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Guidelines for designers supporting the localization of the curriculum

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Table of Contents

List of abbreviations

CC	Core Competence
ECTS	European Credit Transfer and Accumulation System
ECVET	European credit system for vocational education and training
EQAVET	European Quality Assurance in Vocational Education and Training
EQF	European Qualification Framework
ESCO	European Skills/Competences, qualifications and Occupations
EU	European Union
HE	Higher Education
IRP	Individualized Rehabilitation Programme
ISCO	International Standard Classification of Occupations
KA	Key Activity
LO	Learning Outcome
M	Month
MDT	Multidisciplinary Team
PP	Professional Profile
UoL	Unit of Learning
VDR	Visual Disability Rehabilitator
VET	Vocational Education and Training
VIC	Visually Impaired Child
VIP	Visually Impaired Person
WHO	World Health Organization

1 Executive summary

This document reports about the activities carried on in WP3 in order to deliver Intellectual Output 3 and then introduces as Annexes the main results of these activities, composing the Designers' Kit.

The Designers' Kit is a set of guidelines and tools aimed to support any HE designer to localize the EU general VDR Curriculum into his/her own context.

In particular:

An **Introduction** (Section 2) makes the point on the activities developed till now in WP3 and outlines the main connections of WP3/IO3 activities with the other WPs, mainly WP6/IO6

Then the **Methodology** section (Section 3) describes the types and aims of the guides and tools developed in IO3 and how the work has been organized and shared among partners.

Finally, the **Description of Designers' Kit** is presented in Section 4. It outlines the whole list of guides and tools included in the Designers' Kit.

Annexes from 1 to 7 include the main guides and tools composing the kit.

2 Introduction

The EU CURRICULUM FOR VDRs delivered as Intellectual Output 2 is the main result of the project and is supposed to play a reference role at EU level for any HEI which would like to customize it. In order to be compliant with the rules and the different contexts characterizing HE at EU level, the VDR Curriculum is general and “across-the-board”, on the one hand, and modular and flexible, on the other hand.

The contextualization/instantiation process carried out by HEI’s course designers will be fundamental for the effectiveness of the curriculum itself. So, designers would need to be supported in this thorny task by specific guidelines accompanying the curriculum for its proper use.

Thus, a set of tools and guides will be produced as Intellectual Output 3 (IO3) in order to complete and integrate the general curriculum with a concrete support for designers about how to “effectively localize” the curriculum.

This document includes a FIRST RELEASE of such Guidelines (IO3) that will be used to design future HE courses for VDR, which will be implemented by OMERO partners at the end of the project. The Guidelines delivered as the first release of IO3 have the aim to support the proper instantiation of the Curriculum with respect to the EQF level, the number of ECTS awarded for the achievement of each LO, the creation of modules and the identification of the proper teaching/learning strategies. As a matter of fact, in the framework of IO6/WP6, IO3 will assure an effective instantiation of the “general Curriculum” in a “localized curriculum”, which will be an “intermediate result” in the progressive design of a course, where the general curriculum is localized in terms of modules, a selection of LOs, learning strategies, assessment strategies, credits, etc.

Then “localized curricula” will be further detailed into the “pilot courses design”; at this stage, always in the framework of IO6/WP6, specific design elements concerning the future HE courses will be defined.

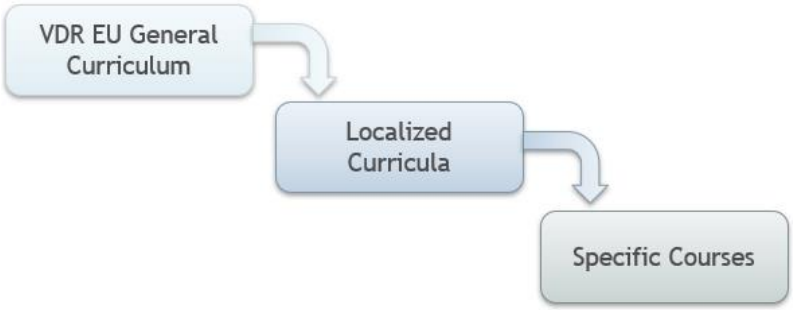

Figure 1: a representation of the “Curriculum instantiation process”

The effectiveness of this first release of IO3 will be tested in the framework of WP3 during the localization and design process carried out in IO6/WP6 (courses design). HE designers involved in the project will be asked to use the delivered Guidelines in order to instantiate the VDR Curriculum in to their HE courses and then some questionnaires and/or interviews will be submitted to them to collect feedback for possible improvements.

A final release of IO3 will be delivered at M31.

3 Methodology

3.1 Definition of types and aims of guides and tools

IO3 is aimed to produce a set of Guides and Tools which could play a reference role for any HE designer who would like to contextualize the VDR EU Curriculum into his/her own institution.

IO2 and IO3 are strictly connected and interdependent. On the one hand, IO2 is supposed to define and describe the general characteristics of the EU Curriculum, which should be as much "across-the-board" as possible in order to be adaptable to each EU country. On the other hand, IO3 is supposed to investigate, clarify and clearly outline the main potentialities of the curriculum flexibility, providing tools and guide to HE designers in order to support the instantiation of the general curriculum into specific localized curricula.

Based on these premises, the first important activity carried out in WP3/IO3 was the identification of the "*type of support*" needed by a possible HE designer to instantiate the Curriculum, so that the proper supporting tools could be planned and delivered.

The VDR EU Curriculum included in IO2 includes 89 Learning Outcomes grouped into 17 Units of Learning Outcomes (UoLs). These UoLs can be compared with modules, but they cannot be considered the same thing: as a matter of fact, while MODULES are based on teaching requirements, UoLs are shaped on competence areas" and "VDR key activities". Although both MODULES and UoLs actually result from the grouping of LOs, MODULES mirror a "teacher perspective", while UoLs mirror the "learner perspective"; so, the criterion adopted to group the LOs may be different and the modules of the courses can correspond or not to the Units. Based on these premises, HE Designers implementing the curriculum would need **a support to structure modules** and **to assign to them the selected**[1] **LOs**.

The VDR Curriculum developed by oMERO Project targets graduated professionals with at least EQF6, aiming to take them towards EQF7[2]. Thus, it aims to award EQF7[3] level certifications through academic courses awarding from 60 to 120 ECTS[4],. HE designers need to be supported in the identification of the proper "type of HE course" for the localization of the VDR Curriculum, which depends on national rules, and in the **definition of the awarded number of ECTS** based on the estimated workload for students.

Once defined the EQF level, the workload, the credits and the modules, an important support could be provided in the definition of the **proper educational strategies for each LO** and the related **assessment methods**.

The above-mentioned design choices characterizing the "first intermediate design step" taking to a "*localized curriculum*"[5] should be supported by specific guides and formalized through specific tool.

As depicted in Table 1, a guide has been produced to support each outlined "design choice" for the localized curriculum and a specific tool (the *flexibility tool*) has been developed in order to allow designers to describe, formalize and share these choices.

