TEACHER GUIDELINE

A PRACTITIONER DEVELOPMENT GUIDELINE

BLOOMS TAXONOMY - FOR e-LEARNING PRACTICES

Bloom's taxonomy (1956) was developed for teaching of specific skills, and is one way of describing different types of knowledge. It could become a useful tool. The taxonomy is often seen as different levels of knowledge, where the student first must acquire the knowledge before it is possible to apply it. Bloom's taxonomy is often drawn as a pyramid, with factual knowledge at the bottom and to create at the top. The first three levels (remember, understand and apply) are considered hierarchical, and to build on each other.

A VET course is organized into independent Competence Units (CUs), each containing an assessment procedure, leading to one Micro Credential (MC) containing an assessed Record of Achievement.

The assessment procedure could contain four types of knowledge questions:

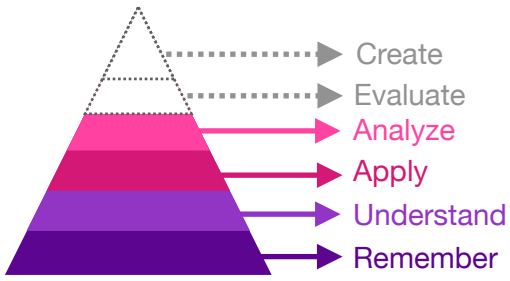
Remember: Ability to memorize information and reproduce factual knowledge. It should be possible for a student to recognize that he/she knows something, to know that they have seen it before. This includes recalling and remembering simple facts, basic concepts, moments and aspects, without necessarily demonstrating any context between them.

Understand: Ability to interpret meaning and reformulate knowledge in your own words. The students should know how to explain ideas or concepts. This includes seeing simple contexts, understanding a meaning, giving an example, identifying and classifying solutions, compare and provide simple explanations.

Apply: Ability to apply knowledge, techniques and methods in new situations to solve problems. Being able to carry out and apply the information in new situations, demonstrate and operate new solutions, or to decide something based on the knowledge.

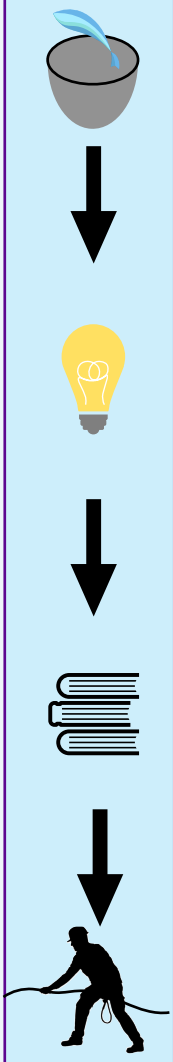
Analyse: Ability to recognize connections. This includes "cutting" knowledge into pieces and see how the different parts relate to each other and to the overall goals and contexts. Students should train and learn how to distinguish between essential and irrelevant information, structure knowledge, and extract the views of others.

Blooms Taxonomy Pyramid:



The MC with a Record of Achievement from a CU, is a diploma, with an annex that includes a written documentation that is containing the standardized, basic level description of the CUs learning goals:

- General Content
- General Learning Outcomes, including KNOWLEDGE, SKILS and COMPETENCES
- Specific Learning Outcomes, including KNOWLEDGE, SKILS and COMPETENCES



The standardized, basic level descriptions of the CUs, as displayed above, will make it possible for students and training providers to compare, validate and recognize CUs and MCs delivered by other VET providers.

In this way, the MC with the Record of Achievement will provide a written specification that the student or the staff may use as documentation of the obtained knowledge and competence. Refugees, as an example, may use this material as a formal documentation when applying for their first job, or they get a temporary employment.

MILLERS TAXONOMY - FOR WORK-BASED PRACTICES

Millers taxonomy (1990) was originally developed as a framework for clinical practices at the workplace. It is thus widely used in healthcare education - containing a lot of practice - as a tool for assessing work-based competence (i.e. the outputs of education and training). This model includes 4 levels of clinical competence, often visualized like a pyramid:

Knows: Gathering Facts - Demonstrates that she/he has the knowledge to perform practical tasks and activities. May be assessed through observations.

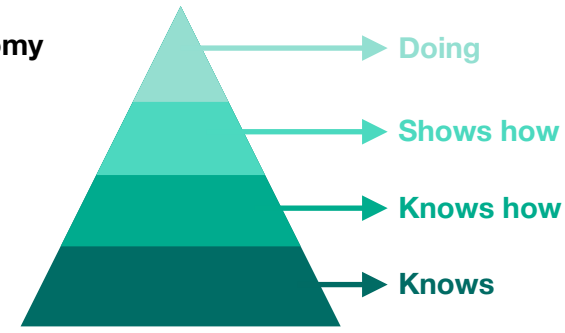
Knows how: Interpret and apply - She/he knows how to apply the knowledge. This includes using short answer assignments, oral exams or practical test.

Shows how: Demonstration of learning - Demonstrates that she/he not only has the knowledge or knows how to apply it, but can show how to use a method or a tool. Simulation and long/short cases may test this.

Doing: Performance integrated in to practice - Demonstrates what the student does when operating and functioning in practice/real work. To apply checklists could be part of testing and documenting this knowledge. This is the highest level that has the highest professional authenticity.

For each level, the professional authenticity of knowledge, skills and competence increases from novice- to expert level.

