



**oMERO Project**  
**an eu curriculum for visual disabilities Rehabilitation**

**Designers' KIT**  
**ASSESSMENT GUIDE – Final Release**

**This document is part of oMERO Project's Intellectual Output 3**



Co-funded by the  
Erasmus+ Programme  
of the European Union

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# 1 Premises: HE students' assessment, ECVET and ECTS

Students' assessment in Higher Education (HE) is a fundamental issue to assure certification, recognition, transparency, but also students' motivation and involvement. As a matter of fact, assessment helps students learn and motivates them.

Aside to the formal “summative” assessment ensuring information for the formal certification, “formative” assessment allows to monitor student learning, provide ongoing feedback, improve teaching and learning; it also helps students identify their strengths and weaknesses and target areas that need work and help faculty recognize where students are struggling and address problems immediately.

In the framework of ECTS (European Credit transfer System<sup>1</sup>), credits can only be obtained after successful completion of the work required and appropriate assessment of the learning outcomes achieved. As defined by ECVET<sup>2</sup>, learning outcomes are sets of competencies, expressing what the student will know, understand or be able to do after completion of a process of learning, long or short. In order to be able to recognize and validate competences in the framework of ECTS, in compliance with the main EU VET standards such as ECVET, HE students' assessment should be “learning-outcome oriented”. This means that teachings, courses and programmes should be designed by identifying clear learning outcomes and that teachers should be able to assess if a student has achieved EACH LEARNING OUTCOME (LO) of a programme.

In complex curricula, assessing students' achievement of each LO, could require a very big effort. To this end, LOs are often grouped into units or modules and assessments tools are designed in order to assess such specific set of LOs.

In this short guide we will focus on the choice of the proper assessment methods for assessing such set of LOs, by:

- analysing the impact of the way LOs are formulated on such a choice (Section 2)
- introducing some hints related to the assessment of the Learning Outcomes included in the VDR Curriculum (Section 3)
- introducing a possible set of assessment methods which can be used in courses implementing the VDR Curriculum (Section 4).

## 2 Learning Outcomes formulation and assessment design

Basically, learning outcomes should be understandable, verifiable and assessable, in order to enable learners and teachers to judge whether the results have actually been achieved .

Generally LOs should [Alvino & Mazzarino, 2018] :

- be described from the perspective of the learner; LOs do not describe the learning target or the learning path, but the result following the completion of a learning process.
- be based on Active Verbs, which should describe measurable or observable actions;

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<sup>1</sup> <https://education.ec.europa.eu/education-levels/higher-education/higher-education-initiatives/inclusive-and-connected-higher-education/european-credit-transfer-and-accumulation-system>

<sup>2</sup> <https://www.cedefop.europa.eu/en/projects/european-credit-system-vocational-education-and-training-ecvet>

- be specific and contextualized; it is essential to provide an indication as to what the knowledge and skills of the graduates refer to, and as to what kind of performance is concerned;
- be described briefly and precisely and should be externally verifiable; the formulations must be chosen in a way that allows the evaluation process to determine if the learner has achieved the learning outcomes;
- be realistic to be achieved within the time and the resources available.
- specify the mastery level: formulations, particularly verbs, adjectives and context descriptions, should reflect the level of the specific learning outcomes.

So, the way LOs are formulated (what operational verb has been chosen, what vocabulary has been used to describe what is to be mastered by the learner) have a great impact on the **definition of ASSESSMENT CRITERIA AND METHODS** that will be used to check whether or not particular LOs have been achieved.

The definition of assessment criteria is often put off to the last phases of the design process. Actually, after defining the learning outcomes and strategies of your course, you already have the main information necessary to define a consistent set of assessment criteria. Actually, once defined LOs **by using “active verbs”**, that helps us to identify **what the learner should actually do to show he/she masters the competence**. The Learning Outcome should also state **the expected level of the competence** as well as **the level of responsibility and autonomy of the learner**.

To define the assessment CRITERIA this information should be integrated with the **definition of the ASSESSEMENT CONDITIONS**

Sometimes a **description of the professional situation** could be very useful, as well as the reference to the Key Activities analyzed at the beginning of the design process. **Additional conditions (requirements)** can be also defined; for instance, to emulate real-life professional working conditions, a limited amount of time can be assigned daily for each activity, so that the person under assessment operates in similar stress conditions; the equipment available must be clearly defined, as well as specific products and technical support in accordance to the professional situation under evaluation.

Figure 1 outlines the detailed description of a LO drawn from the VDR Curriculum. Such a description is compliant with the list of requisites described at the beginning of this section. Active verbs describe in detail what a student is supposed to know and to do once achieved the learning outcome. They clearly provide an important input to identify the proper methods, to check the declared knowledge and to allow the students to show his/her skills. In addition, the choice of some verbs such as “masters” or “describe and outline” mirrors the intended level of the competence.