[1] All mandatory LOs have to be included in the actual courses, but the designer can choose to include or not the optional ones

[2] The European Qualifications Framework - https://europa.eu/europass/en/european-qualifications-framework-eqf

[3] See EUROPASS - Description of the eight EQF levels https://europa.eu/europass/it/description-eight-eqf-levels

[4] Credits assigned on the base of the European Credit Transfer and Accumulation System (ECTS) https://education.ec.europa.eu/education-levels/higher-education/higher-education-initiatives/inclusive-and-connected-higher-education/european-credit-transfer-and-accumulation-system

[5] See the definition of "localized curriculum" in the Introduction

MAIN DESIGN ELEMENTS DETAILED IN A LOCALIZED CURRICULUM	GUIDE SUPPORTING THE SPECIFIC DESIGN CHOICE	TOOL SUPPORTING THE DESCRIPTION OF THE SPECIFIC DESIGN CHOICE
DEFINITION OF THE NUMBER OF AWARDED ECTS (FOR EACH LO)	DK2 – CREDITS ALLOCATION IN OMERO CURRICULUM LOCALIZATION DK5 – ECTS TABLE	DK6 - FLEXIBILITY TOOL
WORKLOAD	DK2 – CREDITS ALLOCATION IN OMERO CURRICULUM LOCALIZATION	DK6 - FLEXIBILITY TOOL
MODULES OF THE COURSE AND ASSIGNED LOs	DK3 – DEFINITION OF COURSE MODULES DK7 - LOCALIZING THE CURRICULUM WITH THE FLEXIBILITY TOOL – USER MANUAL	DK6 - FLEXIBILITY TOOL
EDUCATIONAL STRATEGY/IES SELECTED FOR EACH LO	DK4 – MACRO-DESIGN TABLE DK7 - LOCALIZING THE CURRICULUM WITH THE FLEXIBILITY TOOL – USER MANUAL	DK6 - FLEXIBILITY TOOL
ASSESSMENT METHOD/S SELECTED FOR EACH LO	DK8 – ASSESSMENT GUIDE DK7 - LOCALIZING THE CURRICULUM WITH THE FLEXIBILITY TOOL – USER MANUAL	DK6 - FLEXIBILITY TOOL

Table 1: The relation among design elements detailed in a localized curriculum and the tools and guides developed in IO3

Once defined the localized curriculum, the course should be designed more in detail.

Modules and lessons have to be described in their contents and teachers should be assigned to each of them. In order to assure a coherent description of the course, a specific template, the *Course Syllabus*, will be produced in the framework of IO6; it will also support the comparability of courses designs which will be described based on the same elements.

Two additional Guides have been produced in IO3 in order to support specific characteristics of the VDR Curriculum:

- **a guide supporting the effective implementation of Work Based Learning,** which is a fundamental element of the Curriculum, also in terms of workload;
- a guide targeting HE Designers (not experts in the ICT domain) about the possibility to **adopt REALTER in their own HE institution** to support the implementation of the VDR Curriculum.

In the framework of IO3, oMERO partners also identified the need to integrate the Guides planned in project proposal (Designers' Kit) with an additional guide aimed to support HE designers in the identification of the proper "entry level" for the implemented courses. In particular, some issues emerged when tackling the problem of "*who can attend courses based on oMERO Curriculum*". The "entry level" for a course implementing the VDR Curriculum must be at least EQF 6, i.e., first academic degree (3-years course); then, professionals with EQF7, such as Psychologists, could enter the Curriculum as well; but many differences occur from one country to another with respect to the professionals who can "practice rehabilitation" and thus can "actually spend on the job market" the awarded VDR qualification. Partners agreed that specific Guidelines will be delivered in the file release of IO3 in order to support Higher Education Institutions to:

- identify the proper criteria to admit candidates to courses;
- set up (when needed) the proper entrance exams.

3.2 Work organization and distribution

Starting from the preliminary analysis described in Section 3.1, SI4LIFE, as IO3/WP3 leader, organized the work in order to share part of it with partners.

A first guide (DK2) has been developed by SI4LIFE in order to share with partners a reference document about "***Credits Allocation in oMERO Curriculum Localization***" (Annex 1); such guide, revised and approved by the Partnership, set the ground for the rules for the proper use of ECTS in the context of VDR Curriculum and suggested possible examples of courses instantiation at EQF7 level.

Based on this Guide, a collaborative work has been set up among partners in order to define an approach to ECTS allocation, as described in detail in Section 3.3. This approach was drafted by SI4LIFE and then refined in progressive versions and discussed with partners:

- both asynchronously, by sharing internal documents and collecting feedback;
- and synchronously, through dedicated partners meeting in the framework of WP3 activities.

Once the above-described documents were agreed upon by partners, SI4LIFE was able to produce and share with partners for feedback the other guides needed to support the Curriculum Localization, i.e.[6]:

- DK3 – Definition of course modules
- DK6 – Flexibility Tool
- DK7 – Localizing the curriculum with the Flexibility Tool – User Manual

Some of the guides delivered in this first release of IO3 and included in the Designers' Kit draw inspiration and sometimes quote parts of the "***Guidelines supporting the design of local curricula*" delivered by ENhANCE Project**[7] in 2021. This project was a Sector Skills Alliance aimed at modelling an EU Curriculum for Family and Community Nurses which produced important results for guiding designers in the localization of curricula. SI4LIFE, who was partner in that project and responsible for the delivery of Curriculum and Guidelines, has relied on the experience carried out in ENhANCE and drew inspiration from the main results by taking them as a baseline for new steps forward. In particular, based on the ENhANCE project experience, the **Flexibility Tool** (DK6) was produced by SI4LIFE as well as the User Manual for its effective use (DK7 - **Localizing the curriculum with the Flexibility Tool – User Manual**). Thie Flexibility Tool is an Excel file, composed of a number of sheets allowing to formalize and share the main design elements of a localized curriculum. The tool delivered in the ENhANCE project has been adapted to the VDR Curriculum and to the specific needs of the project, such as, for instance, a different description of Educational Strategies mirroring the macro-design table.

The above-described set of guides and tools supporting the localization of the Curriculum (from DK1 to DK7 - see Table 1) has been shared with partners and approved through asynchronous feedback in March 2022.

Three additional guides have been produced in the framework of IO3 under the coordination of other partners, enabling the effective design of future courses:

- **DK8 – Assessment Guide** (Annex 5): it has been developed by LSMU in collaboration with SI4LIFE;
- **DK9 – Work-Based Learning Guidelines** (Annex 6): this guide has been developed by IDC, LAMUT, UNIGE and CHU-NICE, under the coordination of IDC and LAMUT and with the feedback of SI4LIFE;

[6] see Designers' Kit description – Section 4 – for further details
[7] ENhANCE project - *EuropeaN curriculum for fAmily aNd Community nursE* https://www.enhance-fcn.eu/ - Sector Skills Alliance - 591946-EPP-1-2017-1-IT-EPPKA2-SSA

- **DK10 – REALTER - Why and How to adopt the system in your training program** (Annex 7): this guide has been developed by UNIGE (as IO5 leader).

3.3 ECTS allocation to Learning Outcomes

The award of credits is the "act of formally granting students and other learners the credits that are assigned to the qualification and/or its components if they achieve the defined learning outcomes"[8]. National authorities should indicate which institutions have the right to award ECTS credits. Credits are awarded to individual students after they have completed the required learning activities and achieved the defined learning outcomes, as evidenced by appropriate assessment[9]

According to the European Credit Transfer and Accumulation System (ECTS)[10], one academic year corresponds to 60 ECTS [EC, 2017], credits that are normally equivalent to 1500–1800 hours of total workload, irrespective of standard or qualification type. This means that one credit corresponds to 25 to 30 hours of work**:** it represents the typical workload, although for individual students the actual time to achieve the learning outcomes usually varies.

VDR Curriculum aims to award EQF7 level certifications through academic courses awarding from 60 to 120 ECTS[11]. The actual number of awarded ECTS depends on national rules and the estimated workload for students.

The VDR Curriculum is supposed to be FLEXIBLE so that:

- it can be adapted to different course types at EQF7 level, awarding from 60 to 120 ECTS;
- it is based on 17 Units of Learning (which have different relevance and weight with respect to the related Occupational Profile) that MAY correspond to Modules or NOT; as a matter of fact, in oMERO's approach the composition of modules is flexible and its definition is up to the designer who is "localizing" the Curriculum into his/her own context[12];
- the final number of Learning Outcomes can vary from one course to another since optional learning outcomes can be included or not.

In order to be able to assure the proper flexibility to the curriculum, as well as the compliance to ECTS and to ECVET standards, partners agreed to assign **credits at Learning Outcome level and NOT at the Units level**. This approach will allow to:

- create modules independently from credits associated to UoLs;
- guarantee an accurate assessment of workers/learners.

