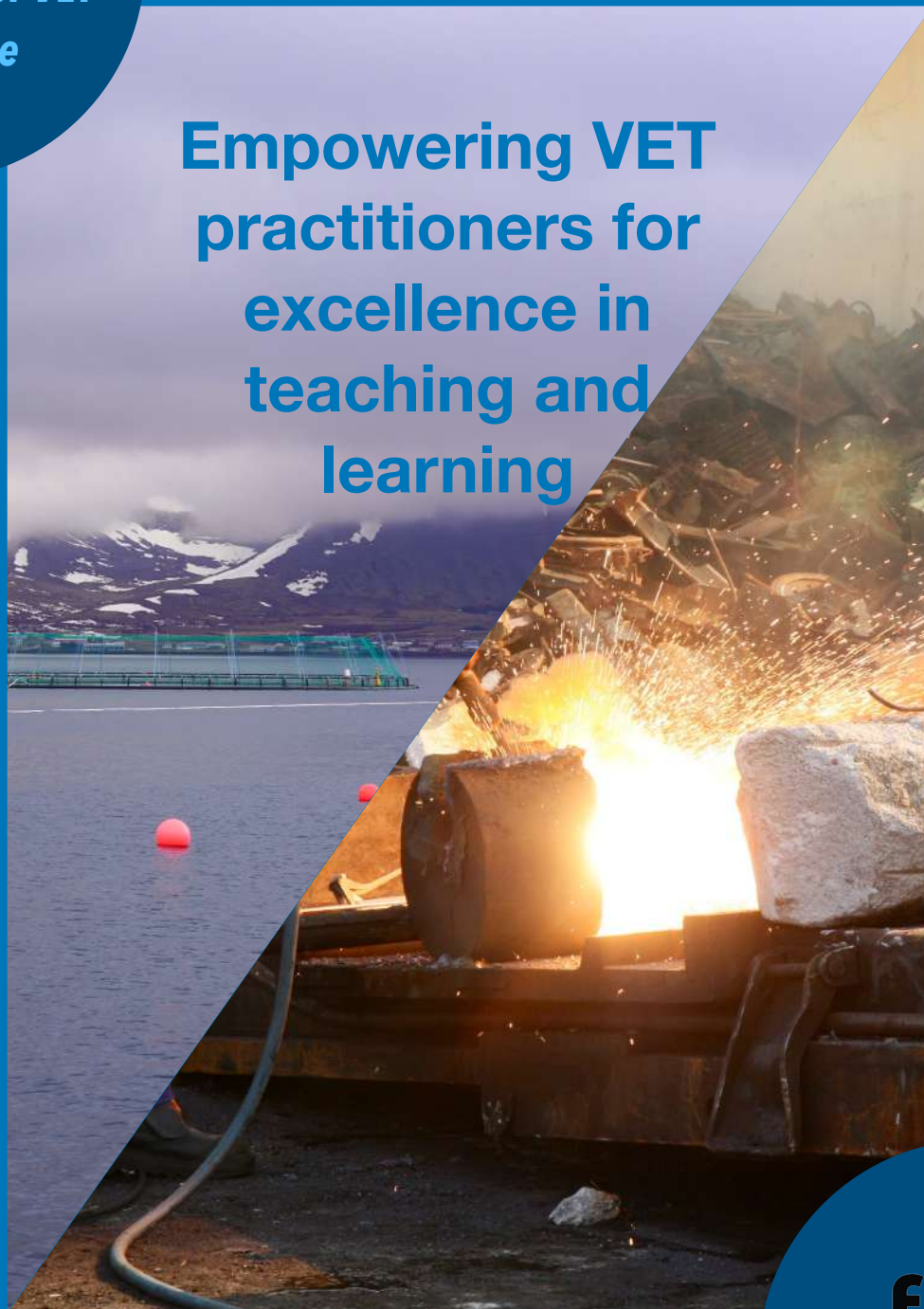
Building skills and competences



Shaping the future

***From knowledge
to impact:
A guideline for VET
excellence***

Empowering VET practitioners for excellence in teaching and learning



five

D2.3

***Guideline for empowering VET practitioners
through continuous competence development.***



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INTRODUCTION



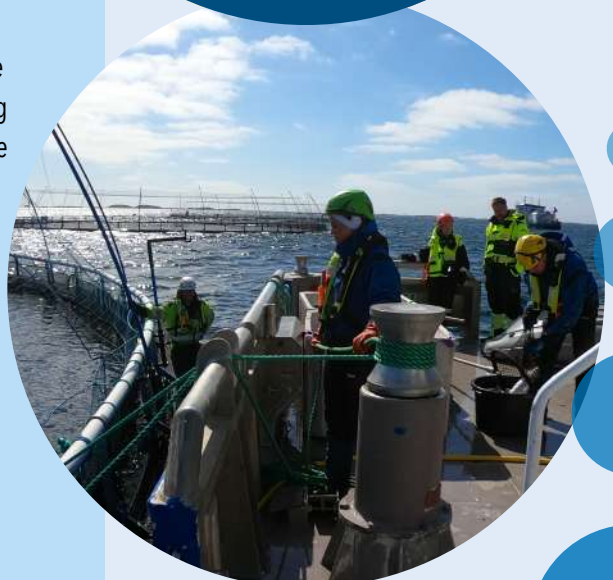
Vocational Education and Training (VET) play a critical role in supporting economic development, social inclusion, innovation, and lifelong learning. As industries undergo rapid transformation driven by digitalisation, automation, artificial intelligence (AI), sustainability requirements, and changing labour market demands, VET systems must continuously adapt to ensure learners acquire relevant and future-oriented competences. At the centre of this transformation are VET practitioners, including teachers, trainers, assessors, mentors, and workplace supervisors, who are responsible for designing, facilitating, assessing, and improving learning experiences that prepare individuals for employment, career progression, and active participation in society.

The role of the VET practitioner has evolved significantly over the past decade. Modern practitioners are no longer expected solely to transfer technical knowledge. They are increasingly required to facilitate competence-based learning, integrate digital technologies, support diverse learner groups, collaborate with employers, implement quality assurance processes, and contribute to innovation within both educational institutions and workplaces. This expanding role requires continuous professional development and access to structured guidance that supports the acquisition of new skills, knowledge, and professional competences.

This guideline is developed to give an overview and provide a comprehensive framework for the professional development of VET practitioners. It promotes a learner-centred, competence-based, and industry-relevant approach to vocational education and training, while still supporting continuous improvement and lifelong learning among educational professionals. The guideline should be used as a reference document, a professional development framework, or the basis for modular training programmes delivered through micro courses applying harmonized competence units



***Improving the
educational quality
starts with
continuous
development
processes***



Purpose

The primary purpose of this guideline is to support VET practitioners in developing the competences required to deliver high-quality, inclusive, innovative, and labour-market-relevant education and training. It provides practical guidance, methodological approaches, and professional standards that will be applied across vocational sectors and various educational contexts.

More specifically, the guideline aims to:

- Support the professional development of VET practitioners throughout their careers.
- Promote competence-based and learner-centred educational approaches.
- Strengthen the integration of digital technologies and usage of more innovative teaching methods.
- Improve collaboration between education providers and industry stakeholders.
- Support education quality with continuous improvement processes.
- Enhance the recognition and validation of competences acquired through formal, non-formal, and informal learning processes.
- Facilitate the implementation of micro-credentials, competence units, and flexible learning pathways.
- Encourage reflective practice, professional autonomy, and lifelong and life wide learning among practitioners.

The guideline seeks to establish a common understanding of effective vocational teaching and learning practices while still allowing sufficient flexibility for adaptation to national, regional, sectoral, and institutional requirements.

Targeted users

The guideline is intended for a broad range of professionals involved in VET. Although their responsibilities differ, all contribute to the development of learner competences and improved educational quality.

Teachers: VET teachers working in schools, colleges, adult education centres, and higher vocational institutions will use the guideline to strengthen pedagogical practices, improve learning design, implement digital tools, and align teaching with industry requirements.



Trainers: Industry trainers and training providers delivering vocational courses, continuing professional development programmes, and specialised technical training will use the guideline to enhance instructional methods and assessment practices while ensuring relevance to workplace needs.

Assessors: Assessment professionals responsible for evaluating learner performance, competence demonstrations, portfolios, and practical skills apply the guideline to ensure consistency, fairness, transparency, and reliability in competence-based assessment processes.

Mentors: Educational and workplace mentors supporting learners during apprenticeships, internships, work-based learning, or professional development programmes will use the guideline to facilitate learner growth, provide constructive feedback, and encourage reflective learning.

Workplace supervisors: Supervisors and industry representatives involved in workplace learning environments play a critical role in connecting education with real-world practice. The guideline supports them in planning learning activities, monitoring learner progress, documenting evidence of competence, and collaborating more effectively with educational institutions.

In addition, the guideline will be valuable for educational managers, curriculum developers, quality assurance personnel, policy makers, and organisations involved in VET system development.

Scope and Applicability: The guideline is designed to be flexible and adaptable across a range of VET contexts. It is not intended to prescribe a single approach but rather to provide an overview with a structured framework to be tailored to different educational systems, sectors, and learner groups.

Empowering practitioners. Enriching the VET learning.

Bloom's taxonomy is widely used in education, training, and assessment design because it provides a structured, hierarchical framework for understanding and developing LOs.



The guideline will be applied within:

- Initial vocational education and training.
- Continuing vocational education and training.
- Adult learning and lifelong learning programmes.
- Apprenticeship and dual learning systems.
- Work-based learning environments.
- Delivery of micro courses, resulting in micro-credentials and modular learning programmes and pathways.
- Formal, non-formal, and informal learning contexts.

The framework is equally applicable to technical, industrial, digital, health, service, creative, and emerging occupational sectors. Its principles will support both classroom-based and workplace-based learning environments, including face-to-face, online, blended, and hybrid delivery models.

The guideline promotes flexibility through the use of micro courses applying harmonized competence units. It is enabling practitioners to pursue personalised professional development pathways according to their roles, experience levels, and career aspirations.

Alignment with national and European VET policies

The guideline reflects current developments in VET at both national and European levels. It supports policy priorities aimed at strengthening skills development, employability, social inclusion, innovation, and lifelong and life wide learning.

At the European level, the guideline aligns with key initiatives and frameworks, including:

- The European Skills Agenda.
- The Union of Skills initiative.
- The European Education Area.
- The European Pillar of Social Rights.
- The Council Recommendation on Vocational Education and Training.
- The European Qualifications Framework (EQF).
- Europass and European Digital Credentials for Learning.
- The European Quality Assurance Reference Framework for VET (EQAVET).
- The Recommendation on Micro-Credentials for Lifelong Learning and Employability.
- Digital Education and Digital Skills strategies.
- Green Transition and Sustainability competence initiatives.

***Excellence in
practice leads
to excellence
in learning!***





The guideline in addition supports national vocational education policies, qualification frameworks, quality assurance systems, and labour market strategies. Institutions applying the guideline are encouraged to adapt its content to national legislation, qualification requirements, occupational standards, and sector-specific regulations.

By maintaining alignment with both national and European priorities, the guideline helps ensuring that professional development activities remain relevant, transferable, and recognised across educational and labour market contexts.

To promote a shared understanding among practitioners and stakeholders, the guideline adopts a number of key definitions and terminologies.

Vocational Education and Training (VET): Education and training that equips learners with the knowledge, skills, and competences required for specific occupations, professions, or sectors.

Competence: The proven ability to apply knowledge, skills, and personal, social, and methodological abilities in work or learning situations and for professional and personal development.

Learning Outcomes: Statements describing what a learner knows, understands, and is able to do upon completion of a learning process.

Competence unit (CU): A coherent set of general and specific learning outcomes that will be assessed, validated, recognised, and accumulated as part of a qualification or professional development pathway.

Micro course: A short, focused learning experience designed to support the acquisition of specific skills and competences or learning outcomes. A micro course applies harmonized CUs.

Micro-Credential: A documented record of learning achievements acquired through a short learning experience and assessed against transparent criteria.

*Guiding the professional
growth for creating
sustainable VET, leading
to inspiring learners
success.*

Micro-Qualification: A small, assessed, and recognised qualification that certifies the achievement of a specific set of learning outcomes, competences, or occupational skills. Unlike full qualifications, which will require months or years of study, micro-qualifications focus on targeted competences that will be acquired in a relatively short period of learning. They are often built from several micro courses and their CUs, and will be accumulated or "stacked" towards larger qualifications, diplomas, or professional certifications.

Work-based learning (WBL): Learning that takes place in real or simulated work environments, integrating practical experience with structured educational activities.

Recognition of prior learning (RPL): A process through which skills and competences acquired through formal, non-formal, or informal learning are identified, documented, assessed, and recognised.

Quality Assurance: Systematic processes used to monitor, evaluate, and continuously improve the educational quality and effectiveness of education and training.

Digital Competence: The confident, critical, and responsible use of digital technologies for learning, work, and participation in society. These definitions provide a common language for the implementation of the guideline and contribute to consistency across institutions, sectors, and learning environments.

This section provides the foundation for the rest of the guideline and will be followed by chapters on learner-centred pedagogy, competence-based learning, digitalisation, assessment, work-based learning, quality assurance, innovation, and continuous professional development.

Role of the VET Practitioner

VET practitioners play a crucial role in preparing learners for employment, career progression, and lifelong learning in an increasingly dynamic labour market. Their role extends beyond the traditional function of transmitting knowledge and skills. Modern VET practitioners are facilitators of learning, mentors, assessors, innovators, and connectors between education and the world of work. They are responsible for ensuring that learners develop not only technical competences relevant to their occupations, but the transversal skills, attitudes, and adaptability required to succeed in rapidly changing economic and technological environments. As industries continue to evolve due to digitalisation, automation, sustainability requirements, and global competition, VET practitioners must help learners acquire future-oriented competences while maintaining strong links with current workplace practices and standards.

A fundamental responsibility of VET practitioners is to design, deliver, and assess learning programmes that are relevant, inclusive, and competence-based. This requires a thorough understanding of occupational standards, curriculum requirements, learning outcomes, and industry expectations. Practitioners must ensure that teaching and learning activities support the development of knowledge, practical skills, and professional competences that is directly applicable in workplace settings. They are responsible for creating engaging learning environments that accommodate diverse learner needs, backgrounds, and experiences. This includes supporting young learners, adult learners, individuals seeking reskilling or upskilling opportunities, and learners with additional support needs. Through careful planning, facilitation, and assessment, VET practitioners contribute directly to learner success and their employability.

From knowledge to impact, a guide for provision of VET excellence.



Professional standards provide the framework that guides VET practitioners in carrying out their responsibilities effectively. These standards establish expectations regarding teaching quality, assessment practices, learner support, professional conduct, and industry engagement. Practitioners are expected to maintain current occupational expertise, apply appropriate pedagogical approaches, and ensure that assessments are valid, reliable, fair, and transparent. They should be able to integrate work-based learning, digital technologies, and innovative teaching methods into their practice while continuously evaluating and improving their effectiveness. Adherence to professional standards helps ensure consistency, credibility, and quality across VET systems and strengthens the confidence of learners, employers, and society VET.

Ethical principles are equally important in defining the role of the VET practitioner. Practitioners have a responsibility to act with integrity, fairness, respect, and professionalism in all aspects of their work. They must promote equal opportunities and inclusion, ensuring that all learners have access to high-quality learning experiences regardless of gender, age, ethnicity, disability, socioeconomic background, or other personal characteristics. Confidentiality and data protection must be respected when handling learner information, assessments, and personal circumstances. Ethical practice involves maintaining transparency in assessment and decision-making processes, avoiding conflicts of interest, and ensuring that learner welfare remains a central consideration. By modelling ethical behaviour, practitioners help learners develop professional attitudes and values that are essential for successful participation in the workplace and the society.

Lifelong and life wide learning is a key expectation for all VET practitioners. Given the rapid pace of technological advancement, changing industry requirements, and evolving educational methodologies, professional competence cannot remain static. Practitioners must continuously update both their vocational expertise and their teaching skills to remain effective. This includes participating in continuing professional development activities such as training courses, industry placements, professional networks, conferences, workshops, and online learning opportunities. In many vocational sectors, maintaining close contact with industry is essential for understanding new technologies, regulations, materials, processes, and workplace practices. At the same time, practitioners need to stay informed about developments in pedagogy, assessment, digital learning, artificial intelligence, inclusion, and learner engagement strategies.

Continuous professional development should be viewed not as an isolated activity but as an ongoing process of reflection, learning, and improvement. Effective VET practitioners regularly evaluate their own practice, gather feedback from learners and colleagues, and identify areas for enhancement. Participation in communities of practice, peer observation activities, collaborative curriculum development, and action research projects will further support professional growth. By embracing a culture of continuous improvement, practitioners will contribute to higher-quality learning experiences and strengthen the overall effectiveness of VET provision.

Collaboration and cooperation represents another essential dimension of the VET practitioner's role. Successful vocational education depends on strong partnerships between education providers, learners, employers, industry representatives, policymakers, and community organisations. Practitioners act as important intermediaries within this ecosystem, ensuring that training remains relevant to labour market needs while supporting learners in achieving their personal and professional goals. Collaboration and cooperation with learners involve fostering active participation, encouraging self-directed learning, and creating opportunities for feedback and dialogue. Learners should be viewed as partners in the learning process, with their experiences and perspectives contributing to programme improvement and innovation.

Engagement with employers and industry stakeholders is equally critical. Employers provide valuable insights into emerging skills needs, workplace expectations, and technological developments. Through collaboration, practitioners will co-design curricula, organise workplace learning opportunities, facilitate apprenticeships and internships, and ensure that learning outcomes remain aligned with industry requirements. Industry engagement supports the development of authentic learning activities, real-world projects, inclusion of guest lectures, and mentoring opportunities that enhance learner employability and readiness for work.

In addition to employers, VET practitioners often collaborate with sector organisations, professional associations, quality assurance bodies, guidance services, and policymakers. These partnerships help strengthen vocational education systems, promote innovation, and support the recognition and validation of skills and competences. Ultimately, the effectiveness of a VET practitioner depends not only on their technical and pedagogical expertise, but on their ability to build meaningful relationships and partnerships that create value for learners, employers, and the society. Through professional responsibility, ethical practice, continuous learning, and collaborative engagement, VET practitioners will play a central role in developing a skilled, adaptable, and future-ready workforce.

Understanding Learners in VET

Understanding learners needs are one of the most important responsibilities of a VET practitioner. Effective vocational education is not simply about transferring technical knowledge or teaching practical skills. It is about creating learning experiences that recognise the diverse backgrounds, experiences, abilities, motivations, and aspirations of the learners. Modern VET classrooms often include young people entering vocational pathways. This includes experienced workers seeking upskilling or reskilling, unemployed individuals returning to education, migrants, career changers, and learners with different educational, social, and cultural backgrounds. As labour markets continue to evolve due to digitalisation, automation, sustainability transitions, and changing workplace requirements, VET practitioners must be capable of designing inclusive, flexible, and learner-centred learning environments that support all learners in achieving meaningful learning practices.





Adult learning principles

Many VET learners are adults who bring extensive life and work experiences into the learning environment. Adult learning theory, commonly referred to as andragogy, provides a useful framework for understanding how adults learn and how vocational training will be designed to maximise engagement and effectiveness.

According to andragogical principles, adult learners are generally self-directed and prefer to take responsibility for their own learning. Unlike younger learners, adults often need to understand why they are learning something before committing time and effort to it. They are typically motivated when learning is clearly connected to practical workplace needs, career advancement, personal goals, or solving real-life problems.

Adults bring a wealth of prior knowledge and experience that enrich learning activities. Effective VET practitioners recognise these experiences as valuable learning resources. They will create opportunities for learners to share expertise, reflect on workplace situations, and connect new knowledge with existing understanding. Learning activities that involve discussion, case studies, simulations, practical projects, and problem-solving are often more effective than traditional lecture-based approaches.

Adult learners tend to value flexibility. Many combine educations with employment, family responsibilities, and other commitments. Therefore, flexible delivery methods, such as blended learning, online learning, micro-learning, and modular competence-based approaches, will significantly improve participation and completion rates.