Assessment criteria should be transparent to students and formalized in the proper design documents.

LO4-D-1 Implement in different settings the main conducting techniques for VIPs and teach them to VIPs' relatives and carers	
<p><b>KNOWLEDGE</b> He/she is able to:</p> <ul style="list-style-type: none"> <li>Describe body, spatial and environmental concepts useful in guiding techniques.</li> <li>Describe the skills required for orientation and mental representation.</li> <li>Outline and describe all the methods, techniques and procedures related to all environmental and social situations encountered.</li> <li>Know how to evaluate the proper place of the VIP and the guide in social interactions and other activities (e.g. administrative, shopping).</li> <li>Describe protection and positioning techniques for unassisted movement, locating objects, and/or becoming familiar with a new place.</li> <li>Describe the techniques for retrieving fallen objects.</li> </ul>	<p><b>SKILLS</b> He/she is able to:</p> <ul style="list-style-type: none"> <li>Master the main techniques and codes of indoor movement: basic, narrow passage, reverse direction, change of side, passage of doors, up and down stairs, elevator, escalator, seats (chairs), transfer techniques (care environment and elderly)</li> <li>Master all the techniques and codes of outdoor movement: getting out of a vehicle, public transportation, urban environment, street crossings, public establishments, stores and supermarkets.</li> <li>Support and develop the VIP's sensory skills, including available functional visual skills.</li> <li>Explain and assist the VIP in gathering environmental information by interpreting the movements and codes issued by the guide.</li> <li>Train VIP strategies to manage stressful situations (noise, crowds, obstructions, elevation changes).</li> </ul>
<p><b>PERSONAL AND TRANSVERSAL COMPETENCES</b> He/she is able to:</p> <ul style="list-style-type: none"> <li>Know how to invest dynamically and constructively in the simulations and make them a major training lever</li> <li>Be rigorous in the explanation and transmission of instructions and techniques</li> </ul>	

Figure 1: The description of a LO drawn from VDR Curriculum

Once defined the criteria, then the design of the assessment should go deeper **defining specific method** (such as tests) **or activities** (such as problem-solving activities, demonstrations, etc.)

Like when identifying the proper learning strategies, there's no magic formula to solve design problems and there's no effective assessment method for every context, target user and learning outcome. Anyway, some hints which could be useful to this end.

First of all, the more complex the cognitive tasks are the more active, situated and contextualized should be the activities performed to learn them, as well as the assessment methods testing the mastery of the competence.

Then, in VDR Curriculum competencies have been defined through 3 main dimensions: knowledge, skills and transversal/social/personal competences; each dimension can characterize the whole competence in different percentages, so sometimes a dimension can be prevalent or not present;

- when "knowledge" (theoretical and factual) dimension is prevalent, "traditional" assessment methods, such as oral or written exams can be affectively adopted, saving time and teachers' effort;
- when "skills" dimension is prevalent, active practice is fundamental and learners should be involved in activities which foster them to put in practice the addressed skill; learning strategies such as learning-by-doing, work based learning, problem-based learning, simulations, drill & practice should be implemented to address the skills and the assessment methods selected to test the achievement of LOs should foster such "active and contextualized enactment" of the skill, as well
- when the "transversal/social/personal" dimension is prevalent, learners should be actively involved in situated and contextualized activities, possibly in group, through collaborative or cooperative tasks, which could support the enactment of the complex professional skill that have to be assessed.

When a competence (and the related LO) is articulated in many dimensions, different assessment methods can be integrated in order to investigate the different components of the competence. Especially, when practical skills and social/transversal ones are investigated, the observation of a

student in a practical activity, a simulation or in a Work Based learning (WBL) context is fundamental to an effective assessment.

A comprehensive list of possible assessment methods is provided in Section 4.

### 3 oMERO tools supporting the design of students' assessment

As described in Section 2, the VDR Curriculum itself, thanks to the detailed description of Learning Outcomes plays an important role in the guidance of students' assessment.

Each LO description provides much information about the actual actions and behaviours a student is expected to enact when he/she has achieved a LO.

In the framework of oMERO project, specific tools have been provided to designers in order to support students' assessment design.

In particular, Intellectual Output 2 (VDR Curriculum) includes the so-called **MACRO-DESIGN TABLE (DK4)**, which is aimed to provide useful information about the possible instantiation of the Curriculum. In particular, it details for each LO the suggested educational strategies, the level of study (EQF level) and the suggested assessment method. Suggestions included are “hints” and include all the possible situations which could occur in the curriculum implementation.