Then, based on these premises, **partners agreed NOT TO ASSIGN a fixed number of credits to each LO, but to identify an "allowed range of credits"** (e.g. from 1 to 3). This choice would allow any HE designer to assign the proper number of ECTS to each LO of his/her course, taking into account the actual workload expected from a student, based on the overall number of credits awarded by the course (from 60 to 120) and the relevance given by the designer to the specific topic/competence.

[8] European Commission, Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office, 2017, https://data.europa.eu/doi/10.2766/87592

[9] If students and other learners have achieved learning outcomes in other formal, non-formal, or informal learning contexts or timeframes, credits may be awarded through assessment and recognition of these learning outcomes.

[10] ECTS - Credits assigned on the base of the European Credit Transfer and Accumulation System https://education.ec.europa.eu/education-levels/higher-education/higher-education-initiatives/inclusive-and-connected-higher-education/european-credit-transfer-and-accumulation-system

[11] See DK2 for details.

[12] See DK3 for details

The allowed ranges of credits have been allocated to LOs based on their RELEVANCE (essential / important / basic): the relevance of each LO has been defined by partners in the Macro-design table (see Annex 5), included in IO2.

Information about credits has been formalized into the **ECTS Table (DK5):** in the table, for each LO, aside to the allowed range of credits, two examples of possible ECTS distribution (60 ECTS and 120 ECTS) are provided (see Figure 2)

UoL 1: To evaluate visual and global (overall) function and capability in visually impaired persons in collaboration with the wider healthcare team							
LO Code	LO Name	MANDATORY/ OPTIONAL (M/O)*	RELEVANCE OF THE LO*** (essential / important / basic)	ECTS			
				MIN	MAX	EXAMPLE 60 ECTS	EXAMPLE 120 ECTS
LO1-A-1	Interpret referral information according to the anatomy and physiology of the eye, visual function and reduced visual capacities, expression and terms in basic optics, cognitive and neurological processes as a basis for visual perception	M	essential	1,5	3,5	2	3

Figure 2: an example drawn from the ECTS table, where the allowed range of credits and two examples are provided for each LO

The final version of IO3 will include a refined version of the ECTS table, which will be adjusted taking into account the experience carried out by partners in the design of future HE courses (IO6) and their feedback collected by SI4LIFE.

4 Designers' Kit description

The Designers' Kit is a set of Guidelines and Tools aimed to support any HE designer to localize the EU general VDR Curriculum into his/her own context. The "*localized curriculum*" as described in the Introduction to this report, is an intermediate design step where the general curriculum is localized in terms of modules, a selection of LOs, learning strategies, assessment strategies, credits, etc. Then "localized curricula" have to be further detailed in the "courses design", where more detailed design elements concerning the courses (such as, teachings and related teachers, lessons, contents and materials, timing, etc.) will be defined.

The delivered Guidelines use a simple, user-friendly language which "targets the intended audience", i.e. HE Designers, with practical examples and cases.

The Designers' Kit includes **10 guides and tools**, listed below:

DK1 – EU VDR CURRICULUM

DK1 is a document, extracted from IO2 and including the VDR EU Curriculum. It lists 89 Learning Outcomes grouped into 17 Units of Learning Outcomes (UoLs). LOs are described in detail in terms of Knowledge, Skills and Personal and Transversal Competencies.

DK2 – CREDITS ALLOCATION IN OMERO CURRICULUM LOCALIZATION (Annex 1)

The VDR Curriculum developed by oMERO Project targets graduated professionals with at least EQF6, aiming to take them towards EQF7. Thus, it aims to award EQF7 level certifications through academic courses awarding from 60 120 ECTS. The number of awarded ECTS depends on national rules and the estimated workload for students. This Guide introduces HE designers to the proper use of ECTS in the context of VDR Curriculum and suggests possible examples of courses instantiation at EQF7 level.

DK3 – Definition of course modules (Annex 2)

The 89 Learning Outcomes of the Curriculum need to be grouped into modules. They can correspond to the 17 Units of Learning Outcomes (UoLs) or not. Although both MODULES and UoLs actually result from the grouping of LOs, MODULES mirror a "teacher perspective", while UoLs mirror the "learner perspective"; so, the criterion adopted to group the LOs may be different. This guide supports HE Designers to structure modules and to assign to them the selected LOs, by outlining 3 main possible criteria to set up the Modules of a localized VDR curriculum and by providing short check-list of good practices.

DK4 – Macro-design Table

DK4 is a document, extracted from IO2 and including the Macro-design table.

The macro-design table is aimed to specify 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.

This Guide supports the localization of the curriculum since it mirrors the Flexibility Tool, depicting the possible values which can be selected by HE Designers when filling in the sheet about the educational strategies.

DK5 – ECTS Table (Annex 3)

Based on the "DK2 – CREDITS ALLOCATION IN OMERO CURRICULUM LOCALIZATION" and on the process described in Section 3.3, this table outlines the suggested ECTS ranges for each specific LO. It also provides concrete examples of ECTS distribution for courses awarding 60 and 120 ECTS.

DK6 – Flexibility Tool

The Flexibility Tool is aimed to collect the design information about the "localized curriculum". In the framework of oMERO project (IO6), every HE institution is supposed to design a Localized Curriculum for future VDR courses by filling its own version of the tool describing the specific course. Generally, it will support any HE designer in the curriculum localization.

The tool is an Excel folder composed of 6 sheets (4 + 2 for reference) and the "credits" one; they:

- reproduces the Macro-Design Table (DK4) allowing to specify the educational strategy for each LO;
- allows to identify modules and to assign LOs to them;
- allows to assign ECTS to each LO and to receive an automatic counting of the overall amount of ECTS assigned to the whole course, to each module and to each UoL
- wrap-up automatically in a specific sheet to which Module the LOs have been assigned and the number of ECTS awarded for each UoL/Module;
- supports the design of students' assessment, mirroring the Macro-Design Table (DK4).

DK7 – Localizing the curriculum with the Flexibility Tool – User Manual (Annex 4)

This is a guide for the effective use of the Flexibility Tool. It provides a general description of the main sheet and automatic functionalities of the Excel file and a step-by step guide to fill the tool in.

DK8 – Assessment Guide (Annex 5)

DK9 provides an overview on the issue of HE students' assessment and its relation with ECVET and ECTS. In particular, the Guide supports the effective selection of the proper assessment methods for assessing the Learning Outcomes targeted by the course, by (a) analysing the impact of the way LOs are formulated on such a selection; (b) introducing some hints related to the assessment of the Learning Outcomes included in the VDR Curriculum; (c) introducing a possible set of assessment methods which can be used in courses implementing the VDR Curriculum.

DK9 – Work-Based Learning Guidelines (Annex 6)

This guide provides a practical guide for the planning and the implementation of WBL for VDR. It includes references to EQAVET and to Building Blocks.

DK10 – REALTER - Why and How to adopt the system in your training program (Annex 7)

DK10 provides a practical Guide to HE Designers (not experts in the ICT domain) about the possibility to adopt REALTER in his/her own HE institution to support the implementation of the VDR Curriculum. It focuses on the reasons why the adoption of REALTER is important and on the main practical issues to be tackled to adopt it.

As described in section 3.1, an additional guide will be provided in the final version of IO3.

5 References

ECTS - Credits assigned on the base of the European Credit Transfer and Accumulation System https://education.ec.europa.eu/education-levels/higher-education/higher-education-initiatives/inclusive-and-connected-higher-education/european-credit-transfer-and-accumulation-system

European Commission, Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office, 2017, https://data.europa.eu/doi/10.2766/87592

EQF - The European Qualifications Framework - https://europa.eu/europass/en/european-qualifications-framework-eqf

EUROPASS - Description of the eight EQF levels https://europa.eu/europass/it/description-eight-eqf-levels

Annex 1: DK2 - Credits allocation in oMERO curriculum localization

oMERO Project

an eu curriculuM for visual disabilitiEs RehabilitatOrs

Designers' KIT

CREDITS ALLOCATION IN OMERO CURRICULUM LOCALIZATION

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

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INTRODUCTION TO ECTS

Differences between national higher education systems can lead to problems concerning the recognition of qualifications and mobility periods abroad. This issue has been addressed by the *European Credit Transfer and Accumulation System*[13] (ECTS), which is helping students to move between countries and to have their academic qualifications and study periods abroad recognised. ECTS also makes it possible to blend different learning styles, such as university and work-based learning, within the same programme of study or through lifelong learning.