Learner centred approaches

Traditional educational models often focus on the teacher as the primary source of knowledge. In contrast, learner-centred approaches place learners at the heart of the educational process. The role of the VET practitioner shifts from being a knowledge transmitter to becoming a facilitator, coach, mentor, and guide who supports learners in developing skills and competencies through active participation.

Learner-centred education acknowledges that individuals learn at different speeds, possess different strengths, whereby it requires different forms of support. Rather than expecting all learners to follow identical pathways, learner-centred approaches provide opportunities for personalised learning experiences that accommodate individual needs and goals.

*Developing better educators
and improved educational
quality, for tomorrow's
workforce.*

Supporting the educators is strengthening the modern VET excellence.



In VET contexts, learner-centred approaches involve applying project-based learning, work-based learning, challenge-based learning, simulations, peer learning, and practical assignments that mirror workplace situations. Learners become active participants in constructing knowledge rather than passive recipients of information.

Personalised learning pathways are another important feature of learner-centred education. Through modular learning structures applying micro courses with harmonized CUs, and micro-credentials, learners will progress according to their existing competences and professional objectives. This flexibility is particularly valuable for adult learners who often only require specific skills rather than full qualifications.

Assessment practices should support learner-centred principles. Continuous feedback, self-assessment, peer assessment, and reflective practice help learners take ownership of their progress and identify areas for further development.

Diversity and Inclusion

Modern VET systems serve increasingly diverse learner populations. Diversity encompasses a wide range of characteristics, including age, gender, ethnicity, language, culture, educational background, socioeconomic status, disability, learning preferences, and work experience. Inclusive vocational education seeks to ensure that all learners have equitable opportunities to participate, learn, and succeed.

An inclusive learning environment begins with recognising and valuing differences rather than viewing them as barriers. VET practitioners should adopt teaching methods, learning materials, and assessment approaches that accommodate diverse learner needs and reduce unnecessary obstacles to participation and inclusion.

Inclusive practices include providing materials in multiple formats, offering flexible assessment methods, using clear and accessible language, ensuring digital accessibility, and creating respectful learning environments, where all learners feel valued and supported.

Cultural diversity requires careful consideration. Learners from different cultural backgrounds will have varying communication styles, expectations regarding education, and prior educational experiences. Practitioners should foster intercultural understanding and encourage collaborative learning that benefits from such diverse perspectives.

Gender inclusion is another important aspect of diversity. Certain vocational sectors continue to experience gender imbalances, particularly in fields such as engineering, construction, manufacturing, information technology, and social science care professions. VET practitioners will contribute to greater inclusion by challenging stereotypes, promoting diverse role models, and ensuring equal participation opportunities.

Ultimately, diversity should be viewed as a strength that enriches the learning experience, promotes innovation, and better reflects the realities of modern workplaces.



Supporting disadvantaged and neurodiverse learners

To many VET learners face barriers that affect their participation and achievement. They are in their nature either educational, economic, social, cultural, or personal. Dis-advantaged learners will include individuals with low prior educational attainment, long-term unemployed persons, migrants, refugees, learners from rural areas, individuals experiencing financial hardship, or those facing social exclusion.

Supporting disadvantaged learners requires a holistic approach that extends beyond academic instruction. VET practitioners should seek to identify potential barriers early and provide appropriate support mechanisms. This involves additional tutoring, mentoring, flexible scheduling, digital access support, counselling referrals, or collaboration with social support services.

Neurodiversity is increasingly recognised as an important consideration in education and training. Neurodiverse learners include individuals with autism spectrum conditions, attention deficit hyperactivity disorder (ADHD), dyslexia, dyspraxia, dyscalculia, or other neurological differences. Rather than viewing these differences as deficits, contemporary educational approaches recognise neurodiversity as a natural variation in human cognition.

Neurodiverse learners often possess significant strengths, including creativity, attention to detail, innovative thinking, problem-solving abilities, and strong technical interests. However, they often experience challenges related to communication, organisation, information processing, concentration, or sensory environments.

Inclusive strategies for supporting neurodiverse learners include:

- Providing clear instructions and expectations.
- Breaking learning tasks into manageable steps.
- Offering visual supports and structured learning materials.
- Allowing flexible assessment methods.
- Creating predictable learning environments.
- Providing opportunities for self-paced learning.
- Reducing unnecessary sensory distractions.
- Using assistive technologies where appropriate.

Universal design for learning principles will be particularly beneficial in VET settings because they encourage multiple means of engagement, representation, and expression that support all learners, not only those with identified learning differences.

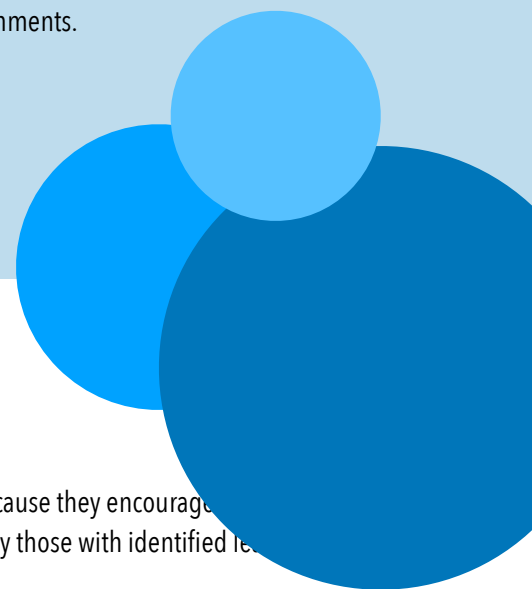
Motivation and engagement strategies

Motivation is a critical factor influencing learner success, retention, and achievement. VET practitioners must understand that learners are motivated by different factors and that motivation will fluctuate over time.

Adult learners are often motivated by clear connections between learning and career outcomes. Therefore, training should be relevant, practical, and aligned with workplace realities. Learners are more likely to engage when they understand how a competence will improve job performance, employability, or career progression.

One of the most effective motivational strategies is the use of authentic learning activities. Real-world projects, workplace challenges, simulations, apprenticeships, and industry-based assignments help learners see the value of their learning and maintain engagement.

Feedback plays a crucial role in motivation. Timely, constructive, and supportive feedback helps learners recognise progress, build confidence, and identify areas for improvement. Positive reinforcement will strengthen self-efficacy and encourage persistence when challenges arise.



Goal setting is another powerful engagement strategy. Clear learning outcomes, milestone achievements, digital badges, micro-credentials, micro-qualifications delivered as micro specialization diplomas, and competence demonstrations provide learners with visible indicators of progress. Short-term achievements are particularly important in modular and micro-learning environments because they create regular opportunities for achieving success.

Social interaction contributes to motivation. Collaborative projects, peer learning, communities of practice, mentoring relationships, and discussion activities help learners feel connected and supported. In digital learning environments, structured opportunities for interaction are especially important to prevent isolation and disengagement.

Emerging technologies will further support engagement. Interactive learning platforms, simulations, gamification elements, virtual reality, artificial intelligence tools, and student response systems can create more dynamic and personalised learning experiences when used appropriately.

Recognition of prior learning

Recognition of prior learning (RPL) is a key principle within lifelong learning and competence-based education. It acknowledges that valuable learning occurs not only in formal educational settings but through informal discussion, peer learning activities, work experience, volunteering, community activities, self-directed learning, and other life experiences.

RPL allows learners to have existing knowledge, skills, and competencies identified, assessed, and formally recognised. This process helps avoid unnecessary repetition of learning and enables learners to progress more efficiently toward qualifications, certifications, or professional development goals.

For many adult learners, RPL will significantly reduce barriers to participation by recognising competences that have already been acquired through years of practical experience. It will shorten training pathways, reduce costs, increase motivation, and support faster career progression.

The RPL process is commonly organised into four stages:

- **Identification:** The VET providers and learners identify relevant knowledge, skills, and competences acquired through previous experiences.
- **Documentation:** Evidence is collected to demonstrate competence. This includes portfolios, employment records, references, work samples, certificates, project reports, videos, or work-based practical demonstrations.
- **Assessment:** Qualified assessors evaluate the evidence against established learning outcomes, occupational standards, or competence requirements.
- **Certification or Recognition:** Successful candidates receive formal recognition, credits, exemptions, micro-credentials, or (micro) qualifications depending on the system being used.



For VET practitioners, supporting RPL requires specialised skills in evidence evaluation, competence assessment, interviewing, portfolio review, and guidance. Practitioners and the VET provider(s) must be able to recognise learning regardless of where or how it occurred while maintaining the validity, reliability, and credibility of assessment decisions.

As vocational education increasingly adopts modular learning structures, micro-courses leading to micro-credentials becomes even more important within RPL. It will better enable personalised learning pathways, support workforce mobility, promotes social inclusion, and helps individuals respond more effectively to changing labour market demands.

Understanding learners is fundamental to high-quality vocational education and training. By applying adult learning principles that is adopting learner-centred approaches, promoting diversity and inclusion, supporting disadvantaged and neurodiverse learners, fostering motivation and engagement, to implement RPL processes, VET providers and practitioners will create and use learning environments that are more responsive, equitable, and effective. These new training approaches not only improve learner outcomes, but contribute to applying more inclusive, flexible, and resilient education systems. Those are capable of supporting lifelong and life wide learning, and workforce development in an increasingly complex and rapidly changing world.

Learning Design and Planning

Developing micro courses through competence-based education and training

The rapid transformation of labour markets, technological innovation, digitalisation, and the increasing demand for lifelong and life wide learning, have created a need for more flexible and learner-centred approaches to VET. Traditional programmes, often characterised by lengthy qualification pathways and fixed curricula, will not always respond quickly enough to emerging skills needs. As a result, micro courses leading to and empowering micro-credentials, and competence-based education and training, have become increasingly important mechanisms for supporting continuous upskilling, reskilling, and professional development. Effective learning design and planning are therefore essential to ensure that micro courses are relevant, high-quality, transferable, and aligned with both learner and labour market needs.



Learn.

Apply.

Inspire.





At the core of competence-based education and training is the principle that learning should be organised around demonstrable competences, rather than solely around time spent in training. Competence is generally understood as the ability to apply knowledge, skills, and personal or professional responsibility in a specific work-based context. Rather than focusing primarily on content delivery, competence-based education emphasises what learners are able to do upon completion of the learning processes. This approach is particularly suitable for vocational education, because it reflects workplace realities and enables training providers to align educational provision with occupational standards and updated industry requirements.

The development of continuing based micro courses should therefore begin with a clear identification of the competences that learners need to acquire and then use this to add the required knowledge and skills. On the other hand, initial based micro-based training should start with descriptions of the desired knowledge, to be followed by adding skills and competences. The competences should be derived from occupational profiles, industry standards, qualification frameworks, employer consultations, labour market intelligence, or professional bodies. Once the required competences have been identified, they will be organised into micro courses applying harmonised CUs, each representing a coherent set of learning outcomes that will be assessed and recognised independently.

Learning outcomes development

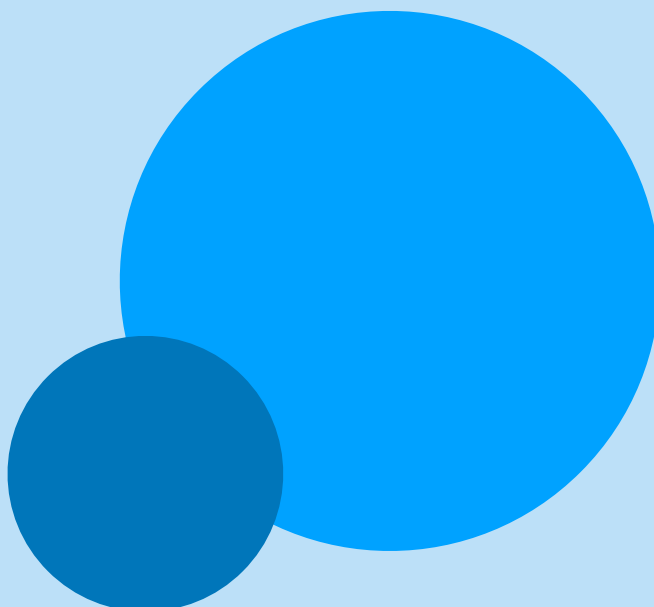
Learning outcomes form the foundation of competence-based learning design. They describe what a learner is expected to know, understand, and be able to do after completing a learning activity. Well-designed learning outcomes provide transparency for learners, educators, employers, and qualification authorities. They support curriculum development, assessment design, continuous development of educational quality, and recognition processes.

When developing learning outcomes for micro courses, it is important that they are specific, measurable, achievable, relevant, and assessable. Learning outcomes should describe observable performance rather than teaching activities. For example, instead of stating that learners will “understand digital manufacturing concepts,” a competence-based learning outcome would specify that learners will be able to “analyse digital manufacturing processes and identify opportunities for process optimisation.”

Thus, the learning outcome descriptions should address three complementary dimensions:

- **Knowledge:** Theoretical understanding, concepts, principles, and facts.
- **Skills:** Practical abilities, techniques, and problem-solving capabilities.
- **Competence:** The ability to apply knowledge and skills autonomously and responsibly in real-life contexts.

This structure aligns with the descriptors commonly used in national and European qualifications frameworks and facilitates transparency and comparability across various education and training systems.



Micro courses applying harmonised CUs

To enhance portability, recognition, and quality, micro courses should be designed around harmonised CUs. A competence unit represents a clearly defined minimum block of learning outcomes that will be assessed independently and accumulated over time. Harmonisation means that the CUs are structured according to common principles for standardization, usage of terminology, assessment requirements, and quality standards, allowing them to be used across institutions, sectors, and even countries.

A competence unit within a micro course could contain:

- Unit title
- Purpose and scope
- General and Specific Learning outcomes
- Knowledge, skills, and competence statements
- Entry requirements (if applicable)
- Description of earning activities
- Assessment criteria
- Evidence requirements
- Estimated workload, where approximately 25 hours is equivalent to one ECTS point
- Credit value (where applicable)

The use of harmonised CUs provides several advantages. Learners will progressively build competence by completing individual micro courses with their units, according to their needs and career goals. Employers will gain greater confidence in the meaning and quality of learning achievements. Education providers will manage to reuse, adapt, and combine units to create new micro course-based learning pathways. Furthermore, harmonised units facilitate RPL, transferability between institutions, and alignment with new micro specialisation frameworks that are combining number of micro-credentials to issue micro specialization diplomas.



For example, a VET practitioner development programme includes micro courses such as:

- Designing competence-based Learning
- Digital pedagogy and AI supported learning
- Assessment and validation methods
- Supporting diverse learners needs
- Facilitating work-based learning
- Quality assurance and continuous improvement

Each unit will be delivered independently as a micro-course, while at the same time contributing to broader professional development pathways.

Micro courses and micro-credentials

Micro courses are short, focused learning experiences designed to develop specific competences. They are typically smaller than traditional modules or qualifications and should require a workload of approximately 25 hours of learning, depending on the complexity and the scope. This will be equivalent to 1 ECTS point, aligning them immediately with the ECTS system applied in higher education. Their flexibility makes them particularly suitable for working adults, VET practitioners, and lifelong and life wide learners who need targeted learning opportunities that fit around professional and personal commitments.

Successful completion of a micro course will lead to the award of a micro-credential. A micro-credential is a recognised certification of learning outcomes achieved through a short learning experience. Unlike participation certificates, micro-credentials provide evidence that competences have been assessed and successfully demonstrated.

The relationship between micro courses and micro-credentials is therefore straightforward:

- A micro course delivers learning.
- A micro course applies harmonized CUs.
- Assessment verifies the competence.
- A micro-credential certifies the achievement.
- Several micro-credentials are group together into a micro-qualification, to be issued like a micro specialisation (MiS) diploma.

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An roadmap to modern VET excellence with improved educational quality.



Micro-credentials should provide transparent information regarding:

- Learning outcomes achieved
- Assessment methods used
- Workload completed
- Competence level achieved
- The issuing organisation
- Quality assurance arrangements
- Credit value where applicable

Where possible, micro-credentials should align with European and national frameworks, and be issued through secure digital systems such as European Digital Credentials for Learning (EDC).

Curriculum and program design

Effective curriculum design requires balancing flexibility with coherence. While micro courses offer learners freedom to select learning according to their needs, programs must ensure progression and meaningful competence development.

Curriculum development must therefore follow a systematic process:

1. Carrying out needs analysis
2. Provide a competence mapping
3. Turn the curriculum into general and specific learning outcome descriptions
4. Designing the CU for a micro course
5. Developing the micro-course
6. Designing the assessment solution
7. Designing and issuing the credential(s)
8. Education quality assurance and management securing involvement

The curriculum should be organised into logical competence domains that reflect occupational practice. For VET practitioner development, such domains will include pedagogy, assessment, digitalisation, inclusion, industry engagement, quality assurance, and innovation.

Rather than requiring learners to follow a fixed sequence, curricula will be organised into flexible learning pathways. Some micro course units will be mandatory because they represent foundational competences, while others could be optional, allowing learners to specialise according to their professional interests or sector requirements.

An example structure includes:

Foundation Level

- The principles of competence-based education
- The development of the general and specific learning outcomes
- Introduction to digital learning solutions

Intermediate Level

- Assessment and validation
- Inclusive learning practices
- Work-based learning facilitation

Advanced Level

- Curriculum innovation
- AI-supported personalised learning
- Quality leadership with continuous improvement processes

This type of structures allow practitioners to progress from foundational knowledge towards advanced professional expertise, still while maintaining flexibility.

Workload and learning pathways

Workload is an important consideration in the design of micro courses because it influences learner engagement, completion rates, and recognition opportunities. Micro courses should provide sufficient learning time to achieve meaningful competence, while remaining manageable for adult learners and professionals.

The total workload estimates should include all learning activities, including:

- Self-studies
- Online learning
- Blended learning
- Reading and research
- Practical exercises
- Workplace assignments
- Reflection activities
- Assessment preparation
- Assessment completion

A typical micro course applies around 25 hours with total workload, which is equivalent to 1 ECTS point, to achieve professional competences. Specialised or advanced competences need a workload of 25 to 50 hours, whereby this is equivalent to 1-2 ECTS points.

Learning pathways should enable learners to combine multiple micro courses into broader professional development journeys. This concept, often referred to as stackability, allows learners to accumulate learning achievements progressively.

For example:

- One micro course applies one competence unit, leading to one micro-credential after validating of the achieved competence
- 4-5 Micro courses will lead to a professional micro specialization (MiS) diploma
- Multiple MiS diplomas will lead to a pathway towards a larger national qualification, or an international valid diploma.

Stackable learning pathways increase learner motivation because achievements are recognised at every stage rather than only at programme completion. They support lifelong and life-wide learning by allowing learners to return and continue their development when needed.

Personalised learning pathways represent another important feature of modern competence-based systems. Through skills assessments, self-evaluation tools, recognition of prior learning processes, and individual learning plans, learners will identify existing competences and focus only on areas requiring further development. This reduces duplication, increases efficiency, and supports learner-centred education.

Learning design and planning for competence-based micro courses require a systematic approach that places competences and learning outcome descriptions at the centre of the curriculum development. By organising micro learning around micro courses applying harmonised CUs, VET providers will create flexible, transparent, and high-quality learning opportunities that respond to the evolving needs of learners, employers, and the society. Thus, micro courses and micro-credentials offer practical mechanisms for delivering targeted learning, recognising achievement, and supporting lifelong learning pathways. When combined with robust curriculum design, appropriate workload allocation, and stackable learning pathways, they create a powerful framework for modern VET and professional development systems. Those will be capable of responding rapidly to changing skills demands and supporting continuous competence growth throughout working life.

Teaching and learning methods in VET



Modern VET programs increasingly emphasise learner-centred, competence-based approaches that actively engage learners in the acquisition of knowledge, skills, and competences required in rapidly changing workplaces. Traditional teacher-centred instruction, while still valuable for introducing theoretical concepts, is no longer sufficient to prepare learners for the complexities of modern industries. Employers increasingly demand workers who will solve problems, collaborate with others, adapt to new technologies, and apply knowledge in real-world manufacturing and fabrication situations. Consequently, VET providers are adopting a variety of teaching and learning methods that promote active participation, practical application, critical thinking, and continuous reflection. Among the most important approaches are active learning strategies, project-based learning, problem-based learning, work-based learning, experiential learning, peer learning and collaborative learning, and innovation camps applying challenge-based learning. Together, these methodologies create dynamic learning environments that strengthen both technical and transversal competences.