Assessment methods have been grouped into 5 categories:

- *Written exam/assignments* [WE]: this method is based on the use of traditional tools such as written tests or essays;
- *Oral exam* [OE]: this traditional method is based on a discussion or dissertation in which an examiner poses questions to the student in spoken form;
- *Assessment of WBL* [A-WBL]: it includes each procedure and tool which is used to assess the student when involved in WBL; the assessment can be done by the teacher, by the tutor of the WBL or by the student himself (self-assessment);
- *Simulation/skill demonstration* [SSK]: it includes a number of strategies and tools supporting the demonstration of a specific skill in a situated context, e.g. REALTER;
- *Assessment based on other data* [OTH]: this category includes all the methods which do not fall under the previous categories, such as the ones related to the use of ICTs (e.g. collection of tracking data and learning analytics) or innovative tools such as e-portfolios or specific functionalities of Virtual Environments.

This info will support the selection and adoption of the proper assessment methods for each Learning Outcome (see Figure 2).

While the macro-design table provides hints about which methods can be applied to assess each LO, another sheet, included in the **Flexibility Tool (DK6)**, named **ASSESSMENT SCAFFOLDING**, allows designers to formalize which assessment methods will be actually implemented in a specific course. The Flexibility Tool is actually the design tool which support the formalization/description of a localized VDR curriculum, including the list of selected LOs, the identified modules, the ECTS associated to each LO and the assessment methods selected for each LO, too. This last information is specified by the designer in the Assessment Scaffolding sheet: taking as a reference the possibilities listed in the Macro-Design table, each designer is expected to point out here the actual types of methods implemented in the specific course (see Figure 3). The sheet automatically counts the percentage distribution of methods within the same module.

UoL 6: To foster inclusion in formal education for visually impaired children (VIC)										
LO Code	LO Name	Mandatory / Optional M/O	EQF Level	Relevance (essential, important, basic)	Suggested Educational Strategies					Suggested Assessment Methods (WE, OE, A-WBL, SSK, OTH)
					Lecture (f2f or online)	Individual study (f2f or online)	Group work (f2f or online)	Lab (f2f or online)	Work Based Learning (only f2f)	
LO6-A-1	Define, monitor and assess educational needs within the MDT, considering settings and tools according to level and type of visual impairment and personal circumstances	M	7	essential	F2f or online	F2f or online	F2f or online		f2f	WE, OE, SSK
LO6-B-1	Analyse personal and environmental factors (including environmental alterations and safety solutions) that enhance participation and learning opportunities and advise teachers and principals	M	7	essential	F2f or online	F2f or online	F2f or online			WE, OE
LO6-C-D-E-1	Assist teachers in the learning process, support the management of tools, activities and environment and implement specialized learning activities and educational materials for VIC, collaborating with teachers	M	7	essential	F2f or online	F2f or online	F2f or online		f2f	WE, OE, SSK, A-WBL

Figure 2: A screenshot from the MACRO-DESIGN TABLE (IO2)

ASSESSMENT SCAFFOLDING						
M1	MODULE 1: User needs assessment	ASSESSMENT METHODS				
		WE 33,33%	OE 33,33%	A-WBL 16,67%	SSK 16,67%	OTH 0,00%
LO1-A-1	Interpret referral information according to the anatomy and physiology of the eye, visual function and	x	x			
LO1-C-D-E-1	Draft a first anamnesis and case history based on personal/familiar interviews			x	x	
LO1-E-G-1	Develop an individualised global support program based on the biopsychosocial approach within the	x	x			

Figure 3: A screenshot from the Assessment Scaffolding sheet in the Flexibility Tool

Once formalized in the Flexibility Tool the types of methods which will be implemented in the course, the designer is expected to detail the specific method(s) and the assessment criteria in the detailed description of each TEACHING which will be included in the **COURSE SYLLABUS**.

The Course Syllabus is a textual document supporting the formalization (and thus the sharing) of the main design choices concerning the definition of Modules and Teachings of a Course implementing a Localized Curriculum for VDR. The term “Teaching” is conventionally adopted to identify a specific part of a Module, addressing one or more Learning Outcomes, referring to a specific discipline sector or branch of knowledge and associated to Reference Teacher. A Teaching is also characterized by specific contents, methods and educational materials; assessment methods and tools can also complete a description of a teaching.

The template for the **Course Syllabus** has been defined in detail in Intellectual Output 6.

As described in the Introduction, in order to be able to recognize and validate competences in the framework of the ECVET EU standard, TEACHERS should be able to assess if a student has achieved EACH LEARNING OUTCOME of the instantiated curriculum. In order to support the collection, the monitoring and the proper use of such important data, oMERO project, based on the

experience of NECTAR SSA<sup>3</sup>, has delivered another important tool named ASSESSMENT MATRIX, whose main characteristics are described in the following section 3.1.