In 1999 the Bologna Declaration included ECTS among the main objectives to be achieved by countries participating in the Bologna Process. Through the reforms implemented in the course of the Process, ECTS has become a key tool of the European Higher Education Area (EHEA). ECTS is adopted as the national credit system in most countries of the EHEA. In national legislation the use of ECTS can be a requirement for accreditation of higher education programmes or qualifications.

According to ECTS tool, **60 ECTS credits are the equivalent of a full year of study or work**.

In a standard academic year, these credits are usually broken down into several smaller modules.

A '**first cycle'** (or bachelor's) degree consists of either 180 or 240 ECTS credits.

Usually a '***second cycle'*** (or master's) degree equates to 90 or 120 ECTS credits. The use of the ECTS at the 'third cycle', or Ph.D. level, varies.

An "ECTS Users Guide"[14] has been made available by the European Commission in order to offer guidelines for implementing ECTS and links to useful supporting documents. According to this guide, ECTS credits express the volume of learning based on the defined learning outcomes and their associated workload.

60 ECTS credits are allocated to the learning outcomes and associated workload of a full-time academic year or its equivalent, which normally comprises a number of educational components to which credits (on the basis of the learning outcomes and workload) are allocated. ECTS credits are generally expressed in whole numbers.

Full-time academic year or its equivalent = 60 ECTS

Learning outcomes are statements of what the individual knows, understands and is able to do on completion of a learning process. The achievement of learning outcomes has to be assessed through procedures based on clear and transparent criteria.

Workload is an estimation of the time the individual typically needs to complete all learning activities such as lectures, seminars, projects, practical work, work placements and individual study required to achieve the defined learning outcomes in formal learning environments. The correspondence of the full-time workload of an

[13] See https://education.ec.europa.eu/levels/higher-education/inclusion-connectivity/european-credit-transfer-accumulation-system

[14] European Commission, Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office, 2017, https://data.europa.eu/doi/10.2766/87592

academic year to 60 credits is often formalised by national legal provisions. In most cases, workload ranges from 1,500 to 1,800 hours for an academic year[15]

Full-time academic year or its equivalent = 60 ECTS

= workload ranges from 1,500 to 1,800 hours

This means **that one credit corresponds to 25 to 30 hours of work.** It should be recognised that this represents the typical workload and that for individual students the actual time to achieve the learning outcomes will vary.

The **award of credits** is the "act of formally granting students and other learners the credits that are assigned to the qualification and/or its components if they achieve the defined learning outcomes"[16]. National authorities should indicate which institutions have the right to award ECTS credits. Credits are awarded to individual students after they have completed the required learning activities and achieved the defined learning outcomes, as evidenced by appropriate assessment. If students and other learners have achieved learning outcomes in other formal, non-formal, or informal learning contexts or timeframes, credits may be awarded through assessment and recognition of these learning outcomes.

CREDITS ALLOCATION IN OMERO CURRICULUM LOCALIZATION

According to the EC Guide, **credits allocation**, i.e. the process of assigning a number of credits to qualifications, degree programmes or single educational components, is performed according to national legislation or practice, where appropriate, and with reference to national and/or European qualifications frameworks. ECTS are allocated to educational components, such as course units, dissertations, work-based learning and work placements, **taking as a basis the allocation of 60 credits per full-time academic year**, according to the estimated workload required to achieve the defined learning outcomes for each component.

The EU Curriculum for VDR proposed by the oMERO Project **targets graduated professionals with at least EQF6, aiming to take them towards EQF7.**

Thus, it aims to award EQF7 level certifications through academic courses awarding from 60 120 ECTS.

The number of awarded ECTS depends on national rules and the estimated workload for students. The choice should be in line with the local context and there are several aspects to be considered, such as:

- the VDR qualification should always lead to a degree or certificate;
- where possible, the VDR qualification should be a stand-alone qualification;

[15] See also TUNING "Educational structures, Learning outcomes, Workload and the Calculation of ECTS credits" https://www.unideusto.org/tuningeu/workload-a-ects/177-educational-structures-learning-outcomes-workload-and-the-calculation-of-ects-credits.html

[16] European Commission, Directorate-General for Education, Youth, Sport and Culture, ECTS users' guide 2015, Publications Office, 2017, https://data.europa.eu/doi/10.2766/87592

- where possible, the VDR qualification should leave the option to continue the studies in case the VDR curriculum does not provide enough ECTS to reach a degree.

HERE ARE DETAILED 2 MAIN CASES OF POSSIBLE LOCALIZED CURRICULA.

1. THE CURRICULUM IS DESIGNED ON EQF7 AWARDING 60 ECTS
This approach is feasible:

A. in countries where a **60 ECTS Second Cycle Degree that leads to EQF7 already exists** (e.g. Italy[17], Spain, and Sweden) and the qualification can be linked to EQF7 via the NQF.

B. in countries where a **60 ECTS Second Cycle Degree does not exist**; in this case, the curriculum

B1: can be designed **AS PART OF** a **Second Cycle Degree awarding on the whole 90-120 ECTS**; in this way, the curriculum is integrated into similar study programs. VDRs will still receive a certificate and then will be able to continue the studies and gain more ECTS.

B2. can be designed addressing EQF7 (meaning the LOs mirror and target EQF7) but it will award **a certificate of continuous training**; the level and the content of the VDR courses should be mentioned in the certificate and a list and a description of LOs should be included (similar to a diploma supplement) for transparency reasons.

2. THE CURRICULUM IS DESIGNED ON EQF7 AWARDING from 90 to 120 ECTS

The curriculum is designed as **Second Cycle Degree awarding from 90 to 120 ECTS** (depending on national rules).

[17] In Italy *academic specialization courses* can be set for students with a bachelor's degree (named "Master di primo livello") awarding 60 ECTS and targeting EQF7.

Annex 2: DK3 - Definition of course modules

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Designers' KIT

Definition of course modules

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

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The localized curriculum has to be organized in **MODULES.**

There are four basic elements involved in the process of designing a module:

1. defining the learning outcomes;
2. choosing the learning and teaching methods that can lead to the achievement of outcomes;
3. defining how to assess students' learning outcomes;
4. distributing ECTS credits coherently among modules.

In the definition of the first three elements (1, 2 and 3) you are supported by the MACRO-DESIGN TABLE.

As to the last one (4), the ECTS TABLES outlines the range of ECTS (minimum and maximum credits) which could be assigned to the LOs of the Curriculum. In addition, the FLEXIBILITY TOOL will support you to assign a specific number of credits to each LO and verify how many credits correspond to each MODULE (see "*Flexibility Tool Manual*")

Since the design of the EU Curriculum is based on ECVET, **the 89 Learning Outcomes** have been grouped into **17 Units of Learning Outcomes (UoLs)**, which correspond to the 17 Key Activities defined in the Professional Profile.

- **9 UoLs are defined as "core units"**, since they target competences which are specific to the VDR,
- while **other 8 units** are defined as **"cross-cutting"** since they target competences which are "transversal" to other professionals (see Figure 3); two of them focus on "vision health and healthcare policy" and 6 of them focus on communication, special education, team working, research, ethics, monitoring and scheduling.