Active learning strategies

Active learning refers to instructional approaches that require learners to actively participate in the learning process rather than passively receiving information. Instead of focusing primarily on lectures and note-taking, active learning encourages learners to discuss, analyse, create, reflect, and apply knowledge. The underlying principle is that learning becomes more effective when learners are mentally and physically engaged with the content.

In VET contexts, active learning will take many forms. Learners will participate in discussions, simulations, role-playing activities, practical demonstrations, workshops, case studies, or digital learning activities. For example, welding students will analyse real welding defects in combination with application of simulators, and use this to propose corrective actions. On the other hand, aquaculture learners will evaluate water quality data and recommend operational improvements during the farming process. These activities require learners to connect theory with practice and develop problem-solving skills.



Enhancing teaching through systematic innovation practices that are growing the educational quality.



Active learning supports the development of higher-order thinking skills such as analysis, evaluation, and decision-making. Rather than memorising information, learners are encouraged to explore why certain processes occur and how they will be improved. Digital tools, including application of Student Response Systems, quizzes, polling applications, and collaborative platforms, further enhance active participation by providing immediate feedback and opportunities for interaction during the learning processes.

Research consistently shows that active learning improves learner engagement, retention of knowledge, motivation, and learning outcomes. For VET providers, it offers an effective means of developing competent professionals who are capable of adapting to changing workplace requirements and technological developments.

Project-based learning

This is a learner-centred methodology in which learners acquire knowledge, skills and competences by working on extended projects that address authentic tasks or challenges. Rather than studying isolated topics, learners engage in meaningful activities that require planning, investigation, collaboration, implementation, and presentation of outcomes.

In VET settings, project-based learning closely mirrors workplace practices. Learners will design and fabricate a product, develop a business proposal, create a maintenance plan, construct a prototype, or complete a workplace improvement project. For example, learners in mechanical engineering programmes will be tasked with designing and manufacturing a metal structure according to industry standards, while aquaculture students will develop a sustainability plan for a fish farming operation.



Projects typically integrate multiple competence areas simultaneously. Learners apply technical skills alongside communication, teamwork, planning, documentation, and problem-solving abilities. Throughout the project, instructors act as facilitators and mentors, guiding learners while encouraging independence and responsibility.

Project-based learning promotes ownership of learning because learners are actively involved in defining goals, making decisions, and evaluating the learning outcomes. It enhances motivation by demonstrating the practical relevance of knowledge, skills and competences. Furthermore, projects often result in tangible outputs that will be included in learner portfolios as evidence of competence.

For VET institutions, project-based learning provides an effective bridge between education and employment by replicating real workplace processes and encouraging interdisciplinary thinking.

Problem-based learning

This is closely related to project-based learning but focuses specifically on solving complex and often open-ended problems. Learners are presented with a realistic scenario or challenge and must try to identify what they need to learn in order to address it effectively.

The methodology typically begins with a problem rather than the content delivery. Learners work collaboratively to analyse the situation, identify knowledge and skills gaps, conduct research, develop potential solutions, and evaluate alternatives. The teacher serves primarily as a facilitator, supporting inquiry and guiding reflection rather than providing direct answers.

In VET environments, problem-based learning will be particularly effective because vocational occupations frequently require troubleshooting and decision-making. For example, learners investigate the cause of a system failure within electrical engineering, manufacturing learners will identify reasons for product defects, or healthcare learners will analyse a patient care scenario.

Innovate to inspire and transform VET practices.



The strength of problem-based learning lies in its ability to develop critical thinking, stimulate independent learning, provide analytical skills, and adaptability. Learners become accustomed to dealing with uncertainty and complexity, which are common characteristics of modern workplaces. They learn how to locate information, evaluate evidence, and justify decisions.

Problem-based learning supports competence-based education because it focuses not only on what learners know, but on how they apply knowledge and skills in practical situations. By engaging with realistic challenges, learners develop professional judgement and confidence in their ability to solve workplace problems.

Work-based Learning (WBL)

This is one of the most important methodologies in vocational education because it takes place directly within authentic workplace environments. WBL encompasses apprenticeships, internships, workplace placements, industry projects, mentoring arrangements, and other forms of structured learning that occur in collaboration with employers.

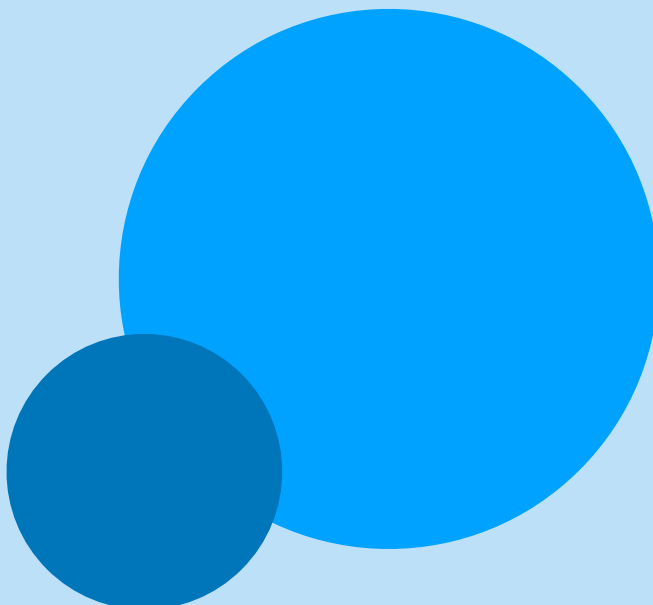
The fundamental principle of WBL is that learners acquire competences most effectively when they apply knowledge and skills in real work situations. Through participation in workplace activities, learners gain practical experience, understand workplace culture, and develop professional behaviours that cannot easily be replicated in classroom environments.

Effective WBL requires close cooperation between education providers and employers. The learning outcomes, workplace activities, assessment methods, and responsibilities should be clearly defined to ensure that workplace experiences contribute meaningfully to competence development. Workplace mentors play a critical role by guiding learners, providing feedback, and supporting the professional growth.

WBL offers numerous benefits. Learners develop industry-relevant skills, employers gain access to future talent, and education providers strengthen the relevance of their programmes. Furthermore, learners often improve employability because they gain practical experience, professional networks, and a deeper understanding of workplace expectations.

Modern WBL increasingly incorporates digital tools, allowing learners to document evidence, communicate with educators, complete reflective journals, and receive feedback through online platforms. This integration supports blended learning approaches and enhances quality assurance processes.

As industries continue to evolve due to digitalisation, automation, and sustainability requirements, WBL remains one of the most effective methods for ensuring that vocational education remains aligned with labour market needs.



Experiential learning

This is based on the principle that learning occurs through experience and reflection. The approach is often associated with the learning cycle developed by educational theorist David Kolb, which consists of four stages: concrete experience, reflective observation, abstract conceptualisation, and active experimentation.

In vocational education, experiential learning occurs whenever learners engage in practical activities and subsequently reflect on their experiences to generate new understanding. Examples include laboratory work, simulations, workplace activities, practical exercises, field visits, and skills demonstrations.

The methodology encourages learners to examine not only what happened but why it happened and how future performance will be improved. Reflection processes are therefore critical components. Learners will use learning journals, portfolios, group discussions, or mentoring sessions to analyse experiences and identify lessons learned.

Experiential learning supports deep learning because it connects theory and practice. Learners are able to test concepts in real situations, observe outcomes, and refine their understanding through repeated cycles of action and reflection. This process strengthens competence development and encourages lifelong learning habits.

In VET environments, experiential learning is particularly valuable because vocational occupations require practical competence, judgement, and adaptability. Learners gain confidence by applying knowledge and skills in realistic contexts and gradually assuming greater responsibility for their own learning.

Peer learning and collaborative learning processes

Peer learning and collaborative learning recognise that learning is often a social process. Rather than relying solely on instructors, learners benefit from interacting with and learning from one another. These approaches encourage communication, teamwork, shared responsibility, and collective problem-solving.

Peer learning occurs when learners support each other's learning through discussion, feedback, mentoring, coaching, or collaborative tasks. More experienced learners will guide beginners, while groups work together to exchange knowledge, skills and perspectives. Collaborative learning involves structured activities in which learners jointly pursue common goals and create shared outcomes.

In VET programmes, collaborative learning frequently mirrors workplace practices where employees must work in teams to achieve objectives. Examples include group projects, peer assessments, collaborative design activities, and team-based problem-solving exercises. Learners develop interpersonal skills such as communication, negotiation, leadership, and conflict resolution alongside technical competences.

One particularly effective strategy is peer instruction, where learners first answer a question individually after carrying out a first thinking period. They then use this to discuss their reasoning with peers, and then reconsider their responses. This approach encourages deeper understanding and helps learners identify misconceptions and misunderstandings.



Digital technologies further expand opportunities for collaborative learning through online discussion forums, shared documents, virtual classrooms, collaborative design platforms, and social learning environments. International collaboration projects will expose learners to diverse perspectives and intercultural communication skills.

By promoting active participation and shared responsibility, peer and collaborative learning strengthen engagement, motivation, and learning outcomes while preparing learners for team-oriented workplace environments.

Innovation camps with challenge-based learning

Innovation camps with challenge-based learning represent highly engaging methodologies that place learners at the centre of solving authentic challenges presented by companies, businesses, public organisations, or communities. These approaches combine elements of entrepreneurship education, project-based learning, design thinking, and collaborative problem-solving.

An innovation camp typically takes place over a concentrated period ranging from a single day to several days. Participants are organised into multidisciplinary teams and presented with real-world challenges requiring innovative solutions. The challenges will focus on sustainability, digital transformation, product development, process improvement, social innovation, or new emerging technologies.

The process generally includes challenge exploration, stakeholder analysis, idea generation, concept development, prototyping, testing, and final presentations or pitches. Throughout the activity, participants receive mentoring from educators, industry experts, entrepreneurs, and other stakeholders.

Challenge-based learning follows similar principles but will be conducted over longer periods and integrated into regular educational programmes. Learners investigate complex issues, conduct research, collaborate with stakeholders, and implement solutions that create measurable impact.

These methodologies offer significant benefits for VET learners. They promote creativity, innovation, entrepreneurship, teamwork, leadership, communication, and adaptability. Learners develop confidence in addressing ambiguity and uncertainty, while gaining experience in collaborative problem-solving. The methodologies strengthen relationships between education providers and employers by engaging and involving industry directly in the learning process.



***Real Challenges.
Real teams.
Real innovation.***

***To experience
innovation.***



Digital innovation camps further extend participation by enabling learners from different regions and even countries, to collaborate through online platforms. Virtual teamwork, digital prototyping tools, collaborative whiteboards, and online pitching sessions mirror the increasingly digital nature of modern workplaces.

Thus, the effective delivery of vocational education requires a diverse range of teaching and learning methodologies that go beyond traditional classroom instruction. Active learning, project-based learning, problem-based learning, work-based learning, experiential learning, peer learning, collaborative learning, and innovation camps each contribute unique strengths to competence development. Together, they create engaging, authentic, and learner-centred environments that prepare individuals not only to perform technical tasks, but to think critically, collaborate effectively, innovate continuously, and adapt to changing labour market demands. By combining these approaches within competence-based curricula, VET providers will ensure that learners develop the professional, personal, and entrepreneurial competences needed for success in the twenty-first-century workforce.

Digital pedagogies

This refers to the purposeful integration of digital technologies, digital resources, and innovative teaching approaches to enhance learning, teaching, assessment, and learner engagement. It is not simply the use of technology in education but rather the strategic application of digital tools and methodologies to support meaningful learning experiences and competence development. In VET, digital pedagogy has become increasingly important as industries undergo rapid digital transformation and learners require both vocational and digital competences to succeed in modern workplaces. Effective digital pedagogy places learners at the centre of the learning process and encourages active participation, collaboration, problem-solving, creativity, and self-directed learning.

The role of the VET practitioner within digital pedagogy has evolved from being primarily a transmitter of knowledge and skills, to becoming a facilitator, mentor, coach, and learning designer. Practitioners are expected to create flexible learning environments that accommodate diverse learner needs, support personalised learning pathways, and connect theoretical knowledge with workplace practice. Digital pedagogy enables practitioners to collect and analyse learning data, provide timely feedback, monitor learner progress, and continuously improve educational delivery through evidence-based decision-making.

Digital learning environments

A digital learning environment encompasses the technological ecosystem in which teaching and learning activities take place. It includes hardware, software, communication platforms, digital resources, assessment tools, and support systems that collectively facilitate learning. Digital learning environments will operate entirely online, or support blended learning models that combine face-to-face and various digital activities including usage of synchronous video like Teams and Zoom.

For VET providers, digital learning environments must be designed to support competence-based education and training. Learners should be able to access learning materials, assessments, practical demonstrations, simulations, communication tools, and support resources through a single, coherent platform. Such environments promote flexibility by allowing learners to engage with content at their own pace, and according to their individual learning needs.

Empowering and transforming VET through digital innovation and digital pedagogics.



An effective digital learning environment will provide easy access to educational resources, facilitate interaction between learners and instructors, support collaborative learning activities, and enable the tracking of the learning progress. It should incorporate multimedia content such as videos, animations, virtual demonstrations, podcasts, interactive exercises, and simulations that support different learning styles. For vocational disciplines, digital learning environments will additionally include virtual laboratories, digital twins, augmented reality (AR), virtual reality (VR), and industry-specific software applications that replicate workplace conditions.

Learning management systems

Learning management systems (LMS) form the backbone of many digital learning environments. A LMS is a software platform that supports the administration, delivery, monitoring, assessment, and management of educational programmes and courses. Common examples include Moodle, Canvas, Blackboard, Google Classroom, and Microsoft Teams for Education.

Within VET, a LMS serves multiple functions. It acts as a central repository for learning materials, provides communication channels between learners and educators, facilitates assessment activities, and generates data that supports educational quality assurance applying continuous improvement processes. Practitioners will use LMS platforms to organise CUs and deliver the micro courses, manage learner enrolment, monitor participation, and issue digital credentials upon successful completion.

Modern LMS platforms increasingly support personalised learning pathways. Learners will progress through content based on demonstrated competences rather than fixed schedules. Adaptive learning features will recommend additional resources or activities according to learner performance and needs. Furthermore, LMS platforms support competency-based assessment by enabling learners to submit evidence portfolios, workplace projects, reflective journals, and practical assignments that demonstrate achievement of learning outcomes.

For VET providers adopting to micro-credentials, LMS systems will facilitate the accumulation and recognition of learning achievements. Individual micro courses with their CUs will be linked to digital badges, certificates, or European Digital Credentials for Learning, enabling learners to build flexible and transparent learning portfolios over time.

Online and blended learning solutions

Online learning refers to educational activities delivered entirely through digital technologies, while blended learning combines online instruction with face-to-face teaching, practical workshops, workplace learning, laboratory activities and usage of synchronous video. In VET, blended learning is often considered the most effective approach because it combines the flexibility of digital learning with the practical hands-on experiences that are essential for vocational competence development.

Online learning enables learners to access educational opportunities regardless of geographical location, work schedules, or personal circumstances. This flexibility is particularly valuable for adult learners, employed individuals, rural populations, and those seeking upskilling or reskilling opportunities. Online learning environments will support both synchronous and asynchronous learning activities. Synchronous learning occurs in real-time through virtual classrooms, webinars, and live discussions, while asynchronous learning allows learners to access content, complete assignments, and participate in discussions at their own pace.

Blended learning provides additional opportunities for integrating workplace learning with formal education. Theoretical content will be delivered online, before learners participate in practical workshops or work-based learning activities. This approach allows face-to-face sessions to focus on skills practice, problem-solving, coaching, and assessment rather than traditional lectures.

Successful blended learning requires careful instructional design. Learning activities should complement one another and provide clear connections between online and physical learning experiences. VET practitioners must ensure that digital activities support the development of practical skills and competences, and not simply knowledge acquisition. Structured learning pathways, regular feedback, learner support mechanisms, and opportunities for reflection are essential components of effective blended learning models.

AI supported learning

Artificial Intelligence (AI) is increasingly influencing educational practice by providing new opportunities for personalisation, learner support, content creation, assessment, and learning analytics. AI supported learning refers to the use of AI technologies to enhance teaching and learning processes while maintaining human oversight and educational responsibility.

In VET contexts, AI will assist practitioners in designing learning materials, generating formative assessment questions, creating personalised learning pathways, analysing learner performance data, and identifying learners who require additional support. AI powered systems will provide immediate feedback, recommend learning resources, and adapt content according to individual learner progress.

For learners, AI will function as a learning assistant, helping to explain concepts, answer questions, summarise information, provide examples, and support revision activities. AI tools will facilitate language support, accessibility adaptations, and personalised guidance. However, AI should not replace educators. Human judgement remains essential for validating information, supporting critical thinking, assessing practical competences, and ensuring ethical educational practice.

VET practitioners should develop AI literacy and understand both the opportunities and limitations of AI technologies. Learners should be encouraged to critically evaluate AI-generated content, verify information sources, and use AI responsibly. Ethical considerations such as data privacy, transparency, bias, intellectual property, and academic integrity must be addressed through clear policies and guidelines.

The successful integration of AI into VET requires a balanced approach that combines technological innovation with new pedagogical principles. AI should be viewed as a tool that enhances learning rather than as a substitute for human interaction, mentorship, and professional expertise.



Building digital confidence for vocational excellence.



Digital collaboration tools

Collaboration and cooperation is a fundamental component of modern learning, and digital technologies provide numerous opportunities for learners to work together regardless of physical location. Digital collaboration tools support communication, teamwork, project management, knowledge sharing, and collective problem-solving.

Examples of digital collaboration tools include Microsoft Teams, Zoom, Google Workspace, Slack, Trello, Miro, Mural, Padlet, and various cloud-based document-sharing platforms. These tools enable learners to communicate through video conferencing, instant messaging, discussion forums, shared workspaces, collaborative documents, and virtual whiteboards.

Within VET, digital collaboration tools are particularly valuable for project-based learning, challenge-based learning, innovation camps, work-based learning projects, and international cooperation initiatives. Learners will collaborate on real-world challenges, share expertise, develop solutions, and present outcomes using digital platforms that reflect and mirror modern workplace practices.

The use of digital collaboration tools supports the development of transversal competences such as communication, teamwork, leadership, problem-solving, and digital competence. These skills are increasingly demanded by employers and are essential for successful participation in digitally enabled workplaces.

For practitioners, collaboration tools facilitate communication with learners, industry partners, workplace mentors, and fellow educators. They furthermore support communities of practice, professional development activities, and collaborative curriculum design. Effective use of collaboration technologies will strengthen relationships between education providers and employers while promoting learner engagement and active participation.

Digital accessibility and inclusion

Digital accessibility and inclusion are essential principles within digital pedagogy. Accessibility refers to the design of digital learning environments, resources, and technologies that will be used by all learners, including those with disabilities, learning difficulties, language barriers, or other support needs. Inclusion extends beyond accessibility by ensuring that all learners feel valued, supported, and able to participate fully in educational activities.

Accessible digital learning environments should comply with recognised accessibility standards and guidelines. Learning materials should be compatible with assistive technologies such as screen readers, voice recognition software, alternative input devices, captioning systems, and text-to-speech applications. Videos should include subtitles, images should contain alternative text descriptions, and digital content should be presented in formats that accommodate diverse learning needs.

Digital inclusion requires consideration of broader barriers to participation. Learners face challenges related to digital literacy, access to technology, internet connectivity, language proficiency, socio-economic circumstances, or neurodiversity. VET practitioners should adopt universal design for learning principles that provide multiple means of engagement, representation, and expression. This approach allows learners to access information, demonstrate competence, and participate in learning activities through different methods according to their individual strengths and preferences.



Furthermore, inclusive digital pedagogy promotes flexibility in learning pathways, assessment methods, and support services. Personalised learning opportunities, adaptive technologies, and targeted learner support will help reduce barriers and improve educational outcomes for diverse learner groups. By prioritising accessibility and inclusion, VET providers will ensure that digital transformation contributes to educational equity. It enables all learners to develop the competences needed for lifelong and life wide learning, employment, and active participation in society.