Millers Taxonomy Pyramid:



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THE ROLE OF BLOOM`S AND MILLERS TAXONOMIES IN A VET PRACTITIONER DEVELOPMENT PERSPECTIVE

A comprehensive VET Practitioner Development Guideline should provide educators with evidence-based frameworks that support the design, delivery, assessment, and continuous improvement of VET Among the most valuable educational models are Bloom's Taxonomy and Miller's Pyramid of Clinical Competence (commonly referred to as Miller's Taxonomy). Although developed for different educational contexts, both frameworks complement each other and help VET practitioners create competence-based learning experiences that progress from knowledge acquisition to independent workplace performance. Including these taxonomies within a VET practitioner guideline enables teachers, trainers, workplace mentors, and assessors to develop learning outcomes, teaching activities, and assessment methods that accurately reflect the vocational competences.

Bloom's Taxonomy provides a structured hierarchy of cognitive learning that assists practitioners in designing learning outcomes and selecting appropriate teaching strategies. The revised taxonomy consists of the six cognitive levels: Remember, Understand, Apply, Analyse, Evaluate, and Create. Those help explaining that learning should progressively move learners from acquiring factual knowledge towards solving authentic workplace problems and developing innovative solutions. For each cognitive level, it si recommended to include examples of suitable action verbs, learning activities, digital learning resources, and assessment methods. For example, learners may first remember technical terminology and workplace regulations, then explain production processes, apply procedures during practical exercises, analyse faults, evaluate alternative solutions, and finally design or improve work processes. Such progression ensures that vocational learning develops higher-order thinking alongside technical competence.

It is useful to demonstrate how Bloom's Taxonomy supports the writing of measurable learning outcomes within CUs in the micro courses. Learning outcomes should use observable verbs that clearly describe expected learner performance rather than vague statements such as "understand" or "know." Practical examples from different vocational sectors, including engineering, construction, healthcare, aquaculture, manufacturing, and information technology, will help practitioners understand how Bloom's Taxonomy should be adapted across disciplines. This includes explaining how digital pedagogies, project-based learning, simulation, collaborative learning, and problem-based learning will support progression through the different cognitive levels.

While Bloom's Taxonomy focuses primarily on cognitive development, vocational education requires demonstration of practical competences in authentic working environments. For this reason, it is useful to introduce Miller's Pyramid as a framework for competence-based assessment. Miller's model consists of four progressive levels: Knows, Knows How, Shows How, and Does. These levels represent the transition from theoretical knowledge to independent workplace performance, making the framework particularly relevant for vocational education, apprenticeships and work-based learning practices.

The first level, Knows, focuses on factual knowledge, such as understanding occupational regulations, technical terminology, health and safety requirements, and industry standards. Assessment at this stage typically includes quizzes, written examinations, oral questioning and digital knowledge tests.

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The second level, Knows How, requires learners to explain how knowledge is applied in practical situations. Case studies, problem-solving exercises, production planning, and technical calculations provide appropriate assessment opportunities at this level.

The third level, Shows How, shifts learning into simulated or controlled practical environments where learners demonstrate technical skills under observation. Practical demonstrations, laboratory exercises, simulation activities, workshops, role-play, and structured practical assessments allow learners to show that they can perform vocational tasks safely and correctly. The guideline should encourage practitioners to use assessment rubrics and observation checklists to ensure objective and consistent evaluation.

The highest level of Miller's Pyramid, Does, represents competent performance in authentic workplace settings. Learners demonstrate that they can independently perform occupational tasks consistently over time while meeting quality, safety, productivity, and professional standards. Assessment at this level may involve workplace observation, employer feedback, portfolios of evidence, competency interviews, digital workplace records, and recognition of prior learning. The guideline should emphasize that competence is demonstrated through sustained performance rather than a single successful assessment.

A useful feature is the explanation of how Bloom's Taxonomy and Miller's Pyramid complement each other. Bloom's Taxonomy assists practitioners in designing learning outcomes and selecting instructional methods, while Miller's Pyramid provides a framework for assessing whether learners can transfer knowledge into competent workplace performance. Together, they create constructive alignment between learning objectives, teaching activities, and assessment strategies. For example, learners may first analyse production problems using Bloom's higher cognitive levels before demonstrating practical problem-solving through Miller's "Shows How" and "Does" stages during workplace learning.

This will encourage practitioners to map both taxonomies to CUs and micro-credentials. Each CU could specify the expected Bloom's cognitive level for each learning outcome and identify the corresponding Miller assessment level. This approach ensures that assessment accurately reflects the intended competence and supports transparency for learners, educators, employers, and qualification authorities. It also facilitates modular learning, stackable micro-credentials, and Recognition of Prior Learning (RPL) by providing clear evidence of demonstrated competence. Case studies from vocational sectors could be used to illustrate how practitioners design learning pathways that move learners from theoretical understanding to confident workplace performance. This could include examples of authentic assessment tasks aligned with Miller's Pyramid, lesson planning templates, assessment rubrics, observation forms, self-evaluation questionaries, etc.

In conclusion, Bloom's Taxonomy and Miller's Pyramid provide complementary frameworks that strengthen competence-based vocational education. Bloom's Taxonomy supports the systematic development of cognitive skills, while Miller's Pyramid ensures that these skills are translated into competent occupational practice. Incorporating both frameworks into VET is enabling educators to design coherent learning experiences, develop meaningful assessments, and monitor learner progression. It will, in addition, ensure that vocational graduates possess not only knowledge but also the practical competence, professional judgement and workplace readiness required by modern manufacturing and fabrication industries.

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