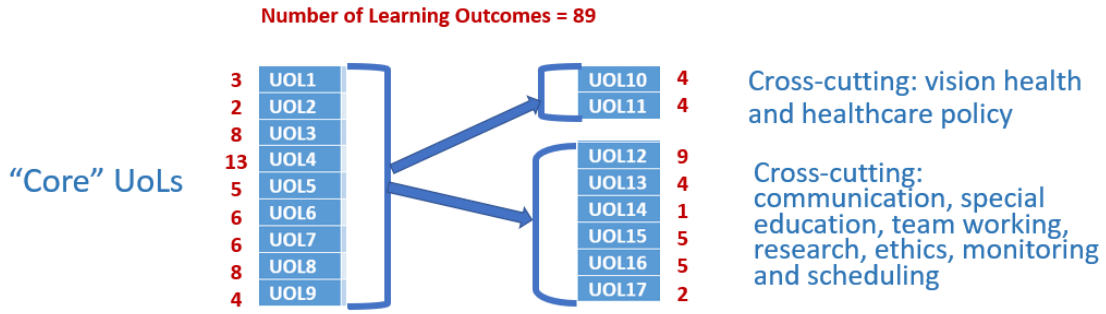

Figure 3: VDR Curriculum – detail of UoLs

CORE UoLs	
UoL1	TO EVALUATE VISUAL AND GLOBAL (OVERALL) FUNCTION AND CAPABILITY IN VISUALLY IMPAIRED PERSONS IN COLLABORATION WITH THE WIDER HEALTHCARE TEAM
UoL2	TO DEVELOP AND IMPLEMENT AN INDIVIDUALISED VISION-RELATED REHABILITATION PROGRAM FOR VISUALLY IMPAIRED ADULTS, USING A MULTIDISCIPLINARY APPROACH
UoL3	TO DEVELOP AND IMPLEMENT AN INDIVIDUALIZED VISION-RELATED REHABILITATION PROGRAM FOR VISUALLY IMPAIRED CHILDREN, ADAPTED FOR THEIR DEVELOPMENT AGE, USING A MULTIDISCIPLINARY APPROACH
UoL4	TO IMPLEMENT MOBILITY AND ORIENTATION TRAINING WITH VISUALLY IMPAIRED PERSONS IN COLLABORATION WITH THE WIDER HEALTHCARE TEAM
UoL5	TO SUPPORT AN INDIVIDUAL'S AUTONOMY IN EVERYDAY ACTIVITIES IN RELATION TO VISUAL IMPAIRMENT
UoL6	TO FOSTER INCLUSION IN FORMAL EDUCATION FOR VISUALLY IMPAIRED CHILDREN

UoL7	TO FOSTER INCLUSION IN PROFESSIONAL AND OCCUPATIONAL ACTIVITIES FOR VISUALLY IMPAIRED ADULTS
UoL8	TO PROVIDE TRAINING AND SUPPORT FOR THE USE OF ASSISTIVE TECHNOLOGIES FOR VISUAL IMPAIRMENT
UoL9	TO SUPPORT THE PSYCHOLOGICAL AND SOCIAL DIMENSIONS OF A VISUALLY IMPAIRED PERSON'S LIFE USING A BIOPSYCHOSOCIAL APPROACH

"CROSS CUTTING" UoLs - vision health and healthcare policy	
UoL10	TO HAVE BASIC CLINICAL KNOWLEDGE AND SKILLS TO ADDRESS GENERAL HEALTH AND CONCURRENT HEALTH CONCERNS, IN RELATION TO VISION HEALTH IN COLLABORATION WITH THE WIDER HEALTHCARE TEAM
UoL11	TO BE AWARE OF LOCAL HEALTHCARE POLICY, HEALTH AND SOCIAL CARE ECOSYSTEM AND HEALTH CARE ORGANIZATIONAL GOVERNANCE STRUCTURES
"CROSS CUTTING" UoLs – other topics	
UoL12	COMMUNICATION AND EDUCATION IN RELATION TO VISION HEALTH
UoL13	COLLABORATION IN RELATION TO VISION HEALTH
UoL14	MONITORING AND RECORDING IN RELATION TO VISION HEALTH
UoL15	RESEARCH AND DEVELOPMENT IN RELATION TO VISION HEALTH
UoL16	PROFESSIONAL APPROACH AND ETHICS IN RELATION TO THE VDR ROLE
UoL17	ORGANIZING AND SCHEDULING

These UoLs can be compared with modules, but **they cannot be considered the same thing**: as a matter of fact, while MODULES are **based on teaching requirements, UoLs are shaped on competence areas" and "VDR key activities".**

As stated by EU standards and tools in the field of VET, the Units of Learning Outcomes (UoLs):

- should be designed in such a way as to provide as cohesive and structured a learning process as possible, with agreed coherent learning outcomes and clear criteria for assessment;
- can be determined on the basis of complete work assignments, working processes, areas of work, fields of action or fields of competence which are typical of the particular profession.
- should be designed in such a way that they can be completed as independently as possible of other units;
- should include all necessary learning outcomes (specialist, social and personal);
- should be structured and dimensioned in such a way that the relevant learning outcomes can actually be achieved in the given time.
- should be assessable.

Although both MODULES and UoLs actually result from the grouping of LOs, MODULES **mirror a "teacher perspective", while UoLs mirror the "learner perspective";** so, **the criterion adopted to group the LOs may be different**.

In addition, oMERO Curriculum's UoLs are 17 and creating the same amount of modules could be tricky for the course management. In order to simplify the structure of the implemented courses, **the current version of the FLEXIBILITY TOOL allows for the description of max 10 Modules**

Based on these premises, **here below are described THREE CASES** and related hints to set up the Modules of a localized VDR curriculum.

1. MODULES CONCIDE WITH GROUPS of UoLs

In this case the implemented course **will keep a clear mapping of the modules against the UoLs** (and related key activities of the Professional Profile), but, in order to keep low the number of modules, **UoLs will be coupled or grouped**.

UoLs coupling or grouping should be coherent with the topics of the UoLs; so, for instance you could couple:

- UoL1 and Uol2
- UoL2 and UoL3
- Uol1, UoL2 and UoL3
- UoL 7 and 9
- UoL 10 and 11
- UoL12, 13 and 16, etc.

2. MODULES ARE ORGANIZED BY GROUPING THE 89 LOs INDEPENDENTLY FROM THE UoLs AND THE KEY ACTIVITIES

In this case, you can decide freely how to group LOs independently from the UoLs and the related KEY ACTIVITIES. Grouping the LOs you have to take into account a number of best practices listed in the Check-list below.

3. MODULES CONCIDE WITH GROUPS of CORE UoLs while LOs of the CROSS CUTTING ones ARE DISTRIBUTED AMONG MODULES

This is an intermediate approach between Case 1 and Case 2. In this case the implemented course **will keep a clear mapping of the modules against the CORE UoLs** (from 1 to 9).

The core UoLs can be kept separated or grouped like in Case 1.

You can also choose to group some “cross-cutting” UoLs, such as;

- UoL10 and UoL 11;
- Part of UoL12 (not ICTs), UoL13, UoL16
- Part of UoLs 12 (ICTs), UoL14, UoL17.

Then LOs of the other UoLs should be distributed among modules taking into account:

- the coherence of the competence with the overall topic/key activity addressed by the module;
- possible “propaedeutic relationships” between LOs (see the Check-list below for details).

So, for instance:

- LO15-A-1 (principles of evidence-based health sciences disciplines and practice) can be grouped with LOs of UoL10

- LO12-A-1(basic methods and techniques for individuals and groups training in special education for VIPs and vision rehabilitation) can be grouped with LOs of UoL6
- LO13-B-1 (collaborative therapeutic relationship with the VIP) can be grouped with LOs of UoL9
- LO12-E-2 and LO12-E-3 (about the use of ICTs) can be grouped with LOs of UoL8

SHORT CHECK-LIST OF GOOD PRACTICES TO BE PERFORMED TO EFFECTIVELY DEFINE MODULES.