In summary, digital pedagogy provides the foundation for modern VET by integrating digital learning environments, Learning Management Systems, online and blended learning, AI supported learning, collaboration technologies, and inclusive practices. Together, these elements create flexible, learner-centred educational ecosystems that support competence development, workforce readiness, innovation, and lifelong and life wide learning in an increasingly digital world.

Assessment and validation

Assessment and validation are fundamental components of high-quality VET systems. They provide mechanisms for determining whether learners have achieved the intended learning outcomes and developed the knowledge, skills, and competences required by industry, according to professional standards and qualification frameworks. In modern competence-based VET systems, assessment extends beyond traditional examinations and focuses on the demonstration of practical capabilities, workplace performance, and the application of knowledge and skills in authentic contexts. Effective assessment and validation not only support learner achievement but enhance employability, lifelong and life-wide learning opportunities, and the recognition of skills acquired through formal, non-formal, and informal learning.

Competence-based assessment

This is a learner-centred approach that evaluates whether individuals demonstrate the required competences in realistic work conditions and situations. Unlike traditional knowledge-based examinations that primarily test recall and theoretical understanding, competence-based assessment focuses on what learners will actually do and demonstrate their skills on practical tasks. Assessment criteria are directly linked to learning outcomes and occupational standards, ensuring that evaluation reflects workplace requirements and professional practice.

In a VET context, competence-based assessment requires learners to demonstrate a combination of knowledge, practical skills, problem-solving abilities, communication skills, and professional behaviours. Assessors evaluate evidence against predefined performance criteria and indicators, rather than comparing learners against one another. This approach promotes transparency, consistency, and fairness while ensuring that qualifications reflect actual occupational competence.



Competence-based assessment is particularly relevant for micro courses leading to micro-credentials, where learners complete small, focused learning modules and demonstrate achievement and skills through specific tasks, projects, simulations, or workplace activities. The emphasis is placed on mastery and achievement of outcomes, rather than time spent in training.

Formative and summative assessment

A balanced assessment system incorporates both formative and summative assessment methods. Each serves a distinct but complementary purpose in supporting learning and measuring achievement.

Formative assessment is conducted during the learning process and is designed to provide ongoing feedback to learners and educators. Its primary purpose is to identify strengths, weaknesses, and areas for improvement before the final evaluation occurs. Formative assessment will include quizzes, reflective journals, discussions, peer feedback activities and evaluations, observation of practical tasks, short assignments, and progress reviews. The information gathered helps learners adjust their learning strategies while enabling instructors to adapt teaching approaches to better meet learner needs.

Formative assessment promotes learner engagement and self-awareness by encouraging continuous reflection on learning progression. It supports the development of confidence and motivation while reducing the risk of failure during final assessments.

Summative assessment, by contrast, occurs at the end of a learning period and determines whether the learner has successfully achieved the required learning outcomes. Examples include final examinations, practical demonstrations, projects, workplace assessments, presentations, or portfolio evaluations. Summative assessments provide evidence for certification, qualification awards, micro courses leading to micro-credentials, or progression to further deep learning opportunities.

In effective VET systems, formative assessment prepares learners for summative assessment, creating a continuous cycle of learning, feedback, improvement, and achievement.

Practical work-based skills assessment

One of the defining characteristics of vocational education is its emphasis on practical competence. Consequently, practical work-based skills assessment plays a central role in determining whether learners perform tasks to industry standards in authentic work-based environments.

Work-based assessment involves evaluating learners while they perform actual job-related activities in workplaces, workshops, laboratories, or simulated work environments. Assessments focus on the quality of task execution, compliance with safety procedures, problem-solving ability, communication with colleagues and clients, and adherence to professional standards.

Examples include welding inspections, machine operation, aquaculture stock management, electrical installations, healthcare procedures, construction activities, or manufacturing processes. Assessors will observe performance directly, review completed products, conduct interviews, or analyse workplace documentation produced by the learner.

Practical assessment should be based on clearly defined performance criteria and occupational standards. Assessment tools such as observation checklists, competency logs, workplace reports, and practical demonstrations help ensure consistency and reliability. In many sectors, workplace supervisors and industry mentors contribute to assessment activities, strengthening the connection between training provision and labour market requirements.

Work-based assessment is particularly valuable because it measures competence in real-world situations where learners must integrate technical skills, theoretical knowledge, decision-making abilities, and professional attitudes simultaneously.

Portfolio Assessment

Portfolio assessment provides a comprehensive method for collecting and evaluating evidence of learner achievement over time. Rather than relying on a single examination or assessment event, portfolios demonstrate the learner's development, progress, and competence through multiple forms of evidences.

A portfolio will often include project reports, workplace documentation, photographs, videos, reflective journals, assessment records, certificates, supervisor feedback, presentations, practical assignments, and examples of completed work. Digital portfolios are increasingly used because they allow learners to store, organise, and present evidence in accessible and flexible formats.



Digital pedagogics and new assessment practices, are empowering VET for the skills and competences for tomorrow.

Portfolio assessment supports learner ownership of the learning process by encouraging reflection on achievements and professional development. It enables assessors to evaluate not only final outcomes but the learning journey and progression of competence.

For micro-credential systems and modular learning pathways, portfolios will serve as a cumulative record of achievement, allowing learners to document competences acquired across multiple learning experiences and contexts. Portfolios are particularly useful for occupations where practical performance, creativity, problem-solving, and continuous improvement are important components of professional practice.

Self-assessment and peer assessment

Modern assessment approaches increasingly recognise learners as active participants in the assessment process. Self-assessment and peer assessment contribute to the development of reflective practices, critical thinking, and lifelong and life-wide learning skills.

Self-assessment encourages learners to evaluate their own performance against established criteria. By reflecting on strengths, weaknesses, and areas requiring improvement, learners develop greater awareness of their learning processes and professional capabilities. Self-assessment fosters personal responsibility and supports the development of self-regulated learning skills that remain valuable throughout an individual's career.

Peer assessment involves learners evaluating the work or performance of their colleagues using agreed criteria and guidelines. This process promotes collaborative learning, constructive feedback, and the development of professional judgement. By reviewing the work of others, learners gain new perspectives and improve their understanding of quality standards and assessment expectations.

In VET environments, self- and peer-assessment will be integrated into practical projects, group assignments, presentations, simulations, and workplace learning activities. While these approaches should not replace formal assessment conducted by qualified assessors, they provide valuable supplementary information and contribute to deeper learning and engagement.

Validation of non-formal and informal learning

A growing priority within European and international education systems is the recognition of learning that occurs outside formal education and training programmes. Validation of non-formal and informal learning enables individuals to gain recognition for competences acquired through work experience, volunteering, community activities, self-directed learning, hobbies, and other life experiences.

Validation supports lifelong learning by reducing unnecessary duplication of training and creating more flexible learning pathways. It is particularly important for experienced workers, migrants, career changers, unemployed individuals, and adults seeking qualifications later in life.

The validation process typically consists of four stages:

- **Identification:** It involves helping individuals recognise the knowledge, skills, and competences they have acquired through various experiences.
- **Documentation:** This requires collecting evidence that demonstrates these competences. Evidences include employment records, references, portfolios, certificates, work samples, videos, project reports, and reflective statements.
- **Assessment:** It involves evaluating the evidence against defined learning outcomes, competence standards, or qualification requirements. Assessment methods will include interviews, practical demonstrations, tests, observations, or portfolio reviews.
- **Certification:** This is a process that formally recognises the validated competences and will result in partial qualifications, full qualifications, credits, exemptions, micro-credentials, or professional recognition.

Validation systems enhance social inclusion, improve labour market mobility, and support workforce development by ensuring that valuable competences are recognised regardless of where or how they were acquired.





Digital assessment tools

Digital technologies are transforming assessment practices across VET and lifelong learning systems. Digital assessment tools improve efficiency, accessibility, flexibility, and the collection of evidence while supporting personalised learning and data-informed decision-making.

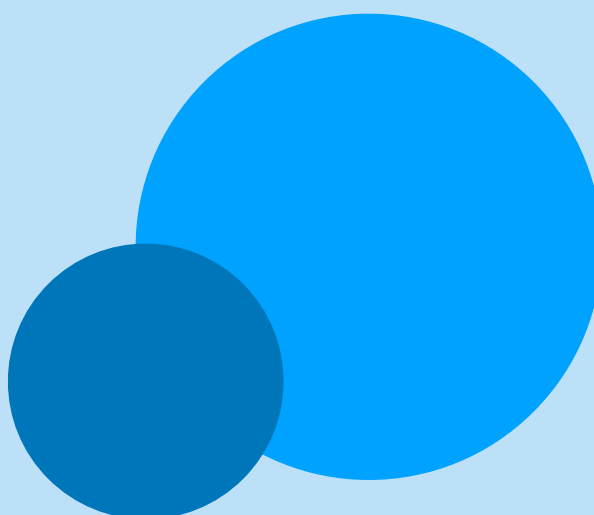
Common digital assessment tools include online quizzes, learning management systems, e-portfolios, virtual simulations, digital badges, competency tracking systems, video assessment platforms, and AI supported feedback tools. These technologies enable learners to demonstrate skills and competences in diverse formats and provide educators with richer data on learner performance and progression.

Digital simulations and virtual environments are particularly valuable for occupations where access to equipment, workplaces, or hazardous environments will be limited. Learners will practise procedures, troubleshoot problems, and demonstrate decision-making skills in realistic but controlled settings.

E-portfolios allow learners to gather evidence from multiple sources and present comprehensive records of achievement. Learning analytics will help educators identify learning gaps, monitor engagement, and provide targeted support. AI supported systems will assist with feedback generation, adaptive testing, and assessment management, although human oversight remains essential to ensure fairness, validity, and ethical practice.

When implementing digital assessment tools, institutions must consider issues such as data protection, accessibility, digital inclusion, reliability, and transparency. Technology should support assessment quality rather than replace professional judgement.

Assessment and validation are essential pillars of competence-based VET systems. Through a combination of formative and summative assessment, practical work-based evaluation, portfolio assessment, self- and peer-assessment, validation of prior learning, and digital assessment technologies, VET providers will manage to create robust and flexible systems that accurately recognise learner achievement. Such approaches ensure that qualifications remain relevant to labour market needs, support lifelong learning, and provide learners with meaningful opportunities to demonstrate and receive recognition for their competences regardless of where learning takes place.



Industry and stakeholder engagement in VET

Industry and stakeholder engagement is a fundamental pillar of high-quality VET. The primary purpose of VET is to prepare learners for successful employment and career development by equipping them with skills, knowledge, and competences that meet current and future labour market demands. Achieving this objective requires close and continuous cooperation between education providers, employers, industry organisations, sector representatives, public authorities, trade unions, professional associations, and other relevant stakeholders. Effective engagement ensures that training remains relevant, responsive, and aligned with technological developments, economic trends, and workforce needs. It helps bridge the gap between education and employment by creating learning opportunities that reflect authentic workplace practices and expectations.

Cooperation and collaboration with employers

Collaboration between VET providers and employers is one of the most important factors influencing the quality and relevance of vocational education. Employers possess first-hand knowledge of industry requirements, emerging technologies, occupational standards, and changing workforce demands. By engaging employers throughout the education and training process, VET institutions will ensure that curricula, learning activities, and assessment methods accurately reflect workplace realities.

Employer engagement will take many forms, including participation in curriculum development, provision of work placements, guest lectures, equipment donations, workplace visits, and involvement in learner assessment. In many successful VET systems, employers actively contribute to the identification of skills gaps and emerging competence requirements, helping institutions adapt training programmes before shortages become critical. Such collaboration is particularly important in rapidly evolving sectors such as manufacturing, fabrication, information technology, renewable energy, healthcare, aquaculture, and construction, where technological innovations continuously change occupational profiles.

Strong employer partnerships enhance learner employability. Students gain access to practical learning opportunities, workplace experience, and professional networks, while employers benefit from a pipeline of skilled workers who are familiar with industry practices and organisational culture. Furthermore, regular dialogue between training providers and employers supports the development of lifelong and life-wide learning opportunities, reskilling initiatives, and upskilling programmes for the existing workforce.

Effective employer engagement should be systematic rather than ad hoc. VET providers should establish structured mechanisms for communication, consultation, and collaboration. This is ensuring that industry input becomes an integral part of educational planning and delivery rather than an occasional activity.

Advisory boards and sector representatives

One of the most effective mechanisms for ensuring meaningful stakeholder involvement is the establishment of advisory boards or sector councils. These structures provide a formal platform through which employers, industry experts, trade organisations, professional associations, labour market representatives, and educators will collaborate on strategic and operational matters related to education and training.

Advisory boards typically meet regularly to review programme content, discuss industry developments, identify emerging skills needs, and provide recommendations for curriculum updates. Their role is particularly important in sectors experiencing rapid technological transformation, where training programmes must evolve continuously to remain relevant. By maintaining ongoing dialogue with industry representatives, VET providers will anticipate future competence requirements and proactively adapt educational offerings.

Sector representatives contribute valuable expertise regarding occupational standards, certification requirements, technological innovations, health and safety regulations, sustainability practices, and workforce development priorities. Their input helps ensure that learning outcomes accurately reflect industry expectations and that graduates possess competences valued by employers.

Advisory boards strengthen trust between education providers and industry. Employers gain confidence that training programmes address real workplace needs, while educators gain access to specialised expertise and labour market insights. In many countries, advisory boards play an important role in quality assurance processes, contributing to programme reviews, accreditation procedures, and strategic planning activities.

The most effective advisory boards represent a diverse range of stakeholders, including large enterprises, small and medium-sized enterprises, industry associations, public authorities, former learners, and labour organisations. This diversity ensures that multiple perspectives are considered and included, when making decisions about educational development and workforce preparation.

Workplace mentors

Workplace mentors are a critical component of industry engagement, particularly within apprenticeship systems, internships, traineeships, and other forms of work-based learning. These individuals act as bridges between the educational environment and the workplace, supporting learners as they apply theoretical knowledge in practical settings.

The role of the workplace mentor extends beyond technical supervision. Effective mentors guide learners through workplace culture, professional expectations, communication practices, teamwork, problem-solving, and occupational standards. They help learners develop confidence, independence, and professional identity while providing constructive feedback and encouragement throughout the learning process.

Workplace mentors contribute to assessment and competence validation. Because they observe learners in authentic working environments, they are often well positioned to evaluate practical skills, behavioural competences, and professional performance. Their observations will provide valuable evidence for competence-based assessment and certification processes.

For mentoring arrangements to be successful, workplace mentors should receive appropriate training and support. While many mentors possess extensive technical expertise, they will have limited experience in educational methods, assessment practices, or learner support strategies. Professional development opportunities will help mentors understand learning outcomes, assessment criteria, feedback techniques, and coaching approaches, thereby enhancing the quality of workplace learning experiences.

Strong communication between workplace mentors and educational staff is equally important. Regular meetings, progress reviews, and shared assessment frameworks help ensure consistency between workplace learning activities and study programmes learning objectives. This collaborative approach strengthens learner support and contributes to positive educational outcomes.

Labour market intelligence

Labour market Intelligence refers to the systematic collection, analysis, and interpretation of information related to employment trends, workforce demands, skills shortages, technological developments, and economic changes. It plays a crucial role in ensuring that VET programmes remain responsive to labour market needs and future workforce requirements.

Effective use of labour market intelligence enables VET providers to make evidence-based decisions regarding programme development, curriculum design, resource allocation, and learner guidance. By understanding current and emerging trends, institutions will identify new occupational opportunities, adapt training provision, and develop programmes that support regional and national economic priorities.

Building skills and competences together, industry and VET providers in partnership.

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Sources of labour market intelligence will in addition include government reports, employer surveys, industry studies, occupational forecasts, sector analyses, economic development plans, and skills observatories. Increasingly, digital tools and data analytics are being used to monitor job vacancies, recruitment patterns, and emerging competence requirements in real time.



*Connecting education and
industry for future ready
skills and competences.
Collaboration creates new
skills and competences.*

Labour market intelligence is particularly important in addressing skills shortages and mismatches. Many industries face difficulties recruiting workers with appropriate technical and transversal skills, while some learners' complete programmes that do not align with available employment opportunities. Systematic analysis of labour market data helps reduce these mismatches by ensuring that educational provision reflects actual workforce needs.

Furthermore, labour market intelligence supports career guidance and learner decision-making. Accurate information about employment prospects, salary expectations, skill requirements, and future occupational trends helps learners make informed choices regarding education, training, and career pathways.

In a rapidly changing economy characterised by digitalisation, automation, green transition, and globalisation, labour market intelligence becomes increasingly important as a strategic tool for maintaining the relevance and sustainability of vocational education systems.

Co-design and co-delivery of training

Traditional educational models often position employers as external stakeholders, who provide occasional feedback on training programmes. Modern VET systems increasingly move beyond consultation towards co-design and co-delivery approaches, where employers and industry representatives become active partners throughout the educational process.

Co-design refers to the collaborative development of curricula, learning outcomes, training materials, assessment methods, and learning activities. Employers contribute practical expertise and industry perspectives, while educators provide pedagogical knowledge and curriculum design experience. Together, they create learning programmes that balance educational quality with workplace relevance.

Through co-design processes, employers help identify the competences most needed in the workplace, ensuring that training addresses current industry challenges and future workforce demands. Educational institutions benefit from access to specialised expertise and real-world examples, while employers gain influence over the development of future talent.

Co-delivery extends collaboration further by involving industry professionals directly in training implementation. This includes guest lectures, workplace demonstrations, technical workshops, project supervision, mentoring activities, industry case studies, and participation in assessment processes. Learners benefit from exposure to current industry practices, technologies, and professional experiences that are not fully represented within traditional classroom settings.

Co-delivery supports the development of authentic learning experiences. Industry challenges, workplace projects, innovation camps, simulations, and problem-based learning activities that allow learners to apply knowledge and skills in realistic contexts. Such experiences strengthen employability, enhance motivation, and improve the transfer of learning to workplace environments.

The success of co-design and co-delivery depends on mutual trust, shared objectives, and effective communication between educational institutions and industry partners. Both parties must recognise the value of collaboration and commit to maintaining long-term partnerships that support continuous improvement and innovation.



Partnerships that are transforming learning and preparing talent, into employability.



Building sustainable industry partnerships

Industry and stakeholder engagement should not be viewed as a one-time activity but as a continuous and strategic process. Sustainable partnerships require clear governance structures, regular communication, mutual benefits, and ongoing evaluation. Successful VET institutions often establish long-term collaboration agreements, stakeholder forums, sector networks, and communities of practice that facilitate continuous dialogue and cooperation.

These partnerships become particularly valuable when addressing broader challenges such as digital transformation, green transition, demographic change, and skills shortages. By working together, educators, employers, policymakers, and industry representatives will create responsive and resilient education systems capable of preparing learners for evolving labour market demands.

Ultimately, strong industry and stakeholder engagement enhances the quality, relevance, and impact of VET. It ensures that learning remains connected to workplace realities, supports learner employability, strengthens innovation capacity, and contributes to economic and social development. Through collaboration with employers, advisory boards, workplace mentors, labour market intelligence systems, and co-design processes, VET providers will create dynamic learning environments that effectively prepare learners for successful careers in a rapidly changing world.

Educational quality is applying continuous improvement

Educational quality and continuous improvement are fundamental components of effective VET systems. They ensure that education and training programmes remain relevant, effective, learner-centred, and aligned with labour market needs. In an environment characterised by rapid technological change, digitalisation, green transition requirements, and evolving workforce demands, VET providers must continuously monitor, evaluate, and improve their practices. Educational quality assurance is not simply about compliance with regulations or accreditation requirements. It is a systematic process that promotes excellence, accountability, stakeholder confidence, and sustainable development. Continuous improvement complements quality assurance by fostering a culture of reflection, innovation, and evidence-based decision-making that enables organisations to adapt and respond to changing educational and industry requirements.