### 3.1 The Assessment Matrix

In complex curricula such as the one for VDR, assessing students “LO by LO” could require a very big effort and this task may not be in line with the needs and rules of the VET provider.

To support and lighten this complex task, oMERO project identified **3 main ASSESSMENT APPROACHES**. Each approach corresponds to “*a way to manage the assessment of LOs in the assessment tools*” (e.g. *an automatic test, a written essay, a simulation, etc.*). TEACHERS can define a **different approach for each assessment tool**, from the simplest (approach 1) to the most complex (approach 3).

Possible Assessment Approaches are:

- **ASSESSMENT APPROACH 1:** the teacher reports if the WHOLE EXAM/TEST has been PASSED or FAILED. If the exam has been PASSED, each LO assessed through that exam/test is considered as PASSED.
- **ASSESSMENT APPROACH 2:** the teacher reports if EACH LEARNING OUTCOME assessed by the tool has been PASSED or FAILED.
- **ASSESSMENT APPROACH 3:** the teacher reports if EACH LEARNING OUTCOME assessed by the tool has been PASSED or FAILED. In the event that a LO has been PASSED, the teacher also has to detail the specific mastery level (e.g. satisfactory, good, excellent).

In order to support TEACHERS in the formalization of these choices and in the monitoring of students’ assessment, a specific tool, i.e. an Excel file named “**ASSESSMENT MATRIX**”, is provided by the oMERO PROJECT. The Excel file is a template which should be filled in by the course coordinators in collaboration with teachers. It allows to keep track of the Learning Outcomes achieved by each student.

#### SHEET 1 – ASSESSMENT APPROACH

This sheet should list all the assessment tools adopted in the course (first column in Figure 4). For each tool the corresponding assessment method must be specified (column 2) as well as the selected assessment approach (column 3)

#### SHEET 2 – STUDENTS LIST

This sheet is a “placeholder” for the list of course students, which will support the assessment monitoring. Then, based on the template created in SHEET 3 – S1, teachers will have to create a **sheet for each student**.

#### SHEET 3 – S1

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<sup>3</sup> NECTAR project - aN Eu Curriculum for Chef gasTro-engineering in primAry food care - <http://www.nectar-project.eu/> Sector Skills Alliance - 621707-EPP-1-2020-1-BE-EPPKA2-SSA



This sheet is a template that teachers have to customize based on the tools they decide to adopt. Once they have customized the template, they have to create as many sheets as the number of students attending the course.

<b>COURSE NAME:</b>		
<b>COORDINATOR:</b>		
<b>please complete the table: note that green columns have a drop-down menu with fixed values</b>		
blu texts are examples		
ASSESSMENT APPROACH		
ASSESSMENT TOOL name	ASSESSMENT METHOD	Assessment Approach (1/2/3)
Written test - Module 1	WE	1
Oral exam - Module 1	OE	1
Written test - Module 2	WE	1
Oral exam - Module 2	OE	1
Written test - Module 3	WE	1
Oral exam - Module 3	OE	1
Written test - Module 4	WE	1
Oral exam - Module 4	OE	1
Written test - Module 5	WE	1
Oral exam - Module 5	OE	1
WBL assessment	A-WBL	2

Figure 4: A screenshot from Assessment Matrix – Sheet 1 – Assessment Approach

## 4 Assessment methods

**Assessment methods** are the means to evaluate the knowledge, understanding and performance of a learner at the end of a learning process. One or more methods can be used to assess the achievement of a single LO in a curriculum. Combining several different methods ensure more comprehensive evaluation of gained competence.

The choice of assessment methods follows three basic rules:

1. Assessment methods need to be aligned to the LO by taking into account the verb in the learning outcome statement. For example, the verb “explain” indicates the need to construct rather than select the answer (see Section2)
2. Assessment methods must be appropriate to the purpose of the curriculum and the LO at curriculum level. This is important if the LO is designed to develop general competences, for example critical thinking, problem solving, cooperation, etc.
3. Assessment methods must be linked to educational strategy used to master the curriculum.

When designing assessment tools, it is important that the tasks are based on the content of the LO and that the tool is designed according to the requirements of the instrument (e.g. test development requirements).

A transparent, reliable and fair process of LO assessment motivates students to learn and develop. There's no single and universal and closed catalogue for LO assessment methods. In the following sections is presented a list of the most frequently used methods for each category identified in oMERO tools.