- ✓ Identify the "optional" LOs you would like to target in the course; some UoLs are composed by many optional LOs: in the event that you don't select them, you can choose to distribute the remaining LOs properly
- ✓ UoL15 has been included in the Curriculum especially to support "Second cycle courses" awarding 90-120 ECTS; in the event that a course awarding 60 ECTS is implemented the UoL can be reduced to LO15-A-1, which is the only mandatory LO and is can be placed easily with LOs of UoL10
- ✓ define "what is precursory to what"; LOs which are linked by a "propaedeutic relationship" should be placed in the same module in order to facilitate the monitoring and implementation of such relation; if you place in separate modules LOs which are linked by a "propaedeutic relationship" you have to point clearly out such link between the two modules and take it into consideration when planning the schedule of the course;
- ✓ if you place a cross-cutting LO in a module since it is the most coherent with it, don't forget possible minor links with other modules, especially if it is preparatory to them; this link may have an impact on the schedule of the course
- ✓ once grouped the UoLs and/or the LOs in a module you have to find a coherent and simple title for it
- ✓ play with the FLEXIBILITY TOOL and test different approaches with it; it is a fundamental tool to check how many ECTS are assigned to each MODULE and to balance credits distribution among them.

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Annex 3: DK5 - ECTS table

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an eu curriculuM for visual disabilitiEs RehabilitatOrs

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ECTS Table

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

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UoL 1: To evaluate visual and global (overall) function and capability in visually impaired persons in collaboration with the wider healthcare team							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO1-A-1	Interpret referral information according to the anatomy and physiology of the eye, visual function and reduced visual capacities, expression and terms in basic optics, cognitive and neurological processes as a basis for visual perception	M	essential	1,5	3,5	2	3
LO1-C-D-E-1	Draft a first anamnesis and case history based on personal/familiar interviews	M	essential	1	3	1,5	3
LO1-E-G-1	Develop an individualised global support program based on the biopsychosocial approach within the MDT, taking into account the psychological/social/biological factors of the visual disability situation and their impact on the person's autonomy capacities and life habits	M	essential	1	3	1	2,5

UoL 2: To develop and implement an individualised vision-related rehabilitation program for visually impaired adults, using a multidisciplinary approach							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO2-A-B-C-D-1	Know the basic multidisciplinary activities of a vision rehabilitation program, related to vision health, and plan their implementation and assessment, in collaboration with the MDT	M	essential	1,5	3,5	2	2,5

LO2-A-B-C-D-2	Identify individual achievable goals and activities tailored on the needs of the VIP, implementing IRP and adapting rehabilitation approaches in collaboration with the MDT	M	essential	1,5	3,5	2	2,5

UoL 3: To develop and implement an individualized vision-related rehabilitation program for visually impaired children, adapted for their development age, using a multidisciplinary approach							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO3-A-1	Evaluate the developmental stage and related individual capabilities of the visually impaired child (VIC), through observation and referrals in collaboration with the MDT	M	essential	0,5	2,5	1	2
LO3-B-1	Define a visual, multisensory rehabilitation program (IRP) for VIC suitable for their developmental age taking associated comorbidities into account	M	essential	1	3,5	1,5	2,5
LO3-C-1	Know and contextualize the impact of vision impairment on the developmental stages of the normo-typical child, as well as their cognitive development, including spatial cognition and visual-motor coordination	M	essential	1	2,5	1	1,5
LO3-D-E-1	Promote neuro-psychomotor development and sensory experience cooperating with the MDT and implementing activities tailored on child's visual and global profile and by applying multidisciplinary techniques which stimulate complex cognitive functioning	M	Important	0,5	2,5	1	1,5
LO3-D-E-2	Promote and develop confidence, interests, abilities, hand skills and coordination of VIC in the educational context	M	important	0,2	1,5	0,2	1
LO3-F-1	Know and apply the principles of an ergonomic living environment for VIPs and collaborate with parents in preparing the environment for a VIC	M	important	0,5	2,5	1	1,5

LO3-G-1	Contribute to the involvement of parents (and relatives) in the IRP of a VIC and to enhance coping attitudes, supporting parent-child relationship	M	essential	0,2	1,5	0,2	1
LO3-H-1	Identify as ‘red flags’ the psychopathological risks in childhood development in the context of vision impairment in order to refer appropriately to the MDT	O	important	0	1	0,2	1

UoL 4: To implement mobility and orientation training with visually impaired persons in collaboration with the wider healthcare team							
LO Code	**LO Name**	**MANDATORY / OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO4-A-1	Investigate, analyse, and assess mobility capabilities and goals in visually impaired or blind people, based on visual function, individual and contextual factors, including compensation needs	M	essential	1	3,5	1	2,5
LO4-A-2	Implement orientation and mobility (OM) techniques, for indoors and outdoors	M	essential	1	3,5	1	2,5
LO4-B-1	Know and apply the basics of spatial cognition and mental representation in orientation, as well as the basics in topography, and instruct the use of maps and how to construct environmental representations	M	essential	1	2,5	1	2,5
LO4-B-2	Teach traffic laws and urban mobility principles as well as route planning in settings of different complexity (known, unknown, travelling), considering seasonal variation (i.e. weather conditions)	M	essential	0,5	2,5	0,5	2
LO4-B-3	Know how to verbalize the environment according to the user's needs and to be able to teach it to VIP	M	essential	1	2,5	1	2
LO4-C-J-1	Analyse and evaluate living settings and environments to improve accessibility, applying the principles of accessibility and ergonomic principles in environmental settings for VIP and advise and suggest environmental alterations or solutions for VIPs	M	essential	1	2,5	1	2

LO4-D-1	Implement in different settings the main conducting techniques for VIPs and teach them to VIP's relatives and carers	M	essential	1	2	1	1,5
LO4-E-1	Implement the main body awareness techniques, stimulate self-awareness in body perceptions and enhance the appropriate body posture in the VIP, being aware of the importance of perception and of the impact of vicarious senses in the ability to move in the physical environment with visual impairment and blindness	M	essential	1	2,5	1	1,5
LO4-E-2	Stimulate VIPs through sensory exercises in terms of kinaesthetic, proprioceptive, mass (auditory and thermal), auditory, and tactile information	M	essential	1	2,5	1	1,5
LO4-F-1	Know the different white cane models and techniques for indoor and outdoor and be able to teach them to VIPs and their carers effectively in different settings and growing complexity, considering safety alerts	M	essential	1	3	1	2
LO4-G-I-1	Teach the use of mobility aids, including technological ones, integrating them with the proper OM techniques and safety alerts	M	important	1	3	1	2
LO4-H-K-J-1	Know environmental scanning and indoor/outdoor exploration principles and strategies for VIPs and teach them, taking into account personal residual vision, different conditions and settings and safety issues	M	essential	1	3	1	2
LO4-L-1	Evaluate the use of public transport in relation to personal abilities and goals, in collaboration with the MDT, and teach about public transport mobility planning in settings of different complexities (known, unknown, travelling)	M	essential	1	3	1	2

UoL 5: To support an individual's autonomy in everyday activities in relation to visual impairment							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO5-A-C-F-1	Know the techniques, strategies, and compensatory aids for personal care, eating and clothing for VIP and be able to teach them, applying the main ergotherapy techniques relevant to VIPs	M	essential	1	3	1	1
LO5-B-D-E-J-1	Evaluate and assess personal goals regarding autonomy and independence according to visual disability and personal circumstances and deploy, in collaboration with the MDT, and foster a program of personal independence that is achievable and that supports self-care, healthy choices and adherence to medical interventions	M	essential	0,5	2,5	0,5	1,5
LO5-B-D-E-J-2	Teach and support skills related to autonomy and independence, such as the ones needed for money management, document management, social participation, hobby and leisure activities management, asking for help	M	essential	0,5	2	0,5	1
LO5-G-1	Instruct housekeeping techniques and activities	M	Essential	0,5	2	0,5	1
LO5-H-1	Teach grocery shopping strategies, food maintenance and techniques for cooking	M	Essential	0,5	2	0,5	1