A robust educational quality system begins with the establishment of clear educational quality standards and indicators. Quality standards define the expectations and requirements that training programmes, educators, learning resources, assessment methods, and organisational processes should meet. These standards must be derived from national qualification frameworks, accreditation bodies, industry regulations, sector-specific requirements, or international frameworks such as EQAVET. To measure progress towards these standards, organisations use quality indicators. Typical indicators include learner completion rates, assessment success rates, learner satisfaction, employer satisfaction, employment outcomes, participation rates, digital engagement, teacher competence development, and stakeholder involvement. Well-defined indicators provide objective measures that enable institutions to identify strengths, monitor performance, and detect areas requiring improvement. Effective indicators should be measurable, relevant, achievable, and aligned with the strategic goals of the organisation.



An essential source of quality information comes from learner feedback mechanisms. Learners are at the centre of the educational process and provide valuable insights into the effectiveness of teaching methods, learning materials, assessment practices, support services, and learning environments. Feedback is collected through surveys, semi structured focus group interviews, direct interviews, digital feedback tools, reflection journals, learning analytics, and student representative meetings organized through elected student groups. Effective learner feedback systems should be regular, transparent, and designed to encourage honest and constructive responses. Importantly, learners should be informed about how their feedback is used and the improvements that result from their contributions. When learners see that their opinions lead to tangible changes, they are more likely to engage actively in future quality assurance activities. Furthermore, continuous learner feedback supports a learner-centred approach by ensuring that programmes remain responsive to diverse learner needs, including those of adult learners, apprentices, and individuals with additional support requirements.

Equally important is the collection of feedback from employers and industry stakeholders through employer satisfaction surveys. Since one of the primary objectives of VET is to prepare learners for employment and career progression, employer perspectives provide crucial evidence regarding the relevance and effectiveness of training provision. Employer surveys and continuous feedback will assess satisfaction with graduates' technical skills, practical competences, professional behaviours, digital capabilities, communication skills, and readiness for the workplace. They will identify emerging skill needs, technological developments, and future workforce requirements. By engaging employers in regular feedback processes, VET providers strengthen their partnerships with industry while ensuring that curricula, learning outcomes, and training methods remain aligned with labour market demands. Employer feedback supports the development of new programmes, issuing of micro courses leading to micro-credentials, and work-based learning opportunities that reflect current and future industry needs.

Another critical component of education quality is self-evaluation. Self-evaluation involves a systematic review of organisational performance by educators, managers, and staff members. Rather than relying solely on external inspections or audits like for instance European Welding Federation is doing, self-evaluation encourages institutions to critically reflect on their own practices and identify opportunities for improvement. Effective self-evaluation considers multiple dimensions of quality, including leadership, teaching and learning, learner support, assessment, stakeholder engagement, resource management, and organisational outcomes. It often combines quantitative data with qualitative evidence gathered from staff reflections, peer observations, learner feedback, and stakeholder consultations. Self-evaluation promotes professional ownership of quality processes and encourages a culture in which continuous improvement becomes part of everyday practice rather than an occasional compliance exercise. The results of self-evaluation should lead to concrete action plans, clearly defined responsibilities, and measurable improvement targets.

To translate evaluation findings into meaningful improvements, many organisations apply structured improvement methodologies such as the Plan-Do-Check-Act (PDCA) and Plan-Do-Study-Act (PDSA) cycles. These models provide systematic frameworks for testing, implementing, and refining improvements.



In the PDCA cycle, organisations first identify an area for improvement and develop an action plan (Plan). The planned changes are then implemented on a small scale (Do). The outcomes are subsequently reviewed and compared against expectations (Check), and appropriate adjustments are made before wider implementation (Act).

The PDSA cycle follows a similar structure but places greater emphasis on learning and analysis during the “Study” phase. Rather than simply verifying whether objectives were achieved, practitioners examine why particular outcomes occurred, what lessons were learned, and how future actions will be improved. This deeper level of reflection makes PDSA particularly suitable for educational environments where learning processes are often complex and influenced by multiple factors. Both approaches support continuous improvement by encouraging experimentation, evidence collection, reflection, and incremental change rather than large-scale reforms without validation.



*Professional development
for high quality VET, with
competent practitioners
and delivery of
quality learning.*

A key enabler of modern education quality systems is data-informed decision making. Advances in digital technologies and learning management systems have significantly increased the availability of educational data. VET providers will use those to collect information on learner participation, assessment performance, course completion, attendance, digital engagement, progression rates, employer feedback, and many other indicators. Data-informed decision making involves systematically analysing this information to guide planning, resource allocation, curriculum development, staff development, and quality improvement activities. Rather than relying solely on assumptions or anecdotal evidence, decisions are based on objective information and measurable outcomes. For example, if data reveals low completion rates in a particular module, this is highlighting a need to review teaching approaches or learner support mechanisms. Similarly, employer feedback data indicate emerging skill requirements that should be integrated into future programme revisions.

However, effective data use requires more than simply collecting information. Organisations must ensure that data is accurate, relevant, ethically managed, and interpreted within the broader educational context. Quantitative indicators should be complemented by qualitative evidence, including learner experiences, educator reflections, and stakeholder perspectives. Data should be presented in accessible formats that enable educators and managers to identify trends, monitor progress, and make informed decisions. Regular quality review meetings, dashboards, performance reports, and action planning processes will help transform data into meaningful improvement activities.

Ultimately, educational quality development with continuous improvement should be viewed as an ongoing cycle rather than a one-time activity. By combining clear quality standards, meaningful indicators, learner and employer feedback, self-evaluation practices, structured improvement methodologies such as PDCA and PDSA, and data-informed decision making, VET providers will establish a culture of excellence and innovation. Such a culture supports responsiveness to changing labour market needs, enhances learner outcomes, strengthens stakeholder confidence, and ensures that VET remain relevant, effective, and future-oriented. In this way, education quality improvements becomes not merely a mechanism for maintaining standards but a strategic driver of organisational learning, professional development, and continuous educational improvement.

Innovation, entrepreneurship and innovation camps

Innovation and entrepreneurship is soon becoming essential components of modern VET, particularly in response to rapid technological advancement, changing labour market demands, and the transition towards more sustainable and digital economies. VET practitioners play a crucial role in developing learners who are not only technically competent, but adaptable, creative, and capable of identifying opportunities for improvement and innovation in their workplaces. Consequently, professional development in this area should equip practitioners with the knowledge, skills, competences and tools needed to foster innovation and entrepreneurial thinking across all types of vocational disciplines.

An innovation mindset refers to the ability to identify challenges, recognise opportunities, think creatively, and continuously seek improvements in products, services, processes, or working methods. Rather than viewing innovation solely as the development of new technologies, VET practitioners should understand innovation as a systematic approach to problem-solving and value creation. This includes encouraging curiosity, carrying out experimentation, support collaboration and cooperation, initiate reflection processes, and resilience when facing uncertainty or failure. By modelling innovative behaviours and creating learning environments that support exploration and creativity, practitioners will help learners develop confidence in generating and implementing new ideas.

Entrepreneurship education extends beyond preparing learners to start their own businesses. It focuses on developing entrepreneurial competences such as initiative, opportunity recognition, creativity, leadership, communication, teamwork, critical thinking, risk assessment, and project management. These competences are increasingly valued across all sectors and occupations. VET practitioners should therefore be able to integrate entrepreneurial learning into vocational subjects through practical projects, industry challenges, simulations, business case studies, and workplace assignments. Such approaches help learners understand how innovation will create economic, social, and environmental value while strengthening their employability and career adaptability.



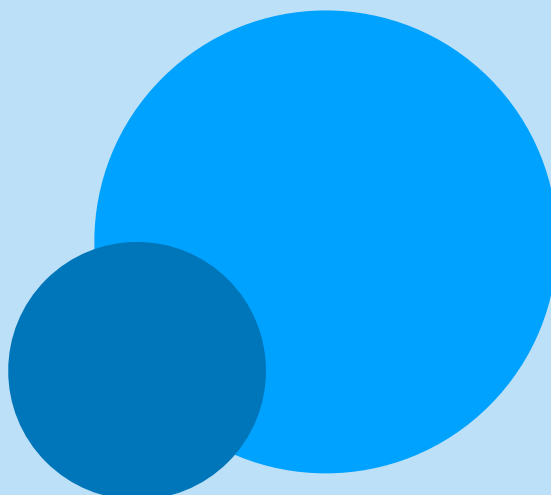
The green and digital transitions are among the most significant drivers of change affecting education, industry, and the societies in Europe. The green transition requires organisations and workers to adopt more sustainable practices, reduce environmental impacts, improve resource efficiency, and support circular economy principles. Simultaneously, the digital transition is transforming industries through automation, artificial intelligence, robotics, data analytics, digital manufacturing and fabrication, cloud technologies, and connected systems. VET practitioners must understand how these transitions affect occupational profiles, changes competence requirements, and future employment opportunities. They should be capable of integrating sustainability principles and digital technologies into learning activities while helping learners develop the skills required for emerging occupations and changing work environments.

One effective methodology for promoting innovation and entrepreneurship in VET is the use of innovation camps. These are intensive, challenge-based learning activities where learners, educators, industry representatives, and other stakeholders collaborate to solve authentic business, technological, or societal challenges. These activities typically take place over one or several days and provide participants with opportunities to apply vocational knowledge in practical contexts while developing transversal competences. During an innovation camp, participants work in multidisciplinary teams to analyse problems, generate ideas, develop solutions, create prototypes, and present their proposals to expert panels or stakeholders. The process encourages collaboration, creativity, communication, leadership, and entrepreneurial thinking.

Digital innovation camps further extend these opportunities by enabling participants from different geographical locations, sectors, and countries to collaborate through online platforms and digital tools. Through virtual teamwork, learners gain valuable experience in remote collaboration, digital communication, and technology-supported innovation processes, reflecting the realities of modern workplaces. For VET practitioners, facilitating innovation camps requires skills in project management, mentoring, digital collaboration tools, design thinking methodologies, and stakeholder engagement.

Emerging technologies are creating new opportunities and challenges across all vocational sectors. Artificial intelligence, machine learning, robotics, virtual and augmented reality, digital twins, additive manufacturing, blockchains, advanced materials, and data-driven decision-making are increasingly influencing how industries operate and how work is organised. VET practitioners need a broad understanding of these technologies, their potential applications, and their implications for occupational competence requirements. While practitioners do not necessarily need to become technology specialists, they should be able to explain technological developments, identify relevant applications within their vocational fields, and help learners develop confidence in working alongside new technologies.

Future skills development is closely connected to these technological and societal changes. In addition to technical competences, employers increasingly seek transversal skills and competences related adaptability, creativity, critical thinking, collaboration, digital literacy, communication, problem-solving, emotional intelligence, and lifelong learning capabilities. The ability to learn continuously and respond effectively to changing circumstances is becoming as important as specific vocational expertise. VET practitioners therefore need strategies for embedding these future skills into vocational learning activities, assessments, and workplace experiences.



A comprehensive VET practitioner development programme should therefore support practitioners in understanding innovation processes, fostering entrepreneurial mindsets, integrating sustainability and digitalisation into training, facilitating innovation camps, and preparing learners for future technological and labour market developments. By strengthening these skills and competences, practitioners will contribute to more responsive, innovative, and future-oriented vocational education systems that support both individual career development and broader economic and societal transformation.

Professional development of VET practitioners

Building excellence through reflective practice, collaboration, digital competence and micro-Interventions

The quality of VET is strongly influenced by the competence, adaptability, and continuous professional growth of VET practitioners. In a rapidly changing labour market shaped by digitalisation, automation, sustainability transitions, and evolving learner needs, VET professionals must continuously update both their pedagogical and technical expertise. Professional development is therefore not a one-time activity but an ongoing process that enables practitioners to remain effective facilitators of learning, innovation, and workforce development. A modern professional development framework will incorporate reflective practice, peer observation, communities of practice, continuing professional development, industry placements, digital competence development, and micro-intervention-based training. Together, these approaches create a culture of lifelong learning that benefits practitioners, learners, institutions, and employers alike.

Reflective practices

Reflective practice is widely recognised as one of the most effective methods for professional growth. It involves critically examining one's teaching, training, assessment, and facilitation practices to identify strengths, challenges, and opportunities for improvement. Rather than simply delivering training according to established routines, reflective practitioners continuously ask questions such as:

- What worked well?
- Why did certain learners struggle?
- How could learning activities be improved?
- What evidence demonstrates learner achievement?

Reflection will occur before, during, and after teaching activities. Practitioners maintain reflective journals, conduct self-evaluations, analyse learner feedback, or review assessment outcomes. Structured reflection models such as Gibbs' Reflective Cycle, Kolb's Experiential Learning Cycle, or the PDSA approach, support systematic analysis and improvement.

Within VET, reflective practice is particularly important because learning often occurs in dynamic environments where practical skills, workplace requirements, and learner diversity intersect. By engaging in regular reflection, practitioners become more responsive to learner needs, improve instructional quality, and develop greater professional confidence. Reflective practices promote evidence-based decision-making and contributes to a culture of continuous quality improvement.



Peer observation

Peer observation provides practitioners with valuable opportunities to learn from colleagues and gain insights into alternative teaching and assessment approaches. Unlike formal inspections or evaluations, developmental peer observation focuses on professional learning, collaboration, and mutual support.

The process typically involves a practitioner observing a colleague's lesson, workshop, online session, or assessment activity, followed by a structured discussion and feedback session. Observers focus on specific aspects such as learner engagement, questioning techniques, practical demonstrations, digital tool usage, assessment strategies, or classroom management.

The benefits of peer observation extend beyond the individual practitioner. It encourages openness, trust, and knowledge sharing within institutions, while helping to reduce professional isolation. Observing colleagues often exposes practitioners to innovative teaching methods, creative solutions to common challenges, and different approaches to learner support.

Effective peer observation requires clear objectives, mutual respect, and a non-judgemental atmosphere. Feedback should be constructive, evidence-based, and focused on professional development rather than performance appraisal. When embedded within an institutional educational quality culture, peer observation becomes a powerful mechanism for continuous improvement and pedagogical innovation.

Communities of practice

Communities of practice (CoP) are collaborative networks of professionals who share common interests, challenges, and goals. Through regular interaction, members exchange experiences, discuss emerging issues, develop solutions, and collectively build professional knowledge.

In the VET sector, CoP will operate within institutions, across regional networks, or even internationally. They will involve teachers, trainers, assessors, workplace mentors, industry experts, curriculum developers, and educational leaders. Meetings should take place face-to-face or through online platforms, enabling participation regardless of geographical location.

The strength of a CoP lies in its ability to facilitate the exchange of tacit knowledge. That includes the practical know-how and experience that is often difficult to capture in formal documentation and in digital processes. Practitioners will discuss successful teaching strategies, share learning materials, explore digital tools, analyse assessment practices, and collaborate on curriculum development.

CoP support innovation by creating environments where experimentation and collective problem-solving are encouraged. They contribute to professional identity development, strengthen institutional collaboration, and foster a culture of lifelong learning. For VET practitioners working in specialised technical fields, CoP provide important opportunities to remain connected with both educational and industry developments.

Continuing professional development

Continuing professional development (CPD) refers to the structured process through which practitioners maintain, enhance, and expand their professional knowledge, skills, and competences throughout their careers. CPD ensures that VET practitioners remain current with pedagogical developments, technological innovations, regulatory requirements, and labour market trends.

Effective CPD encompasses a wide range of activities, including formal courses, workshops, conferences, webinars, industry certifications, action research projects, mentoring, coaching, peer learning, and self-directed study. Modern CPD frameworks increasingly recognise both formal and informal learning experiences, allowing practitioners to build personalised learning pathways aligned with their professional goals.

Empowering VET practitioners, advancing educational quality.

Empowering the VET educators.

Enhancing and advancing educational quality.

Transforming VET.



Competence-based CPD frameworks are particularly relevant for VET. These frameworks identify key competence areas and organise learning opportunities into manageable units or into micro courses. Practitioners will select development activities that address specific needs while gradually building broader professional profiles.

Successful CPD systems are closely linked to institutional goals and quality assurance processes. They should be supported by leadership, integrated into organisational planning, and recognised through digital credentials, certificates, or career progression opportunities. Ultimately, CPD contributes not only to individual competence development but to improved learner outcomes and institutional performance.

Industry placements and upskilling

One of the distinguishing characteristics of VET is its close relationship with industry and the labour market. Consequently, professional development usually include opportunities for practitioners to maintain and update their vocational expertise through direct engagement with industry environments.

Industry placements enable practitioners to spend time working within companies, production facilities, service organisations, laboratories, or other workplace settings relevant to their vocational field. These placements provide first-hand exposure to current technologies, equipment, processes, quality standards, regulations, and workplace practices.

Industry engagement helps practitioners bridge the gap between educational provision and labour market requirements. It allows them to update learning materials, align training with current industry expectations, and provide learners with relevant and authentic learning experiences. Industry placements strengthen partnerships between educational institutions and employers, supporting work-based learning, apprenticeships, and curriculum co-development.

Upskilling initiatives will include technical training, professional certifications, participation in industry projects, attendance at trade fairs, and involvement in innovation activities. Given the rapid pace of technological change, regular industry exposure is essential to ensure that VET practitioners remain credible, relevant, and capable of preparing learners for modern workplaces.

Digital competence development

Digital transformation is reshaping both education and industry, making digital competence a fundamental component of professional development. VET practitioners must be able to effectively integrate digital technologies into teaching, assessment, communication, collaboration, and administration while preparing learners for increasingly digital workplaces.

Digital competence development extends beyond basic technology use. It includes the ability to design engaging online and blended learning experiences, utilise learning management systems, facilitate virtual collaboration, create digital learning resources, implement digital assessment methods, and apply learning analytics to support learner progress.

Emerging technologies such as AI, virtual reality, augmented reality, simulation tools, digital twins, and data analytics are creating new opportunities for vocational learning. Practitioners need opportunities to explore these technologies, understand their pedagogical potential, and apply them appropriately within their teaching contexts.



Digital competence encompasses critical issues such as digital ethics, data privacy, cybersecurity, accessibility, and responsible AI use. Professional development programmes should therefore support practitioners in developing both technical proficiency and critical digital literacy.

By strengthening digital competences, VET practitioners become more capable of delivering flexible, inclusive, and innovative learning experiences that meet the needs of modern learners and employers.

Micro intervention-based training

Traditional professional development often relies on lengthy courses or occasional and lengthy workshops that it is difficult for busy practitioners to attend and apply effectively. Micro intervention-based training offers an alternative approach by delivering focused, short-duration learning experiences that address specific skills and competence needs, to be immediately applied in practice.

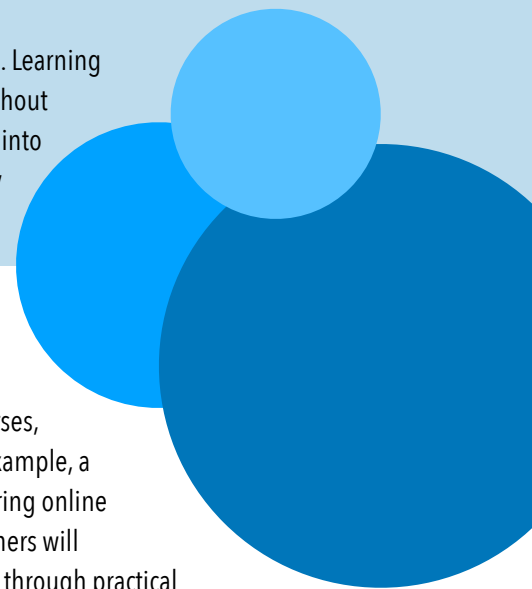
A micro intervention typically targets a single skill, challenge, or improvement area which requires only a few minutes to several hours to complete. Examples include short instructional videos, digital learning modules, reflective exercises, peer discussions, practical demonstrations, workplace challenges, or guided experimentation activities.

The strength of micro intervention-based training lies in its flexibility and responsiveness. Learning will occur at the point of need, allowing practitioners to address emerging challenges without waiting for formal training opportunities. Small learning interventions will be integrated into daily work routines, reducing disruption while promoting continuous improvement. They should organize small groups of teachers to work together, help each other to evaluate what could be considered as new pedagogy, and new training methods. Success is achieved when the process becomes attractive for a majority of the teacher groups, making it both attractive and at the end, fun to participate.

Micro interventions are particularly effective when organised and delivered as micro courses, applying the strength of the harmonized micro-course competence unit structures. For example, a competence unit on digital assessment might contain multiple micro-interventions covering online quizzes, digital rubrics, automated feedback systems, and assessment analytics. Practitioners will complete these activities progressively while building evidence of skills and competence through practical application and peer supports.