### 4.1 Written exam/assignments [WE]

#### 4.1.1 Multiple-choice question test (MCQ)

MCQ test is a reliable method for effectively assessing a wide range of curriculum content.

This type of test is less susceptible to guessing and easier to score. The questions can be written to evaluate various levels of learning outcome, from basic recall to application and analysis.

A multiple-choice item is composed of the problem called ‘stem’ and a list of suggested solutions, known as alternatives. Alternatives are formed of one correct answer, which is the key, and incorrect options, called distractors. The stem can be formed as a question, short scenario or a case study and expressed as simple as possible. The preferable form is a question. The stem should present a definite problem, without containing irrelevant material which can decrease the reliability and the validity of the test scores. It is better to avoid negative form in the stem because negative phrasing could be a source of misunderstanding unless significant learning outcomes require negative phrasing. In this case the negative form in the stem should be highlighted. Alternatives should be plausible, stated clearly and narrowly, mutually exclusive, homogenous in content and presented in a logical order (e.g., alphabetical or numerical). The alternatives should not contain any clues to the correct answer. The options “all of the above” and “none of the above” should not be used. The number of alternatives can vary among items as long as all alternatives are plausible. Language must be similar in all items, and the placement of the correct answer must vary. Only one best answer should be in the alternatives. Easy and non-functioning distractors should be avoided.

Before using created MCQ test for assessment, it should be reviewed by someone who can find mistakes, clues, grammar and punctuation problems.

### 4.1.2 Essay

Essays are a reliable method to measure higher-order learning such as abilities to reason, create, analyze, synthesize and evaluate. Essay questions require more systematic and deeper thinking, including problem-solving and decision-making rather than selecting a solution from limited options. On the other hand, the biggest disadvantage of the essay is that it is difficult to assess objectively, which is time-consuming. As a result, essay tests require careful preparation and scoring.

Essay questions can be divided into restricted or extended response essays.

The restricted response essays usually cover a limited part of content of the curriculum. These questions can be designed as problem solving exercises, case studies or scenario-based activities involving clinical data and situations.

Extended response essays assess complex learning outcomes that allow the demonstration of reasoning and thinking skills, creativity, integration and evaluation of ideas, construction of arguments, etc. This type of essay usually has 5 subsections:

- an introduction,
- the body of essay,
- a conclusion,
- a list of references,
- appendices.

Reports can be used as extended response essays which provide information about a result of research and analysis of data. The structure of reports reflects the information seeking process and has 6 subsections: summary of the contents, introduction or background, methods, results, discussion and conclusion and/or recommendations. The formulation of essay questions, especially those using case studies, is time-consuming.

The essay questions should clearly state the involved learning outcome, define the task and not to allow for various or broad interpretations. The task can be written as a statement or a question. Several relatively short questions are better than one long question. It is advisable to indicate a time limit for answering the question. A limited essay question requires 10 to 15 minutes to answer. A broader question that requires more than a page or two to answer should be given half an hour to an hour.

The essay exams can be assessed using a holistic or analytic approach. In the holistic approach, all answers to a given essay question are first reviewed and then a score is given based on the overall quality of the answer. The responses can be grouped into best, average and poor answers before a score is assigned. A holistic approach helps to avoid predisposition in scoring. Reading all the answers of one person at the same time may lead to a positive bias in the assessment if the first answers are very good or a negative bias if the first answers are poor. A holistic approach is recommended for questions with a variety of acceptable answers. The analytical approach starts by drawing up a list of key elements that should be included in the answer. The essay question is scored according to the number of response items that fit the response model. Regardless of the approach used, comments should be included to promote learning.

### 4.1.3 The identification of the proper written exam

The verbs in the learning outcome can provide direction to determine what type of written exam should be used. The verbs that best describe the skill or skills the teacher intends to assess are sometimes called directive verbs. In Figure 5 appropriate testing methods are associated with Bloom's taxonomy. The verbs under each domain show the kind of activities that a test might assess. These verbs can be used when constructing essay questions. For simple material, the MSQ test is recommended, as essay questions require more time to think, organize and compose an answer, as well as to evaluate the answer. A comparison of the two written test methods is given in Table 1. In

addition, some complex learning outcomes can be more effectively assessed with other types of assessment, for example performance assessment, simulation, etc. In most situations written exam is a solitary activity and typically does not assess teamwork skills.