UoL 6: To foster inclusion in formal education for visually impaired children (VIC)							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
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	essential	1	2	1	2
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	essential	1	2	1	2
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	essential	1	2	1	2
LO6-C-D-E-2	Train VIC to use specific resources and aids for didactic purposes, collaborating with teachers	M	important	0,5	1,5	0,5	1
LO6-F-1	Advise and educate VIC to appropriate behaviour related to activities and relationships expected in formal educational contexts	M	important	0,2	1	0,2	1
LO6-G-H-1	Raise awareness and inform students on how to relate a visually impaired peer	O	important	0	1	0,2	1

UoL 7: To foster inclusion in professional and occupational activities for visually impaired adults							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO7-A-1	Know the basics of ergonomics related to visually impaired people and apply them in daily work, assessing the work process, the activities, the occupational settings and the tools according to visual disability and personal conditions	M	important	1	2	1	2
LO7-A-2	Assess occupational sustainability for VIPs according to the individual rehabilitation plan (IRP)	M	essential	1	2	1	2
LO7-B-C-1	Advise and suggest tools and operating solutions to improve personal efficacy in the work process, suggest how to adapt the occupational process to suit the VIP, taking into account the purpose of intervention and the environment, and train the VIP to suit to the work process, manage tools and the work environment accordingly	M	essential	1	2	1	2
LO7-B-C-2	Advise and suggest to VIP and managers environmental alterations or solutions to improve accommodations and safety	O	important	0	2	0,2	0,5
LO7-D-1	Support and empower VIPs to advance in their occupational context	M	important	0,2	1,5	0,5	1
LO7-E-1	Raise awareness among work colleagues and management about visual disability, also collaborating with existing training programs to foster inclusion and comprehension of VIP needs among management and colleagues	O	important	0	1	0,5	1

UoL 8: To provide training and support for the use of assistive technologies for visual impairment							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO8-A-1	Know refractive and clinical optics principles, binocular vision and ocular motility, fixation and accommodation and their application in VIP rehabilitation	M	essential	1	3,5	1,5	1,5
LO8-A-2	Train the use of optical technical aids and devices (refractive lenses, prisms, filters, telescope and magnifiers), in collaboration with the MDT, evaluating environmental and light setting, focus distance and fixation strategies to improve vision	M	essential	1	3,5	1,5	1,5
LO8-B-1	Teach VIPs about computer basics, operating systems, e-mail and communicating programs, web and office suite, according to personal needs and goals	O	Important	0	2	0,5	1
LO8-B-2	Know the main standards regarding digital accessibility issues for VIPs and ergonomics	M	Important	0,5	2,5	1	1,5
LO8-C-1	Know, use and teach how to use the main computer based assistive programs and select the appropriate systems considering the needs of the VIP and the IRP	M	essential	1	3,5	1,5	2
LO8-C-2	Know the procedures, rules, laws for the acquisition of assistive computer programs, technologies and devices	O	Important	0	2	0,5	1
LO8-D-1	Know braille basics and be able to instruct and exercise braille writing and reading	M	essential	1	3,5	1,5	2

LO8-E-F-1	Know the up-to-date assistive technologies and devices for VIPs and research trends, evaluate their use related to personal abilities and goals, according with the MDT and teach VIPs to use them	M	Important	1	3	1	1,5

UoL 9: To support the psychological and social dimensions of a visually impaired person's life using a biopsychosocial approach							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO9-B-C-D-1	Know and apply motivational techniques and empowerment approaches	M	important	1	3,5	1	1,5
LO9-B-C-D-2	Connect the VIP with various social, cultural and sports networks	O	basic	0	1	0	0,5
LO9-B-C-D-3	Encourage and enhance an effective self-monitoring approach and VIP recognition of progress in a wider range of concrete, psychological and social dimensions	O	important	0	1,5	0,2	0,5
LO9-E-1	Be aware of mental health 'red flags' related to visual impairment and disability and be able to raise them within the MDT	M	important	0,2	1	0,2	0,5

UoL 10: To have basic clinical knowledge and skills to address general health and concurrent health concerns, in relation to vision health in collaboration with the wider healthcare team							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO10-A-1 / LO11-C-1	Be aware of relevant clinical guidelines related to general health and concurrent health concerns, supported by the wider healthcare system, as well as international, national, regional and local policies and quality standard settled by the health care community and be able to apply them in daily practice	M	essential	1	2,5	1	1,5
LO10-A-2	Know about prevalence, treatment, rehabilitation, prognosis and management of loss of function after stroke and other diseases and be able to contextualize this knowledge in daily work	O	essential	0	1,5	0,2	0,5
LO10-B-1	Understand wider healthcare system referrals and be able to tailor IRP to the individual's changing health profile in collaboration with the MDT	M	essential	0,5	1,5	1	1
LO10-C-1	Know the possible impact on vision of stroke and other diseases, in relation to daily living, family, employment and the environment, and apply the principles of systematic vision training with users affected by these diseases	O	essential	0	1,5	0,2	0,5

UoL 11: To be aware of local healthcare policy, health and social care ecosystem and health care organizational governance structures							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO11-A-D-1	Know national policies, guidelines and protocols in the healthcare system regarding visual impairment, as well as national, regional and local social-health care laws and regulations that concern visually impaired people, post-stroke persons, and people with any other health conditions related to vision and refer to them in daily work	M	important	0,5	1,5	0,5	1
LO11-B-1	Know health and social care organizations involved in visual impairment treatment and caring as well as relevant stakeholders at regional/local vision and refer to the in daily work	M	essential	0,2	1,5	0,2	0,5
LO11-E-F-1	Know and understand special needs related to VIP from other countries, as well as cultural, religious and communication issues related to blindness and promote inclusion, equity and diversity	M	basic	0,2	1,5	0,2	0,5
LO11-G-1	Knows the main ICTs for health monitoring and rehabilitation available at national, regional and local level and suitable for VIPs, be able to evaluate them with respect to their possible integration in IRPs to share with the MDT and be able to teach their use, integrating them with assistive aids or technologies	O	basic	0	1,5	0,2	0,5

UoL 12: Communication and education in relation to vision health							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO12-A-1	Describe and apply basic methods and techniques for individuals and groups training in special education for VIPs and vision rehabilitation	M	essential	1	3,5	1,5	2
LO12-A-H-I-1	Provide information and advice on vision functioning, risks for poor vision health, the degenerative process of visual conditions, risk factors, comorbidities and remediation potential, also suggesting coping strategies, in collaboration with the MDT and advocate for policy in relation to vision health-related challenges	M	important	0,5	1,5	0,5	1
LO12-B-F-1	Enact basic theories and techniques of counselling and communication in the special education for VIPs, also planning and carrying out counselling sessions with individuals and in groups	M	essential	1	2,5	1	1
LO12-C-1	Communicate and cooperate effectively with educators and teachers and generally with professionals from relevant disciplines	O	important	0	1	0	0,5
LO12-E-2	Browse, search, filter and manage data, information and digital content, evaluating them according to the specific context of application	O	basic	0	1,5	0	0,5
LO12-E-3	Interact, share and collaborate through variety of digital technologies and select appropriate digital communication means for a given context	O	basic	0	1,5	0,2	0,5
LO12-F-1	Train relatives and informal carers about the needs and feasible goals related to visual impairment according to a child's development age, and train them to use compensatory strategies and adaptive techniques in activities of daily living (ADL)	O	important	0	1	0,2	0,5

LO12-F-2	Keep parents and informal caregivers informed about the legal framework (national and regional laws) and the main stakeholders (e.g. institutions, users' representatives) which could support the VIP	O	basic	0	1	0,2	0,5
LO12-D-G-1	Know and apply the basics of active listening and empathy	O	basic	0	1,5	0,5	1