This approach aligns closely with modern concepts such as micro-credentials, lifelong and life-wide learning, and personalised professional development pathways. It enables practitioners to continuously acquire and demonstrate competences in manageable increments while responding rapidly to changes in technology, pedagogy, and workplace requirements.

Professional development for VET practitioners evolves beyond traditional training models to support continuous learning, adaptability, and innovation. Reflective practice encourages self-improvement and evidence-based decision-making. Peer observation and CoP foster collaboration and knowledge sharing. CPD provides structured learning pathways, while industry placements ensure vocational relevance. The digital competence development prepares practitioners for modern educational environments, where micro intervention-based training offers flexible, targeted learning opportunities. Together, these elements form a comprehensive professional development ecosystem that empowers VET practitioners to deliver high-quality, learner-centred, and industry-relevant education in an increasingly dynamic and complex world.



Monitoring impact



Monitoring impact is a fundamental component of education quality with continuous improvement in VET. While curriculum design, teaching methodologies, and assessment practices are important, their effectiveness will only be demonstrated through systematic monitoring of outcomes and long-term impact. A robust monitoring system enables VET providers to determine whether

- learning objectives have been achieved,
- learners are progressing as expected,
- training remains relevant to labour market needs, and
- stakeholders perceive value in the educational provision.

Furthermore, monitoring provides evidence for decision-making, supports accountability, and contributes to the continuous enhancement of the educational quality.

Effective monitoring should not be viewed as a final evaluation activity conducted after programme completion. Rather, it should be integrated throughout the entire learning cycle, collecting evidence before, during, and after training delivery. This evidence allows institutions to identify strengths, address weaknesses, and adapt programmes to changing technological, economic, and societal demands. Key dimensions of monitoring impact include measuring learning outcomes, tracking learner progression, analysing employment and career outcomes, gathering stakeholder feedback, and implementing continuous enhancement processes.

Measuring learning outcomes

The primary purpose of any VET programme is to support learners in acquiring specific knowledge, skills, and competences. Therefore, measuring learning outcomes is one of the most important indicators of programme effectiveness. Learning outcomes describe what learners are expected to know, understand, and be able to do upon completion of a learning activity, micro-course, or qualification programme.

Monitoring learning outcomes begins with clearly defined and measurable general and specific learning objectives. These objectives should be aligned with occupational standards, industry requirements, qualification frameworks, and programme goals. Assessment activities must then be designed to generate valid and reliable evidence demonstrating whether learners have achieved the intended outcomes.



Monitoring progress.

Empowering practice.

Ensuring VET quality.



A variety of assessment methods will be used to measure learning outcomes. These include written examinations, practical demonstrations, simulations, project work, workplace assessments, portfolios, reflective journals, presentations, and digital assessments. In competence-based VET systems, practical performance assessments are particularly important because they demonstrate learners' ability to apply knowledge, skills and their competences in authentic workplace contexts.

Monitoring learning outcomes should include both formative and summative assessment data. Formative assessments provide ongoing feedback during the learning process and help learners identify areas for improvement. Summative assessments evaluate competence achievement at the end of a learning activity. By analysing both forms of assessment, practitioners will gain insights into learner progress and identify potential barriers to success.

Data analytics will further strengthen monitoring efforts. Learning management systems, digital assessment platforms, and student response systems will provide detailed information about learner engagement, assessment performance, completion rates, and competency attainment. Such data enables educators to identify patterns and make evidence-based decisions regarding curriculum improvements and learner support strategies.



*Evidence informed
professional development
for quality in practice and
excellence in learning
and VET.*

Beyond assessment results, monitoring learning outcomes should examine learners' confidence, self-efficacy, and ability to transfer acquired competences to workplace situations. Surveys, interviews, workplace observations, and employer feedback will provide valuable evidence regarding the practical application of learning outcomes in real-world environments.

Tracking learner progression

Learner progression refers to the movement of learners through educational pathways and the successful completion of learning activities, qualifications, and career transitions. Monitoring progression enables institutions to understand how learners engage with programmes over time and identify factors influencing retention, achievement, and advancement.

Tracking learner progression begins at enrolment and continues throughout the learner journey. Key indicators include attendance, participation rates, completion of micro course units, assessment performance, progression between qualification levels, and qualification completion rates. In programmes using micro courses and micro-credentials, progression monitoring becomes particularly important because learners often follow flexible and personalised learning pathways.

Monitoring progress.

Empowering VET practices.

Ensuring educational quality.

Providing quality in practice.



Regular monitoring help identifying learners who are at risk of disengagement or dropout. Early warning indicators such as declining attendance, missed assessments, reduced participation in online activities, or poor performance trigger support interventions. Timely guidance, mentoring, tutoring, or counselling services are then provided to improve learner retention and success.

Digital learning environments offer significant opportunities for progression monitoring. Learning analytics will track learner interactions with educational resources, participation in activities, assessment submissions, and overall engagement. Such information enables educators to personalise learning experiences and provide targeted support where needed.

Progression monitoring should consider transitions between different educational levels and learning contexts. For example, learners progress from introductory micro courses to advanced levels, from VET programmes to higher education, or from classroom-based learning to work-based learning placements. Understanding these transitions provides valuable insights into the effectiveness of programme design and learner support mechanisms.

In addition to quantitative indicators, qualitative data should be collected. Learner reflections, interviews, semi structured focus groups interviews, and mentoring reports, will help explain progression patterns and provide a deeper understanding of learner experiences. This information is particularly valuable when designing interventions aimed at improving learner engagement and achievement.

Special attention should be given to vulnerable and underrepresented groups, including adult learners, migrants, unemployed individuals, and learners with special educational needs. Monitoring progression for these groups helps ensure equitable access to learning opportunities and supports inclusive educational practices.

Employment and career outcomes

One of the defining characteristics of VET is its strong connection to employment and workforce development. Consequently, employment and career outcomes represent some of the most important indicators of programme impact. Monitoring these outcomes helps determine whether training programmes effectively prepare learners for labour market participation and career advancement.

Employment outcome monitoring typically examines indicators such as employment rates, job placement rates, time required to secure employment, job retention rates, and alignment between training and employment. These indicators provide evidence regarding the relevance and effectiveness of educational provision in meeting labour market needs.

Career outcomes extend beyond initial employment. They often include salary progression, career advancement, professional certification attainment, entrepreneurship activities, workplace performance, and participation in continuing professional development. Monitoring long-term career outcomes provides a more comprehensive understanding of programme impact and value.



Graduate tracking systems are commonly used to collect employment-related data. Surveys conducted six months, one year, or several years after programme completion will provide valuable information regarding employment status, job satisfaction, career progression, and perceived usefulness of acquired competences. Such information helps institutions evaluate whether learning outcomes remain relevant in evolving labour markets.

Employer feedback plays a critical role in monitoring employment outcomes. Employers will provide insights regarding graduate preparedness, technical competence, workplace behaviour, problem-solving abilities, communication skills, and adaptability. Their perspectives help identify strengths and gaps in educational provision and support curriculum improvement efforts.

In rapidly changing industries, monitoring employment outcomes will reveal emerging skill requirements. By analysing employment trends and employer needs, VET providers will proactively update curricula, develop new micro courses, and introduce innovative learning opportunities aligned with labour market demands.

The increasing use of micro-credentials and modular learning pathways creates additional opportunities for employment monitoring. Institutions will examine whether specific micro courses contribute to employment, career advancement, job mobility, or professional recognition. Such evidence is particularly valuable when promoting flexible lifelong learning opportunities and validating the effectiveness of micro-credential frameworks.

Stakeholder feedback

Stakeholder feedback provides essential qualitative evidence regarding programme quality, relevance, and impact. VET systems operate within complex ecosystems involving learners, educators, employers, industry representatives, policymakers, funding bodies, and community organisations. Each stakeholder group possesses unique perspectives that contribute to programme improvement.

Learner feedback is often the most immediate source of information. Learners will provide insights regarding teaching quality, learning resources, assessment practices, support services, digital tools, workplace learning experiences, and overall satisfaction. Surveys, semis structured focus group interviews, and reflective activities are all used to gather learner perspectives.

Educator feedback is equally important. Teachers, trainers, mentors, and assessors possess first-hand knowledge of programme implementation and learner needs. Their experiences will identify challenges related to curriculum design, assessment methods, learning technologies, resource availability, and professional development requirements.

Employers and industry stakeholders provide critical information regarding labour market relevance. Their feedback will help assess whether graduates possess the competences required by industry and whether programmes adequately address current and emerging workforce needs. Advisory boards, industry panels, employer surveys, and partnership meetings will facilitate regular dialogue and collaboration.



Workplace mentors involved in apprenticeships and work-based learning programmes in addition provide valuable observations regarding learner performance in authentic work environments. Their perspectives help bridge the gap between educational outcomes and workplace expectations.

The feedback mechanisms should be gathered systematic, be transparent, and continuously collected rather than occasional or reactive. Results should be analysed, communicated to relevant stakeholders, and incorporated into improvement planning. Closing the feedback loop by demonstrating how stakeholder input influences decision-making will enhance trust, engagement, and participation in quality assurance processes.

Continuous enhancement processes

Monitoring impact only creates value when collected evidence is used to drive improvement. Continuous enhancement processes transform monitoring data into actionable strategies that strengthen the educational quality, its relevance and effectiveness over time.

Continuous enhancement involves establishing a culture of reflection, evidence-based decision-making, and ongoing improvement. Rather than focusing solely on compliance or external accountability, enhancement processes encourage institutions to view quality as a dynamic and evolving objective.

A commonly used approach is the PDCA or PDSA cycles. In these models, institutions plan improvements, implement actions, evaluate results, and adjust practices based on evidences. These cyclical processes promotes systematic learning and continuous refinement of educational provision.



Data from learning outcomes, learner progression, employment outcomes, and stakeholder feedback are integrated into regular review processes. Programme teams will analyse trends, identify areas requiring attention, and develop targeted improvement actions. Such actions include curriculum revisions, new teaching methodologies, enhanced learner support services, updated assessment strategies, or strengthened industry partnerships.

Benchmarking will further support enhancement efforts by comparing performance against internal targets, national standards, or international best practices. Such comparisons help institutions identify opportunities for innovation and improvement.

Professional development for VET practitioners is another essential component of continuous enhancement. Monitoring results reveal areas where educators require additional training in digital pedagogy, competence-based assessment, inclusive teaching practices, or industry-specific developments. Addressing these needs contributes directly to providing improved learner outcomes.

Importantly, continuous enhancement should involve all the stakeholders. Collaborative review processes involving learners, educators, employers, and management teams create shared ownership of education quality improvement initiatives. This participatory approach fosters innovation, strengthens stakeholder engagement, and increases the likelihood of successful implementation.

Ultimately, monitoring impact is not merely a measurement exercise, but a strategic process that supports organisational learning and leading to educational excellence. By systematically measuring learning outcomes, tracking learner progression, analysing employment and career outcomes, gathering stakeholder feedback, and implementing continuous enhancement processes, VET providers will ensure that their programmes remain relevant. They will become effective, learner-centred, and responsive to the evolving needs of individuals, industries, and the society.

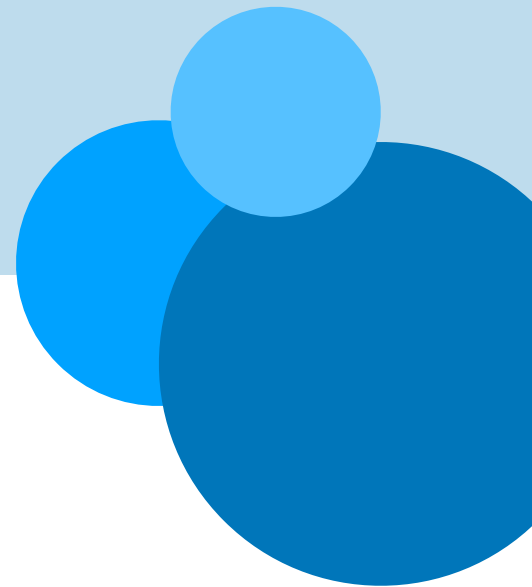
Empowering VET practitioners through quality, reflection and continuous development of educational quality practices.

Applying micro courses with harmonized competence units, to structure a VET practitioner programme

A modern VET practitioner guideline should move beyond simply describing teaching methods. It should help practitioners become facilitators of competence development, workplace learning, innovation, inclusion, and lifelong and life-wide learning. This is ensuring that the training remains relevant to rapidly changing labour market needs, including the green and digital transitions.

Micro course competence areas, with examples of associated competence units:

Pedagogy:	Designing learner-centred VET
Assessment:	Competence-based assessment methods
Digitalisation:	Digital and AI supported teaching
Inclusion:	Supporting diverse learners
Work-based learning:	Managing apprenticeships and internships
Educational quality:	Continuous improvement in VET
Innovation:	Facilitating innovation and entrepreneurship
Industry engagement:	Building employer partnerships
Validation:	Recognition of prior learning processes
Professional development:	Reflective practice and CPD



PROBLEM-BASED LEARNING IN VOCATIONAL EDUCATION AND TRAINING (VET) OF HUSBANDRY OPERATIVES



DURING ON SITE TRAINING

Before class, students can quickly submit personalized input via their mobile phone to the teacher. Based on the input the teacher can adapt the teaching according to what students find challenging. During the training activities and sessions, students are assigned tasks that are based on the submitted input. These are usually problems that are quite open-ended.

Each student is given a few minutes of individual thinking to find the solution to an assignment. The answers are provided in the form of open text via their mobile phone. Modern computer technology is used to sort out the students' solutions. Within a few seconds, the most high-frequency inputs are presented in a word cloud on the whiteboard. With the assistance of the computer systems, the teacher gets the opportunity to sort out and present all the individual answers in a time effective way.

The next step is to divide the class into smaller discussions groups, where they decide on and select the most relevant and appropriate answers.

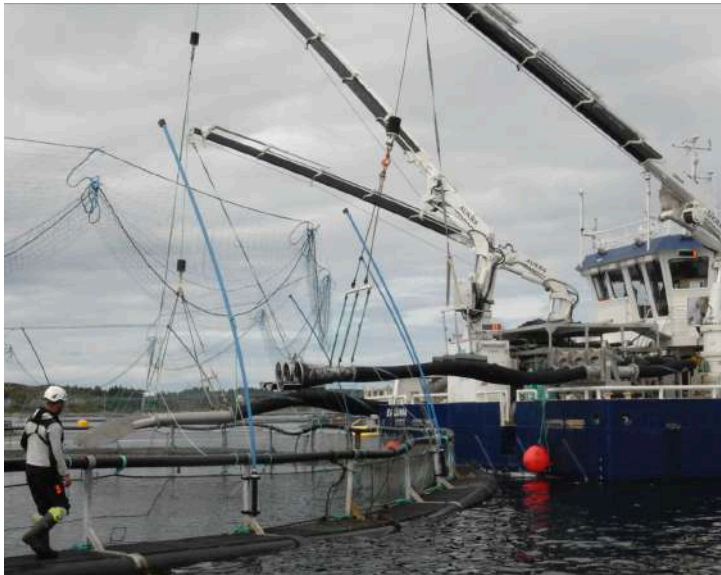
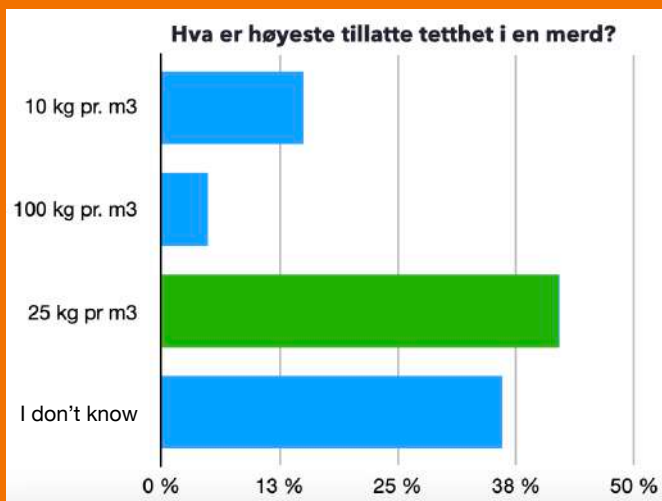
The teacher then invites the class to a joint discussion where the class agrees on what the most important elements for a good solution to the assigned task are.

Finally, the teacher comments on the answers that have been given. In other words, collective knowledge and skills are built by the students as a group, and stems from their own input and subsequent joint learning activities.



QUESTION:

What is the maximum allowable density in a cage?



OPTIMIZING EFFECT OF TRAINING BY APPLYING ACTIVE DISCUSSIONS

To realize the ambitious growth targets set by major fish producing countries in northern Europe will require a flexible and mobile work force. The work force need skills and knowledge to implement the new production methods and technologies, deployed by the leading multinational fish producing and supplying companies. This growth in fish production must be achieved efficiently, alongside high standards of fish welfare and the mitigation of environmental impact.

This necessitates an upgrading of the workforce skills, competences and qualifications through the deployment of more innovative and accessible work-based learning systems. These systems must fully motivate and support staff development and the attainment of nationally recognized qualifications that are respected by the industry.

Whilst there are some effective VET systems to support youth development, most notably in Norway, mature entrants are not so well served. Furthermore, there is currently a gap between the ambitions of the industry, and the current training methods. These methods do not take into account how many staff that are champions in problem solving, while they at the same time avoid and fear the required theoretical training.

PEDAGOGICAL METHOD

The results from the mapping become the starting point for problem-based learning that uses cases. The method used in the teaching and learning activities consists of four main parts:

01 - Individual work

02 - Work in groups

03 - Class discussion

04 - Summary from the teacher



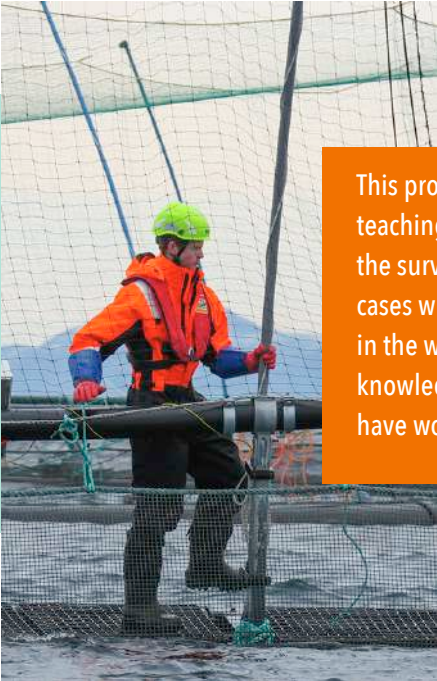
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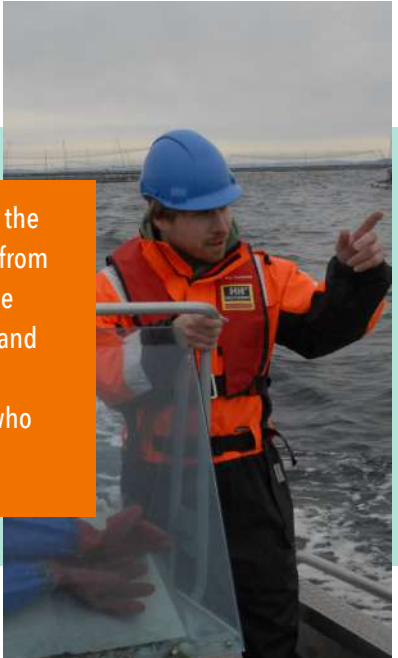
PEDAGOGICAL METHOD FOR VOCATIONAL TRAINING OF HUSBANDRY OPERATIVES

PROBLEM-BASED LEARNING BEFORE THE CLASS STARTS

2-3 days before the lesson starts, the teacher sends out a quick survey with 8-10 questions to the students. The answers to the questions give the teacher an indication of the level of knowledge, skills and competence in the class as a group. This information can be used by the teacher to better adapt teaching during the training activities and the sessions, so that many students get the best possible benefit from the lessons.