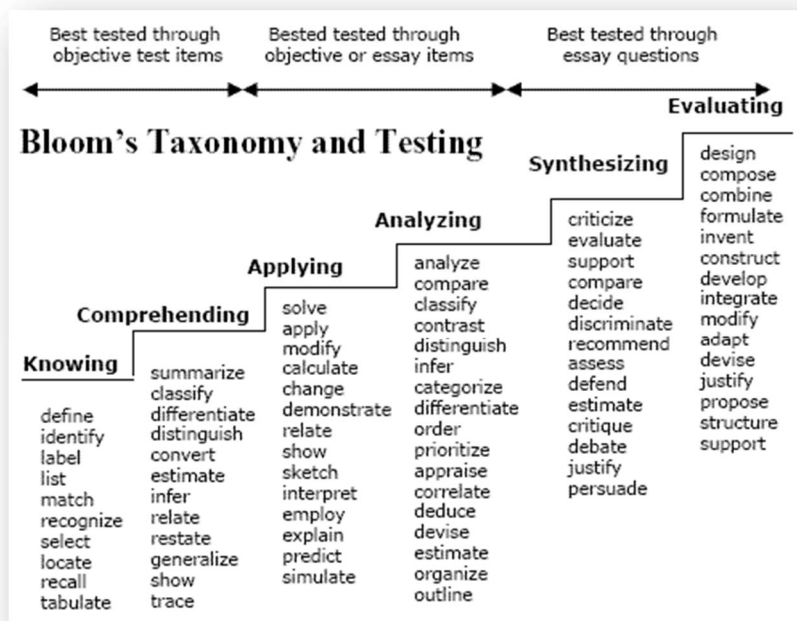


Figure 5. Bloom's taxonomy and associated appropriate testing methods.

	MSQ test	Essay
<b>Reliability</b>	Reliable	Reliable
<b>Bloom's taxonomy</b>	Recall Understand Application Analysis Evaluation	
<b>Range of curriculum tested</b>	Wide	Limited
<b>Scoring</b>	Easy, time efficient	Difficult to objectively score, time-consuming
<b>Limitations</b>	The need to create not only questions but also the alternatives in the answer; still possible guessing	Construction of questions can be time consuming; no single definitive answer can be applied to all essay responses

Table 1. The advantages and disadvantages of MSQ test and essay.

## 4.2 Oral exam [OE]

### 4.2.1 Identifying effective exam questions

The acquisition of a qualification and the assessment of its acquisition is a particularly important factor increasing human competition in the labor market and in a changing world of work. For this

reason, much attention is paid to the organization of the assessment of competencies acquired by a person, the design and quality of their tasks.

This methodological process requires clinical tutors to plan the training: the training focuses that the student understands the importance of a real case discussion, related to an emotionally involved person, is able to identify the elements of a care plan (problems to be identified, goals to be achieved, interventions to be implemented, assessments to be carried out), and is able to apply them to a patient. It is important for the student to gain a significant training experience already at the construction phase of the text as it requires the ability to:

- Focus on a typical healthcare problem related to the students' educational goals;
- Design a case including a description and additional data;
- Contextualize the problems included in the case, directing them to the students' educational goals.

#### *Why is it important?*

1. To create valuable assessment methods to document learning.
2. To motivate students and reveal educator expectations.
3. To identify areas of improvement.
4. To provide feedback to educators regarding understanding and areas of confusion.

#### *How to do it?*

Identifying effective exam questions includes:

1. Identifying what to assess.
2. Selecting the appropriate type of question to evaluate the concept.
3. Creating a clear question.
4. Avoid confusing jargon, leading adjectives, ineffective distractors.
5. Create questions that have longevity and can be easily modified then used again.
6. Provide enough information to set the scene, not too much to be confusing.
7. Editing the final product.

#### *What to assess?*

1. Ideally, the exam questions should focus on learning outcomes or objectives.
2. Clearly identify what you expect students to recall (knowledge), understand (comprehend), apply, analyze, synthesize and evaluate.
3. Assign points to reflect the importance of the material in the context of the entire course.
4. Create The Question Stem. Create the stem to capture the definite problem efficiently while decreasing the opportunity for misinterpretation.

### **4.2.2 Examples of oral exam forms**

#### PROTOCOL

- ✓ The protocol must include all essential information, needed by the students for specific objectives (detailed above).
- ✓ Cases need to be standardized to the extent possible (i.e. same length, same format - page one introduces patient, page two introduces medications and medical/social history, page three reveals diagnosis).
- ✓ The case protocol needs to be realistic.

- ✓ The student, in the presence of the teacher, reads through the case and present an oral review and analysis of the case including hypothesis generation, acquisition and interpretation of the clinical evidence presented in the case, initial exploration of underlying mechanisms.

#### RESEARCH

- ✓ The student explores existing knowledge (on academic material) and goes in deep in the case.
- ✓ The student spends time in independently searching out relevant information and in further problem analysis.
- ✓ Enables an assessment of the degree to which the student be efficient and effective as a self-directed learner.