This provides the teachers with better opportunities to prioritize what the teaching time should be used for. In addition, some of the questions from the survey are used as cases in the upcoming teaching activities. These cases will form the basis for professional discussions in small groups and in the whole class. This gives students with less experience, skills and knowledge, opportunities to discuss and learn from fellow students who have worked for a longer time in the industry.



Main challenge: HETEROGENOUS CLASSES

Both experienced and inexperienced staff from the farming industry attends the same class.

Teachers that know what the students knowledge and skills are as a group, could better optimize the effect of the aquaculture VET they provide. This could be done by applying recognition of students prior knowledge at the individual- and group levels.

At the end, it becomes easier to link theory with workplace based experiences.



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Problem-Based Learning in the Classroom

During the training activities and sessions, the teacher motivates students to work with different types of cases and questions. These can be based on the answers from the survey, or consist of tailored open-ended questions that are well-suited to generating class discussions. In order to promote learning in the best possible way, the questions are answered anonymously. "Don't know" is always an alternative in the questions. This prevents students from feeling they are forced to guess at an answer. Instead, they inform the teacher that they actually don't know, thus contributing to the learning process.

The aim of encouraging discussion in smaller groups and in the whole class, is to let students themselves actively participate in acquiring and systematizing relevant knowledge and skills for the production of smolt, and/or working in a production farm. The teacher can present a case by writing it on the board, showing it on a Power Point presentation, retrieving it from a word document, showing information from a website, ... etc.

The four steps of the pedagogical method includes:

01 - INDIVIDUAL THINKING PERIOD

Each student is given 2-5 minutes to think and work individually in order to propose solutions to the the problem in the case. The answers can be provided as open text via their mobile phone.

02 - DISCUSSION IN GROUPS

The students' suggestions are systematized by a software and displayed on a common screen in the lecture. High-frequency input is shown with the largest fonts. The class is divided into groups of 3-4 students that selects and write down the most relevant answers.

03 - DISCUSSION IN CLASS

The teacher invites the class to an open discussion where the class agree on what are the most important elements that should be included in a good solution to the assigned task.

04 - SUMMARY FROM TEACHER

In conclusion, the teacher comments on the answers given. This includes explaining why the correct answer is correct, and why the wrong answer is wrong.



MAPPING OF KNOWLEDGE, SKILLS AND COMPETENCES IN VET OF HUSBANDRY OPERATIVES

QUICK MAPPINGS BEFORE TEACHING STARTS

The school systematically maps students' knowledge, skills and competences before each of the 12 competence units of the course. Teachers use the results to target their teaching towards the most problematic areas of the curriculum. The classes are made up of students with a lot of practical production experience, as well as students who have less, little or almost no work experience.

HOW TO CREATE THE QUESTIONS?

Students are first given the opportunity to assess their own knowledge, skills and competences within a specific subject area. This is followed up with an academic multiple choice question covering the same subject area to verify the student's own assessment.



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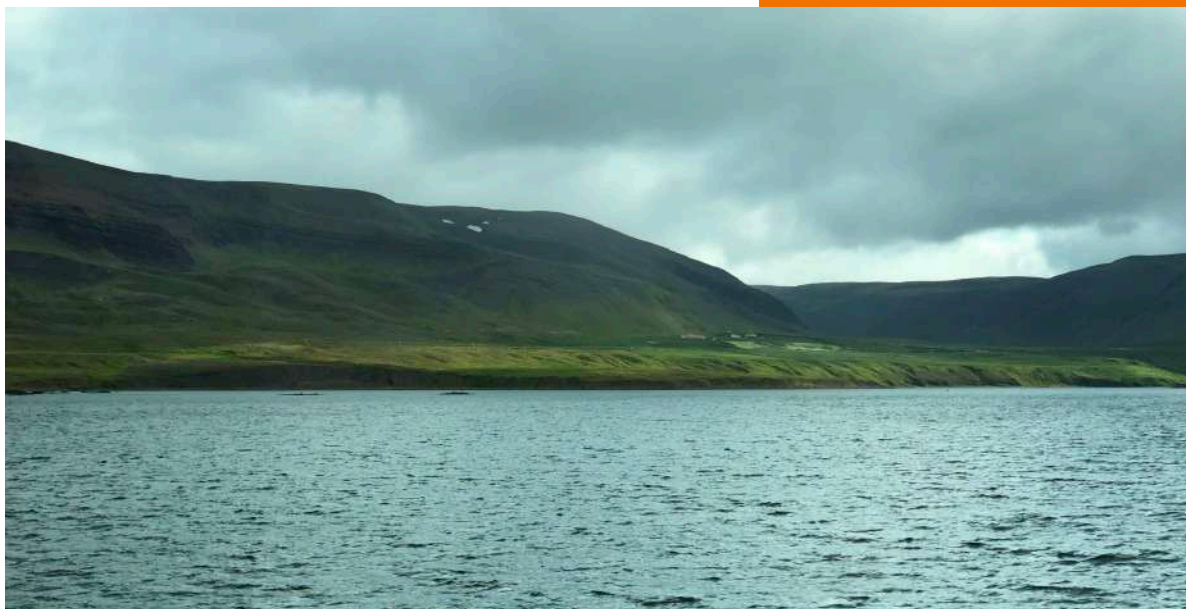
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IMPLEMENTATION

The surveys are conducted using a mobile phone or tablet. The students answer anonymously to the questions in the surveys. This is a quick evaluation (5-10 minutes) and can be completed when it suits the students.

The teacher sends out the survey 2-3 days before teaching starts. It is enough that 2 out of 3 students participate. In this way, the teacher "takes the temperature" of the level of knowledge, skills and competences in the class.



CASES FROM THE MAPPING ARE USED IN THE VET COURSES

USE OF MAPPING

The diagram shows an overview of the answers that were given in one of the questions in the survey. In this case, a "wrong answer" is marked as correct. The aim is to provoke students and to create the right conditions for discussions in the class. The correct answer is Yersiniosis. Notice that that about 25% of the students do not know the answer. This group can learn a lot from those who have practical production experience.

RESULTS

Students with practical production experience were able to convey their knowledge to those who had less or almost no experience. Those who worked in hatcheries gained detailed insight into the needs of a production facility, and vice versa.



PEDAGOGICAL METHOD

The results from the mapping become the starting point for problem-based learning that uses cases. The method used in the teaching lesson consists of four main parts:

01 - Individual work

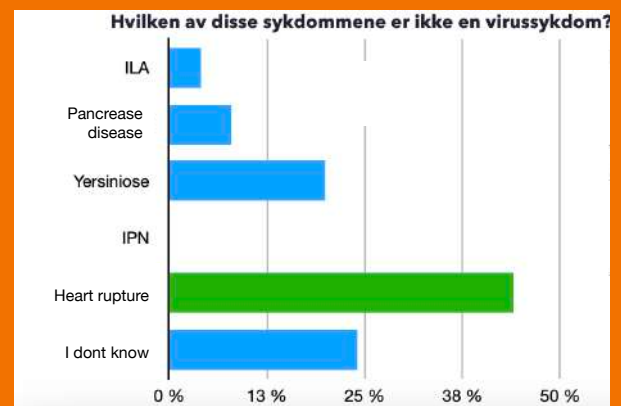
02 - Work in groups

03 - Class discussion

04 - Summary from the teacher

EXAMPLE OF QUESTION

Questions like the example below can be used to examine students knowledge about a topic before class. A useful tool to help teachers tailor the class to the students level and needs.



Which of these diseases are not a viral disease?



**NVQ (National
Vocational
Qualifications)**

Slovenian NVQ system description for obtaining Additional Qualification (AQ)



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D2.3



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A vocational qualification enables individuals to enter the labour market with various path of gaining a qualification on offer. The Institute of the Republic of Slovenia for Vocational Education and Training (CPI) is a major player responsible for assessment, approval and registration of vocational qualifications.

Preparation of Micro-Credential system (in Slovenia) will be based on experiences obtained by AQ practice.

A AQ can be obtained by formalizing the informally acquired knowledge through a National Vocational Qualifications (NVQ) validation and certification procedure. Such a path is especially suitable for adults, who have acquired knowledge and skills through various work experiences and non-formal learning.



The role of the CPI is to manage and coordinate the development of the bases for obtaining various vocational qualifications as laid down by the legislation and it does so in cooperation with the social partners.

The Act (law) on Secondary Vocational and Professional Education and the Act on Higher Vocational Education enables the acquisition of qualifications in vocational and professional training and development programs, which are aimed at the training or development of employees. The Act on the Slovenian Qualifications Framework (SQF) which is aligned by European Qualification Framework of (EQF) introduces AQ that offer companies the possibility of publicly valid recognition of internal trainings performed within the companies.

The AQ complements the individual's competence at the achieved EQF level and in a certain professional field and is linked to the needs of the labour market. AQs are one of the types of qualifications included in EQF, which with their informal meaning support the concept of lifelong learning.

ADs are aimed at the economy; namely to make the internal qualifications of companies visible. Individuals can obtain publicly valid documents for additional qualifications placed in EQF (or with national aligned qualification framework).

The application for AQ according to SQF (EQF) is submitted by an employer, a group of employers or the Employment Agency of the Republic of Slovenia. In different EU member countries process can be adapted.





The National Coordination Point of the Slovenian and European Qualifications Framework (NCP SQF-EQF) coordinates the work of the NCP SQF-EQF expert committee, which consists of 7 members from authorized ministries. Their main responsibilities are:

- determines the criteria for placing additional qualifications in the EQF (SQF),
- prepare a proposal for the placement of AQ in the EQF,
- monitoring the process of development of the Slovenian and European framework of qualifications and the European framework of higher education qualifications, and
- performs other tasks necessary for placement of qualifications

The AQ application contains at least the following information (each main chapter contains various subchapters):

- Basic information about the additional qualification
 - Name, EQF level, applicant address, contact person.
- Qualification standard
 - Field, subfield (ISCED 2013), entry conditions, description of learning outcomes, process of checking learning outcomes.
- Training program for obtaining AQ
 - Name of the program, basic goals, structure (definition of modules), name of the modules, number of hours, learning outcomes, formats and work methods, credit points (optional), conditions for inclusion, method of final verification, material and personnel requirements for conducting training.
- Description of the quality assurance process through self-evaluation.
- Presentation of labour market needs.
- References of the applicant and contractor.
- The applicant's declaration that he will implement the additional qualification for the needs of his own or agreement between the group of employers.

CPI professionally evaluates the application and prepares an opinion on the adequacy of the application and the training program. CPI consultants evaluate and justify whether the proposed level of demand, the range of learning outcomes, the verification procedures and conditions for obtaining an AQ are appropriate or not.

On the basis of a positive opinion, the NCP SQF-EQF expert commission accepts within one month decision regarding the application and prepare a proposal for the placement of an AQ in the SQF-EQF.





NCP SQF-EQF submits a proposal for placing an additional qualification to Minister responsible for work, who by decision places the additional qualification in the SQF, and the NCP SQF-EQF commission entered it in the qualification register.

Evaluation of AQ application is based on following criteria:

- Applicant suitability.
- Placing an additional qualification in the qualification structure.
- The demanding level of the additional qualification in SQF and EQF.
- Record of learning outcomes.
- Scope and credit evaluation of the training program.
- Implementation of the training program.
- Checking learning outcomes.
- Demonstration of labour market needs.
- Analysis of the implementation of the additional qualification.

CPI confirms placing an additional qualification in register after payment by law defined fee. If the application is incomplete or incomprehensible, the CPI requires from the applicant to correct the deficiencies within a specified period. If the applicant does not resolve the deficiencies within this period application is rejected.

Pilot courses implementation. The participants of the course get an internationally recognized diploma or a certificate. The regular education level cannot be changed.

Diploma has lifetime validity.

After five years application for acquiring AQ have to be submitted again.

Additional qualification best practice:

- With a placement of an AQ companies gained the possibility of enforcing their internal training and placing it in the national framework of qualifications and the EQF. Individuals can obtain publicly valid documents for additional qualifications.
- There was registered in Slovenia some programs e.g. Polymer injection moulder, Foundry worker, Personal data protection specialist, Specialist in public procurement etc. Sometimes they mix AQ with NVQ which are reserved for implementation by schools and educational institution and candidate can acquire also different level of formal education according to SQF, EQF.



*More than
30.000 students
receive a NQ
every year.*

National Vocational Qualification system description for Norway



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NATIONAL POLICY STRATEGY FOR VET MISSION AND LEGISLATION

MISSION

The VET system, including apprenticeships, is an integral part of the Norwegian education system. The government views VET as a central means for achieving national goals in areas such as economic, regional and employment/labour market policies. Education and training including VET are considered a public responsibility. VET is available all over the state so as to ensure an equal education for all. Equal access to high quality education is a fundamental political principle. There are no school fees at any level including higher education in the public education system. Only a small share of pupils and students attend private education.



The government recognizes the major role of social partners, accordingly the formulation and implementation of VET policies are shared between public authorities and the social partners such as employers and employees' organizations and trade unions. This cooperation is institutionalized through the Vocational Training Act. It is also expressed through procedures for representation in central bodies and active participation in preparatory, implementation and control tasks within the field.

STRATEGY

Reform is an on going process associated to VET national policy in Norway, for instance, a comprehensive curriculum reform was introduced in 2006 so-called 'The Knowledge Promotion Reform'. New national curricula were developed for each subject in both school-based and apprenticeship-based education and training. The Norwegian Directorate for Education and Training managed this process through a broad and open process. Each Subject Curriculum were developed by a curriculum team and been subject to a broad consultation process (electronic questionnaires, seminars, meetings) that has involved schools, school owners and the social partners.

The government works to promote participation among low-skilled students in upper secondary VET. For example since 2000, through 'the training candidature scheme', low-skilled students are given the possibility of obtaining a specially adapted qualification of a lower degree. As opposed to the apprentice who signs an apprenticeship agreement, the training candidate signs a training contract which will lead to a competence exam as opposed to the trade or journeyman's certificate.

The Norwegian strategy towards VET attempts to bridge the general and vocational divide and particularly the gap between the vocational schools and the apprenticeship system. The most important reform in this regard is "Reform 94" in 1994, which encompassed rights, structure and content.



LEGISLATION

Reform 94 produced changes in several aspects of VET. At the upper secondary level, both the act regulating education and training in schools, and the act regulating apprenticeship training were revised and harmonized with the aim of achieving a more uniform education and better coordination between education in school and training at work. The following acts regulate the current VET system:

1. Act of 17 July 1998 no. 61 regulates the county authorities' responsibility for public upper secondary education and training, objectives and scope, organization and division of responsibilities, financing and content of education and training delivered by both public and private institutions.
2. Act relating to Upper-secondary Vocational Education and Training («lov om fagskoler 2003», latest amendment December 2010) regulates public and private post-secondary vocational education and training with courses and programs of 6 months' to 2 years' duration. Education and training under this law are not part of higher education.
3. The Adult Education Act («Lov om voksenopplæring - 1976», latest amendment 2003) regulates different types of adult training that is not covered by the Education Act. Education and training for adults is provided by a variety of public and private institutions. Among the most important are private adult learning study associations, labour market training, work based training and distance training.
4. The Act relating to Master Craftsman Certificates («Lov om mesterbrev», 1986) establishes the framework for the master craftsman certificate. It stipulates that only a person awarded the certificate is entitled to call him or herself a master craftsman.
5. The Act relating to Universities and University Colleges («Lov om universiteter og høyskoler 2005», latest amendment 2009) applies to all higher education, both state and private. The Act regulates organizational and management aspects, provides for the recognition of study program, examination and certification, for quality assurance as well as for the learning environment for students.

THE FORMAL VET SYSTEM

LEVELS

Tertiary education, age above 19

Upper secondary education, age 16-19

Secondary education, age 13-16 compulsory

Primary education, age 6 - 13 compulsory

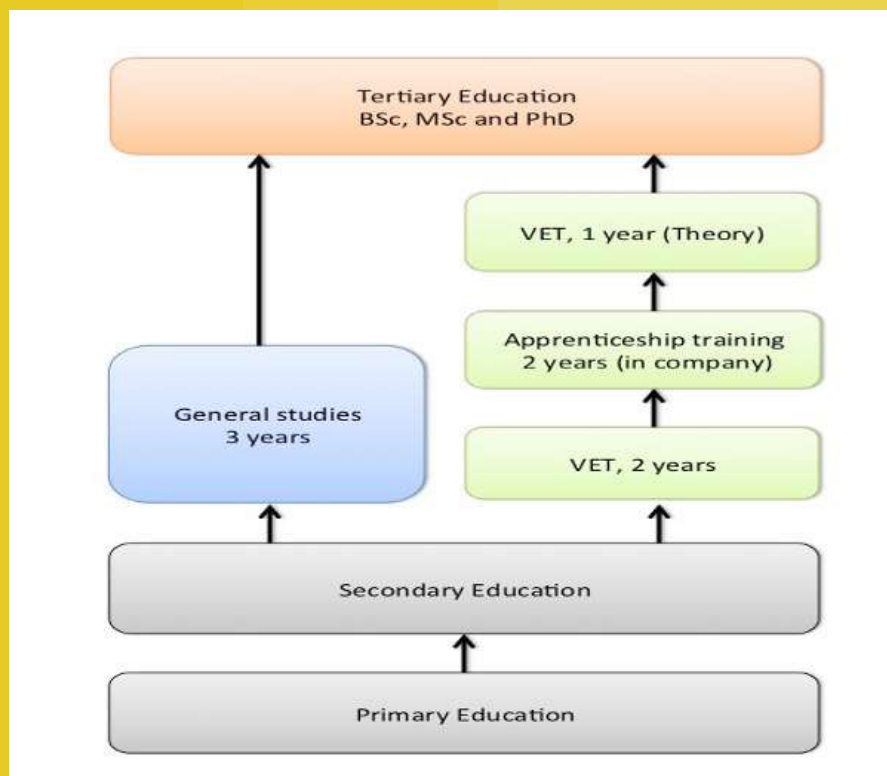


Figure A. The main educational levels in the school system in Norway.

NKR		
NKR levels	Qualifications	EQF levels
8	PhD degree	8
7	Master degree	7
6	Partial bachelor (short higher education) Bachelor (Bologna first cycle)	6
5	5.1 Certificate of completed post-secondary VET (<i>Fagskole</i>) 1 5.2 Certificate of completed post-secondary VET (<i>Fagskole</i>) 2	5
4	4A Certificate of completed general upper secondary education 4B Certificate of completed vocational upper secondary education (<i>Fagbrev</i>)	4
3	Certificate of partially completed upper secondary education and training (<i>Kompetansebevis</i>)	3
2	Certificate of primary and lower secondary education	2
1	Not part of the NQF. No qualifications included.	1

Figure B. Extension of figure 1 with The Norwegian national qualifications framework for lifelong learning with linkage to the EQF levels.

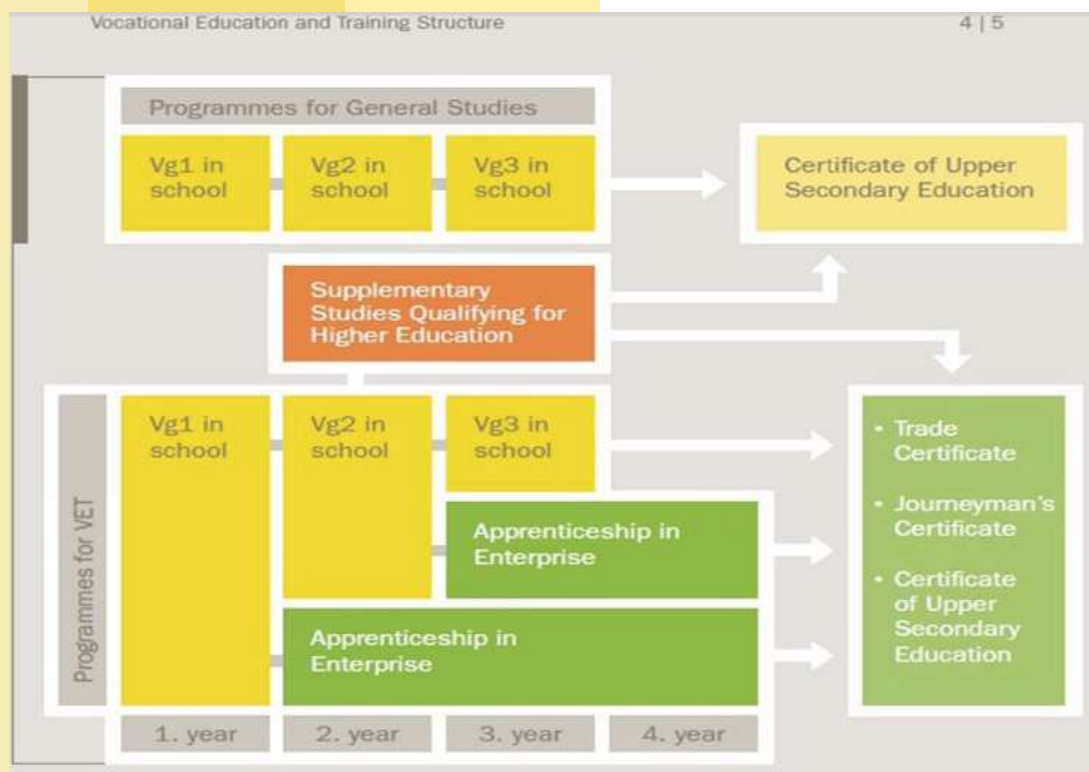


Figure C. The organization of the upper secondary VET education in Norway, including the apprenticeship system.