#### SYNTHESIS:

- ✓ Describes the information search;
- ✓ Explains how research priorities were set;
- ✓ Presents a final analysis of the problem;
- ✓ Identifies the resources used;
- ✓ Relates new knowledge obtained.

### 4.3 Simulation/skills demonstration [SSK]

It is important to include the tasks to assess the theoretical part of a person's acquired competencies when planning tasks that will be related to subsequent learning, skills and values. In the theoretical part of the assessment, the following tasks should be: tasks that provide objective evidence of the learners' ability to apply the knowledge and concepts, and tasks that, at the theoretical (simulation) level, highlight the acquired skills.

When designing tasks for the assessment of the theoretical part of acquired competencies it is proposed to provide simulation situations to determine whether the activity can be continued or corrective action is required. For example: in situation x, what would you do: go on activities? (possible options), I would change the activity (possible options are presented).

The practical exam assesses whether a person has acquired skills that can be demonstrated in a real or simulated work environment. It should be noted that the same methodological principles apply to the planning of the skills assessment as to the theoretical part of the assessment, except that the skills assessment requires a real, practical task, not just a mental one. For this reason, the practical part of the assessment tasks requires more than just a theoretical one evaluation, identification, calculation, but also performance. The person should also provide an evaluation of their work and explain and justify the decisions they made (why did you do the task one way or another, what would you do differently, etc.). Working groups are important in the preparation of tasks for the members of the assessment of acquired competencies, so that they have a common understanding of what needs to be evaluated (what is the object of evaluation?) and what are the components of the object of assessment. The ultimate goal of the curriculum is the award of a qualification.

#### 4.3.1 Tasks of the practical part of the competence assessment

The tasks for assessing the practical part of a person's acquired competences are formulated on the basis of professional standards, vocational training standards and curricula, learning outcomes, learning objectives and assessment of competencies. The assessment of practical skills has a specific context, consisting of the individual's expression of interactions and combinations of the various knowledge and skills acquired in a specific occupational activity in response to the effects of

the occupational environment. The practical part of the assessment task includes assessing the achievement of all learning outcomes of the competence being tested. The assessment of the theoretical part of the competences acquired by the individual partly determines the attainment of the competences specified in the professional standard or curriculum but focuses more on knowledge of the general principles of practice. When designing tasks to assess the practical part of a person's acquired competences, including individual occupational operations, the chosen tasks must cover interrelated occupational operations or stages of performance, and different combinations of specific and general abilities.

Practical skills can be properly assessed only for the performance of a specific professional activity in an authentic environment (work on the spot). The quality of the assessment of practical skills therefore depends on the context and authenticity of the professional activity. The context of the activity is not only technological and technical environment (materials, equipment, devices and tools used) but also professional organizational and social environment of the activity (functions assigned to the workplace in the general production scheme, the channels of presentation of material and information resources to the workplace, the transfer of the work result to another workplace, the authentic professional communication and collaboration within and between workplaces, and the workplace's informational environment in terms of the standards, rules and requirements for the performance of the various activities, etc). The more these elements are present in the assessment process, the more accurately the results of the practical skills assessment will indicate whether the practical skills acquired meet the requirements of the professional activity.

#### Analysis of the competency assessment tasks in the practical part

The following criteria have been selected for the analysis of the assessment tasks in the practical part of the assessment of the competencies acquired by a person:

- Correspondence of tasks to competencies and learning outcomes. The content of the tasks and the objectives of the assessment of the knowledge and skills acquired in the tasks are analysed for their relevance to the competences and learning outcomes set out in the vocational training programme. The main sources of analysis are the tasks, vocational training programs and professional standards.
- The tasks analysed for the assessment of practical competences are either focused on narrow or broad areas of activity, or cover one narrow area and part of it, or integrate subjects from several occupational areas. The basic analysis sources are the tasks, vocational training programs and professional standards.
- Assessment of various competencies by tasks. The aim is to determine which competences can be assessed in the tasks analysed, whether just a few narrow competences or a number of different competences.
- Existence of performance criteria. The analysis shall examine whether the criteria for assessing competences are included in the wording of the tasks and whether these criteria are sufficiently clear, objective and valid, reflecting the requirements of the competences content of the specific professional activity.
- Optimal duration of the tasks and assessment of the practical part. Compare the duration of different types of tasks and their justification.
- Diversity of task content. Assessment of the formulation of the tasks in terms of their specificity, accuracy and integrity.
- Taking into account the individual capabilities. Analyses whether the tasks allow for choices to be made about how to complete them, taking into account the individual abilities of those being assessed.

The assessment of practical skills focuses on performance assessment, with the main assessment opportunity being to determine whether the person being assessed has acquired certain defined

competences. The acquisition of these competences is determined by assessing the outcome, quality and presentation of the student's work.

In assessing the performance of a practical activity, it is important to determine not only the quality of the functional competences required for that activity, but also the compatibility of these competences with the organisational and communication aspects of the activity.

#### **4.4 Assessment of WBL [A-WBL]**

A variety of methods can be used to assess work-based learning achievements, depending on the specific learning outcomes and whether the focus is on the content, the learning process or both. Most often, the competences/skills of learners are assessed by workplace mentors and their ability to link theory and practice by institutional teachers. Assessment methods of WBL:

##### **4.4.1 Mini-clinical evaluation exercise [mCEX]**

**Mini-clinical evaluation exercise** is an observational tool that assesses the trainee's clinical performance, interaction with a real patient, ability to collect a focused medical history, perform a physical examination, make a diagnosis and propose a treatment plan. This tool takes approximately 15 minutes. A structured evaluation form is used to assess the performance. Constructive feedback must be given to the trainee in order to improve the performance. Usually, four to eight mCEX sessions are needed to obtain a reliable image of the trainee's clinical competence. The assessment should be performed by different assessors using the mini-CEX tool.

##### **4.4.2 Direct observation of procedural skills [DOPS]**

**Direct observation of procedural skills [DOPS]** is an adaptation of the mCEX to assess procedural skills related to a real patient. The assessment is based on a common rating scale.

##### **4.4.3 Case based discussion [CbD]**

**Case based discussion [CbD]** is designed to assess the trainee's knowledge, diagnostic reasoning, rationale for choosing certain actions and understanding of differential diagnosis. Usually, the trainee chooses several cases and the assessor picks one to discuss. The trainee first describes the case and the assessor prepares questions for discussion. The discussion focuses on the case, identifying the trainee's clinical reasoning and management skills. Medical records should be available during the discussion. The assessor examines the trainee's professional judgement and provides constructive feedback.

##### **4.4.4 Multisource feedback [MSF]**

**Multisource feedback [MSF]** tools represent a way of systematically collecting and gathering the perspectives of colleagues and patients, so that they can be used both to evaluate performance and to provide feedback to trainees at the same time. The test can objectively assess competences such as communication skills, interpersonal skills, collegiality and professional competence.

The most commonly used MSF tool is the **mini-Peer Assessment Technique** (mini-PAT). Usually, the trainee chooses eight assessors representing a mix of senior supervisors, trainee's colleagues, nursing colleagues, clinic staff and etc. Each assessor completes a mini-PAT questionnaire. The trainee also performs a self-assessment using the mini-PAT questionnaire. The combined data from the questionnaire is presented in a way that the trainee can see his/her own evaluation and compare it with that of peer assessors.



**Team assessment of behavior [TAB]** is used as a formative and summative tool to improve performance. This assessment tool requires a minimum of 10 responses to make a valid and reliable assessment.

**Patient satisfaction questionnaire [PSQ]** is a structured questionnaire designed to obtain patients' feedback on the trainee's performance.

#### 4.4.5 Learning journal/learning log

**Learning journal/learning log** is a useful tool for monitoring and evaluating progress towards learning outcomes. It allows both formative and summative self-assessment.

### 4.5 Assessment based on other data [OTH]

This category includes all the methods which do not fall under the previous categories, such as the ones related to the use of ICTs (e.g. collection of tracking data and learning analytics) or innovative tools such as e-portfolios or specific functionalities of Virtual Environments.

If the course has an e-learning component, students' assessment can rely on **learning analytics**, i.e. data collected by the e-learning platform about learners and their activities; such data can be collected, analysed and reported by student (student history), by groups of students, by activity/resource, by assessment method, etc. The collection of these data is fundamental above all for course monitoring and formative assessment

An **e-portfolio** is a collection of digital course-related artefacts, collected and managed by the learner in different forms (essays, posters, photographs, videos)<sup>4</sup>; e-Portfolios can also capture other aspects of the learner's life, such as volunteer experiences, employment history, extracurricular activities, and more. It can also be a source of reflection for the learner about the learning process and include also data about the learners' participation in collaborative activities carried out through chat, forums, etc.

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<sup>4</sup> See "Assessment User Guide" Guide included in ENhANCE Project Designers' Kit. <https://oot.enhance-fcn.eu/mod/page/view.php?id=1906>

## 5 References

### 5.1 Main references

Contents in Section 2 have been adapted from:

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Contents in Section 3 have been adapted from:

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Contents in Section 4 have been adapted from:

“Assessment User Guide” Guide included in ENhANCE Project Designers’ Kit. <https://oot.enhance-fcn.eu/mod/page/view.php?id=1906>

### 5.2 Other references

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