All young people leaving compulsory school have a statutory right to attend three years of upper secondary education. Since 1976, general and vocational education and training were subject to the same law, under the same roof. Thus, today nearly all upper secondary schools provide both general education and vocational training, often in the same building. Students may choose from twelve programs categorized as three general studies programs and nine VET-programs. The VET - programs are as follows:

1. Technical and Industrial Production
2. Electrical Trades
3. Building and Construction
4. Restaurant and Food Processing Trades
5. Agriculture, Fishing and Forestry
6. Health and Social Care
7. Design, Arts and Craft
8. Media and Communication
9. Service and Transport

The upper secondary VET leads to the trade- or journeyman's certificate. The majority of upper secondary VET students are in the age group 16-21.

Upper secondary VET normally includes two years at school with practical training in school workshops and short work placements in industry, followed by two years of formalized apprenticeship training and productive work in an enterprise or public institution. During the last two years, the apprentice is engaged in one year of training and one year of productive work. This is known as the "2+2 model". However, not all VET programs follow the 2+2 model. A few programs are entirely school-based. Another small group of programs follow a "1+3-model", with one year in school followed by three years of apprenticeship training.



The first year in upper secondary VET consists of general education and introductory knowledge of the vocational area. During the second year, VET students choose specialization and the courses are more trade-specific. While in school, students participate in practical training in workshops and enterprises through the subject In-depth study project. The two-year apprenticeship takes place with an employer (or employers) and follows the national curriculum.

In Norwegian higher education, all vocationally-oriented courses and programs are part of the ordinary higher education system. There is no formal or other distinction between vocational and non-vocational higher education.



The Tertiary Vocational education is an alternative to higher education and is based on upper secondary education and training or equivalent informal and non-formal competence. Higher Education entrance Qualification is not required. The education consists of vocational courses lasting from half a year to two years.

The institutions of the tertiary VET level have developed through one of the following four main paths:

- county post-secondary technical colleges building on vocational secondary education, often leading to qualifications as master craftsmen or certificates for seamen;
- state funded private schools originally recognized as "secondary education without parallel to public provision", several of which are in art, culture or Bible studies;
- state and county funded programs in health and social studies;
- other private provision, generally developed through training needs resulting from new and emerging technologies and demands in the labour market since the 1980s, particularly in media, design, communication, administration, logistics and ICT.

The Act on upper secondary (tertiary) Vocational Education No. 56 of 20 June 2003, revised in 2007, regulates short (e.g. six months' to two years' duration) vocational training courses and programs at the postsecondary non-tertiary level. In this Act, the term vocational denotes programs leading to qualifications that can be immediately used in working life without further training. As a consequence of the 2007 revision, all providers must document quality assurance systems, and it is also possible to obtain institutional accreditation for programs within a defined field of study, rather than having to apply for recognition program by program.



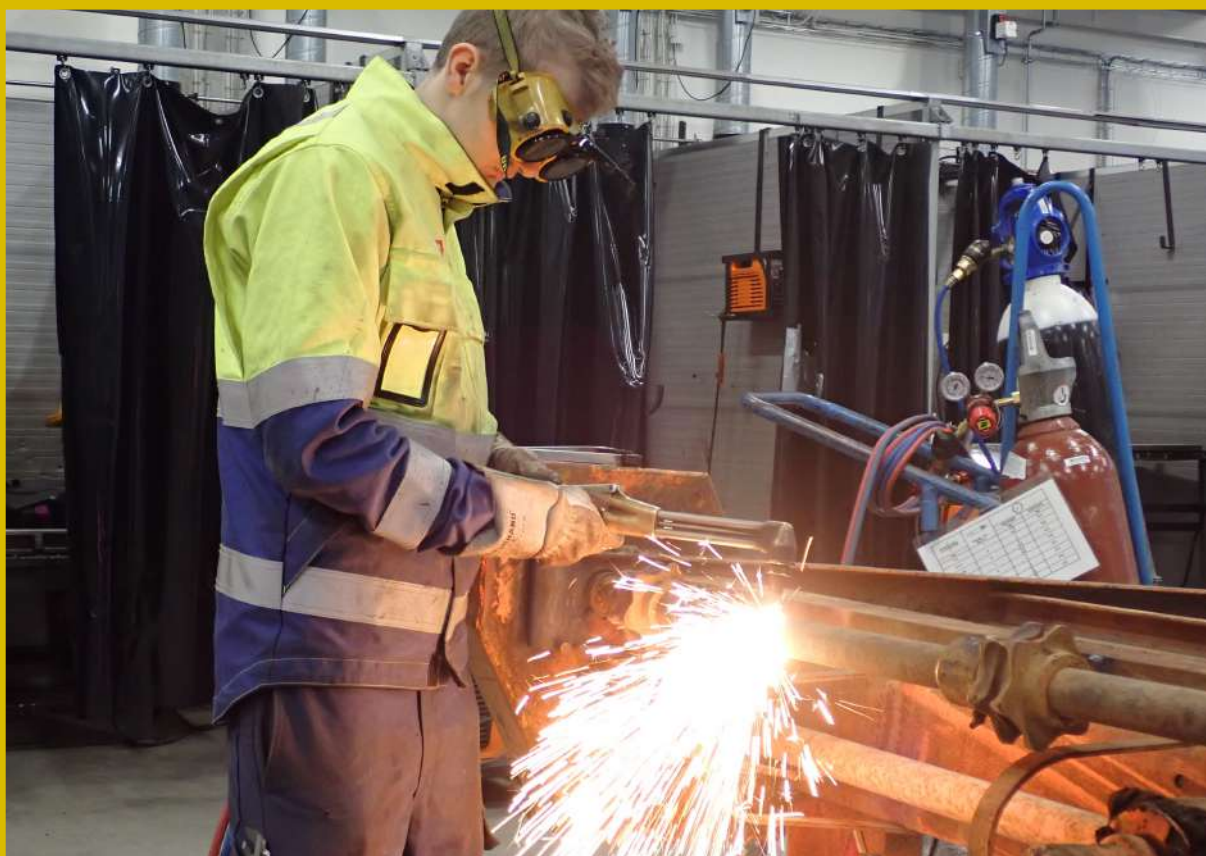
GOVERNANCE

Norway enjoys a high degree of decentralization amongst the three administrative levels: state, county and municipality.

The municipalities are responsible for primary and lower secondary education.

- While county authorities are responsible for public upper secondary school, their associated tasks include: operational responsibilities for the development of curricula, examinations and quality control, running of schools, the intake of students, and the appointment of teachers.
- The Ministry of Education and Research has overall responsibility for national policy development and administration of education and training at all levels, from kindergarten to higher education, including adult education. Higher education falls directly under the responsibility of the Ministry.
- For upper-secondary (tertiary) vocational training, the situation is slightly more complicated as the counties are responsible for most of the public funding, most schools are private, and a few schools are funded directly by the Ministry.

The Directorate of Education have responsibility for the continuous curriculum development. For this purpose it makes extensive use of expert groups from both school and companies that provide upper secondary education. When the need for a new qualification is identified a tripartite group is set down to write vocational profiles. This will make the basis for developing the subject curricula. The Directorate appoints teams for curriculum development consisting of professionals (most often suggested by the employer and employee organizations) and VET teachers. Also, the Directorate has recently developed a follow-up system for curricula named «System for follow-up of the curriculum». The system aims is to get a more holistic and systematic knowledge about the state of affairs with regards to the curriculum.



SOCIAL PARTNERS

The VET national policy is built on a close cooperation between public authorities and the social partners on a formal and informal basis. The formal basis for the role of the social partners in VET at upper secondary level is to be found in the International Labour Organization Convention 142 (of 23 June 1975) which Norway ratified in 1976. The convention establishes that the employers' organizations and trade unions shall influence and participate in the framing and development of vocational guidance and training.

The social partners have representatives in all important advisory and decision-making bodies at state and county levels:

- the National Council for Vocational Training;
- the 20 national Vocational Training Boards which represent the expertise in different sectors and recognized occupations;
- the Vocational Training Committee for each county; and
- the examination boards in each county and the national appeals boards.

Through this representation, the social partners are directly involved in, among others, the framing of structure and content of recognized occupations, the development of curricula and framing the trade and journeyman's examination. The participation of pupils, apprentices and students in the preparation of education and training is, moreover, stated in the acts concerning education and training.



FINANCING

Norway spends considerable resources on its education system, including VET, relative to many other countries. For instance, Norway spends more than the OECD average in Education per student. In 2008, Norway spent 5 per cent of its GDP on primary and secondary education and training as a whole, whereas the OECD countries spent only 3.8 per cent on average.

There is varied spending of resources because of differences in geography and demographic structure. This gives rise to substantial differences in the spending of resources among different municipalities and country authorities.

There are no school fees at any level, including higher education, in the public education system. The finance comes from country authorities for public upper secondary schools while MOER is responsible, include finance, for tertiary education.

Only a small share of pupils and students attend private education. The Financial Support to Students and Pupils Act («Lov om utdanningsstøtte til elever og studenter-1985», latest amendment 2005) states that all registered students on formally recognized study programs, at both public and private higher education institutions may receive grants and subsidized loans from the State Educational Loan Fund for subsistence costs.



Groups of VET teachers and instructors

There are three main groups of VET teachers and trainers at the upper secondary level:

- VET teachers who provide formal school-based education and training;
- Trainers and training supervisors in enterprises; and
- VET training facilitators who are involved in non-formal and informal workplace training.

The formal qualification requirements for VET teachers are specified in national regulations. In principle, there is no difference between teachers in VET and other teachers. Both groups must have two sets of formal qualifications: in the relevant subject and in teaching. VET teacher education programs follow the general degree system, with a three-year Bachelor's degree and a two-year Master's degree. To become a qualified VET teacher, one must either complete vocational practical-pedagogical education or vocational teacher education.

Vocational practical-pedagogical education (consecutive model) is a 1-year program (2-year for part-time study) for students who already possess a vocational/professional degree or other qualification. The main fields of study are pedagogical theory, vocational didactics and supervised teaching and training practice. Admission requirements are:

- qualification as a skilled craftsman/worker, or a bachelor's degree in a specific profession; and
- two years of occupational experience; and
- two years of further studies (technical, vocational, managerial); and
- general matriculation qualifications or recognition of non-formal qualifications.

Vocational teacher education (concurrent model) is a comprehensive 3-year bachelor program that covers both vocational training and pedagogy and qualifies for the teaching of specific subjects in years 5 – 7 in primary school, and in lower and upper secondary school. It is also available as a part-time study. Admission requirements are:

- an upper secondary vocational qualification and two years of relevant work experience
- general matriculation qualifications or relevant non-formal qualifications, e.g. long work experience

All teacher education programs for the lower and upper secondary levels (grades 8 – 13) including those for VET teachers are at present undergoing revision as part of the implementation of the Norwegian National Qualifications Framework of 15 December 2011, following both the European Qualifications Framework for Higher Education in the Bologna Process and the European Qualifications Framework for Lifelong Learning (EQF).



Trainers in enterprises are vocationally skilled, but not required to have a teaching certificate. Training supervisors in enterprises or other workplaces with apprentices must ensure that the training meets the requirements set by the Education Act. They must have one of the following qualifications:

- trade or journeyman's certificate in the relevant trade or craft
- master craftsman's certificate in the relevant craft
- relevant higher education in the trade or craft
- adequate educational background in the parts of the trade which, according to the curriculum, will be taught in the enterprise
- six years of experience in the trade or craft

There are no formal qualification requirements for training facilitators that deliver training outside formally approved education institutions. Still, VET training personnel involved in non-formal and informal workplace training often have a formal vocational qualification. Some training facilitators have not formalized their vocational skills, but perform solely on the basis of skills developed through work practice.

Enterprises that provide apprenticeship training must be approved by the county authority. Formal regulations simply state that the management of the institution must ensure that training personnel have "the necessary qualifications" (Education Act).

Teacher training for pre-primary, primary and secondary education was regulated by the Teacher Training Act of 1973, repealed in 1998. Provisions concerning teacher education are now under the Education Act of 1998 (e.g. teacher qualifications requirements), and in part under Universities Act of 2005. Following the Report to the Parliament No. 11 (2008-2009), White Paper on Teacher Education (The Teacher-The Role and the Education), in May 2009 MOER appointed a National Curriculum Committee in order to propose national guidelines for a new teacher education program.

QUALIFICATIONS AND QUALIFICATION FRAMEWORKS

SECONDARY VOCATIONAL EDUCATION

Secondary VET mainly leads to either a trade certificate (Fagbrev) for industrial and service trade or a craft or journeyman's certificate (Svennebrev) for traditional crafts. Graduates must pass the journeyman's examination, through which apprentices demonstrate their vocational skills and explain and justify the methods they have chosen to use to solve the test assignments.

Holders of a trade or journeyman's certificate may pursue further studies at a Vocational College (fagskole) and can also qualify for higher education. This has developed through four main paths mentioned in section 2 and leads to qualifications as master craftsmen or certificates.

NATIONAL QUALIFICATIONS FRAMEWORK (NQF)

NQF gives a view of the Norwegian educational system and its levels of qualifications. NQF is a contribution to facilitate the work on lifelong learning and is to be used as a transparency tool for comparison of Norwegian qualifications with qualifications from other countries, via the European Qualification Framework (EQF) and/or the European qualifications framework for higher education (QF-EHEA).



QUALITY ASSURANCE

The County Vocational Training Board (CVTB) provides advice concerning strategies for quality development in the vocational education system in the county, and evaluates the system of quality assurance. The Board is also responsible for securing the attainment of qualifications in vocational education and promotes cooperation between schools and the regional labour market. Other public bodies at the state and countries levels are involved in quality control for primary and secondary schools as well.

The Norwegian Agency for Quality Assurance in Education (NOKUT) was established in 2002, operative as of 1 January 2003. It is an independent agency with the task of carrying out external quality assurance of higher education and tertiary vocational

- Accreditation of higher education institutions;
- Accreditation of higher education programs and courses;
- Revision of accreditation;
- Evaluation of internal quality assurance in higher education institutions;
- Evaluation of specific types of educational provision or defined aspects of such;
- Recognition of tertiary vocational education; and
- General recognition of foreign qualifications.



All courses must be accredited by NOKUT and an up-to-date list of recognized courses can be found on NOKUT's website.

As a consequence of the 2007 revision, all providers must document quality assurance systems, and it is also possible to obtain institutional accreditation for programs within a defined field of study, rather than having to apply for recognition program by program.

GENERAL PRINCIPLES FOR ASSESSMENT

The Education Act regulates assessment in Norway VET and the regulations connected to this law, Chapter 3 – “Individual assessment in primary and upper secondary education”. Persons in public primary education and students, apprentices, diploma candidates and apprentices in public upper secondary education are entitled to receive individual assessment by the law. The right to assessment includes a right to take part in continuous assessment, final assessment and documentation of the training process that has been done.

It is the owner of the school that is responsible for ensuring that the student or apprentice gets fulfilled their right to get individual assessment according to the Education Act. For apprentices and private candidates in companies, the company is responsible for offering the individual assessment.

The purpose of the assessment is to promote learning, express the competence of the student or the apprentice during the course and at the end of the course. The assessment process should provide feedback and guidance to students or apprentices such that they may use it to improve their learning.

At High School and Upper Secondary School (VET) level, assessment will be given with grades. There will always be given grades as numbers, on a scale from 1 to 6. The individual grades have these levels:

- Grade 6 expresses that the student has advanced competence in the subject
- Grade 5 expresses that the student has very good competence in the subject
- Grade 4 expresses that the student has good competence in the subject
- Grade 3 expresses that the student has quite good skills in the subject
- Grade 2 expresses that the student has low competence in the subject
- Grade 1 expresses that the student has very low competence in the subject.

In order to pass the minimum level in a subject, grade 2 is required.



Continuous assessment:

Continuous assessment in subjects will be used as a tool in the learning process, and as a basis for offering adapted training and help the student or the apprentice to increase his and her competence in the subjects. This assessment in subjects must be given on a continuous and systematic basis, and may be both oral and written.

Continuous assessment must contain information about the competence of the student or the apprentice, and provide guidance on how he or she can develop his or hers competence in the subject.

The correspondence between continuous assessment and final grade in subjects:

Continuous assessment should promote learning and allow the student to improve his / her competence throughout the entire training period. For students in public upper secondary school the competence the student has shown throughout the entire training period forms part of the assessment when the final grade in subjects is to be determined.

For adult private candidates and apprentice in adult learning courses the final exam will determine the final grade. However; also the adult students are entitled to continuous assessment during the courses.



GENERAL PRINCIPLES FOR EXAMINATION

The exam must be in accordance with the curriculum. The county authorities are responsible for the completion of the professional certificate test in accordance with the regulations and the curriculum in the subject. Registration for the professional certificate test must be sent to the county authority in the county where the learning contract or training contract is registered.

Private candidates must apply for a professional certificate test. The application goes to the county authorities before the deadlines set by the same county authorities.

Before applying for the professional certificate test, the candidate must have passed a theoretical examination according to the prerequisites set by the Directorate of Education. This exam will test to what extent the individual candidate has reached the competence levels defined in the curriculum. The exam is prepared centrally and censored locally. If the candidate does not pass the examination, a new examination may be reapplied at the earliest six months later.



The contents and scope of the practical professional certificate test

An Examination Board for the program subject is responsible for the design of the professional certificate test. The teaching company, possibly the school as an alternative to training in a company, can make suggestions for work tasks.

The professional certificate test will test the candidate's knowledge and skills in the subject as described in the curriculum for the profession. All the competence objectives in the curriculum of the subject could be tested. The tasks in the test must reflect the requirements that are defined for professional competences. The Examination Board is responsible for ensuring that the candidate's competence in the subject is tested in a reasonable manner.



The task should clearly define the content of what is expected of the candidate's work. Within the framework of the learning outcomes specified in the curriculum, the assignment will test the candidate in

- A) Planning of work, and foundation for selected solutions
- B) Carrying out a professional work
- C) Assessment of own test work
- D) Documentation of own test work.

The extent of the test should be clearly defined, and within the timeframe set in the curriculum.

In a summary conversation, the Examining Board may ultimately ask the candidate theoretical questions for professional clarification.

The assignment must be designed in such a way that it gives the candidate a realistic opportunity to perform a good quality work within the stipulated timeframe. The assistance that the candidate has been given during the learning period can also be tested during the exam or test.

In addition to the task, the Examining Board shall prepare a basis description for assessing the candidate's work with the examination. The main points of this description must be explained to the candidates.

The Examination Board

The Examination Board for professional certificate tests is appointed and administered by the county authorities, according to the Education Act. The examiner committee must have at least two members who have formal professional competence within the subject area and, as far as possible, have updated work experience in the subject. The county authorities must ensure that there is satisfactory assessment competence in the Examination Board.

The county authorities shall collect proposals for members to the Examination Board from the business sector. This should include both representatives from the employer's and the employee. The county authorities may also, if necessary, retrieve suggestions from others.