UoL 13: Collaboration in relation to vision health							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO13-A-C-1	Be aware of the main roles and responsibilities of the team members and work coherently, maximizing the added value of each professional and identifying possibilities for interdisciplinary development, research and cooperation	M	Important	0,5	1	0,5	1
LO13-A-C-2	Know the characteristics of successful teams and the main strategies for overcoming barriers to effective teamwork and contextualize them in daily work, also applying the proper communication and mutual support techniques for health-care teams	O	Important	0	2	0	0,5
LO13-A-C-3	Identify and collaborate with the network of caregivers and stakeholders (formal and informal) involved in the VIP rehabilitation program	O	Important	0	1,5	0,2	0,5
LO13-B-1	Develop a collaborative therapeutic relationship with the VIPs, establishing a relationship of trust and respecting their own rhythm	M	essential	0,5	1,5	0,5	1

UoL 14: Monitoring and recording in relation to vision health							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO14-A-B-D-1	Know the main professional standards about clinical records and effectively use the main recording tools at national/regional/local level (e.g. electronic patient record) in order to report the progress of the IRP, complying with data privacy and confidentiality guidelines	O	Important	0	1	0,5	1

UoL 15: Research and development in relation to vision health							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO15-A-1	Know the principles of evidence-based health sciences disciplines and practice and apply them in everyday work, also using the main evidence databases	M	important	1	2	1	1,5
LO15-C-1	Identify and critically assess the contribution of VDR subject area in habilitation and rehabilitation and discuss the possibilities for interdisciplinary development, research and cooperation in this work	O	basic	0	1	0	1
LO15-B-D-1	Know and apply the basics of research design and methodology, project planning and research ethics and be able to contextualize them in an individual project	O	basic	0	2	0	2

LO15-B-D-2	Know the basics of quantitative analysis applied to health sciences, use tools for statistical analysis and critically assess own and others' research where similar analyses have been utilized	O	basic	0	3	0	1,5
LO15-B-D-3	Plan, perform and analyse observation and qualitative research interviews	O	basic	0	3	0	1,5

UoL 16: Professional approach and ethics in relation to the VDR role							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO16-A-1	Know the basics of safety issues for VIPs in relation to everyday activities and relevant environments and contextualize it in daily work, providing advice and educating users and informal caregivers	M	important	0,5	1,5	0,5	2
LO16-B-1	Have a positive attitude with respect to continuous and permanent learning within the profession	O	basic	0	1	0	1
LO16-C-1	Be able to perform first aid and to teach it	O	important	0	1,5	0,2	0,5
LO16-D-1	Be aware of and comply with the main ethical issues involved in the rehabilitation program with a VIP	M	important	0,2	1	0,2	0,5

LO16-E-1	Enact critical thinking attitude in daily work	O	important	0	1	0,2	0,5

UoL 17: Organizing and scheduling							
LO Code	**LO Name**	**MANDATORY/ OPTIONAL *(M/O)****	**RELEVANCE OF THE LO*** (essential / important / basic)**	**ECTS**			
				MIN	**MAX**	**EXAMPLE 60 ECTS**	**EXAMPLE 120 ECTS**
LO17-A-1	Understand professional behaviour guidelines and approaches and apply organizational techniques to ensure professional behaviour as a VDR	O	important	0	1	0	0,5
LO17-B-1	Organise and manage appointment scheduling with the VIP using appropriate organizational tools effectively	O	basic	0	1	0	0,5

Annex 4: DK7 - Localizing the curriculum with the Flexibility Tool – User Manual

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Designers' KIT

Localizing the curriculum with the Flexibility Tool – User Manual

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

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

N.B.: "You" in this manual means: the persons/department responsible for VET design or teaching in your institution.

FLEXIBILITY TOOL DESCRIPTION

The Flexibility Tool will support you in the process of building the curriculum.

The tool is an Excel folder composed of 6 sheets (4 + 2 for reference) and the "credits" one.

1. The first sheet is a reference sheet (*LOs names*) providing the list of LOs, grouped into Units; another reference sheet (*Reference*) is hidden and is aimed to support automatic calculation.
2. The second sheet reproduces the *Macro-design table* with additional columns: one for assigning Learning Outcomes to Modules, a column for assigning ECTS and one check column (see Figure 4).
3. *The third sheet (ECTS Overview) indicates to which Module the LOs have been assigned and the number of ECTS recognized for each UoL/Module (see Figure 2).*
4. The fourth sheet (*Plan Overview*) shows which LOs compose the different modules.
5. The last sheet (*Assessment Scaffolding*) supports the design of Students Assessment**.**

Macro-design table sheet

	MANDATORY/ OPTIONAL	MAIN REFERENCE MODULE	OTHER MODULE ADDRESSING THE LO (optional)	EDUCATIONAL STRATEGY					ECTS			
				Lecture (f2f or online)	Individual study	Group work (f2f or online) (e.g.: problem based	Lab (f2f) (e.g.: role-play, simulation, etc.)	Work based learning (f2f) (e.g.: apprenticeship, stage, internship_)	Possible range of ECTS to be assigned to the LO eg.[]			
									Min ECTS points	Max ECTS points	Assigned ECTS Points	ECTS check cell
UoL 1	To evaluate visual and global (overall) function and capability in visually impaired persons in collaboration with the wider healthcare team											
LO1-A-1	Mandatory								0,5	3		
LO1-C-D-E-1	Mandatory								0,5	3		
LO1-E-G-1	Mandatory								1	3,5		
UoL 2	To develop and implement an individualised vision-related rehabilitation program for visually impaired adults, using a multidisciplinary approach											
LO2-A-B	Mandatory								1	3,5		
LO2-A-B	Mandatory								1	3,5		

Figure 4 – Macro-design table template

This sheet includes the following columns (N.B.: colored cells cannot be modified!):

1. **Mandatory/optional (column B):** this column is already filled with respect to the Mandatory and Optional LOs; it is just a reminder, but you don't have to modify it.
2. **Main reference module (column C):** you can select from the drop-down menu the Module to which the LO is attributed[18]; when you assign a module to a LO, the LO will be automatically reported in the *Plan Overview* sheet under the selected module.
3. **Other modules addressing the LO (column D):** you can select from the drop-down menu another Module (if any) addressing the same LO; this is just to take

[18] The current version of the Macro-design table envisages a maximum number of 10 Modules, that you can list in *Plan Overview* sheet;

note of any additional modules, but this action doesn't affect the *Plan Overview* and the ECTS distribution among modules (*ECTS Overview)*

4. **Educational strategy (columns from E to I):** you can put a "X" under the selected strategy/ies following the instructions included in the Macro-design table provided by the project (see DK4).
5. **Possible range of ECTS (columns J and K):** Columns J and K show the minimum and maximum number of ECTS that can be allocated to each LO.
6. **Assigned ECTS (column L):** here you have to assign the number of ECTS, according to the range provided in columns J and K.
7. **ECTS Check cell (column M):** the cell will be automatically colored in red if the number of ECTS assigned is out of the range of reference.

ECTS OVERVIEW: Modules and ECTS summary

In this second sheet, LOs are listed in rows and Modules in columns. In each colored cell, corresponding to a LO associated to a module, the number of ECTS is provided. For each LO, the tool automatically retrieves the data about the Module and the number of ECTS from the Macro-design table.

ASSIGNED ECTS	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	TOTAL
	5	6	2	4	4	3	2	2	2	1	31
UoL 1											ECTS POINTS per UOL
LO1-A-1	0	0	0	0	0	0	0	0	0	0	
LO1-C-D-E-1	0	0	0	0	0	0	0	0	0	0	0
LO1-E-G-1	0	0	0	0	0	0	0	0	0	0	
UoL 2											ECTS POINTS per UOL
LO2-A-B-C-D-1	0	4	0	0	0	0	0	0	0	0	5
LO2-A-B-C-D-2	1	0	0	0	0	0	0	0	0	0	

Figure 5 – ECTS OVERVIEW, Modules and ECTS summary

For example, as you can see in Figure 5, LO2-A-B-C-D-1 was attributed to M1 and 1 ECTS was assigned to it. In this way, you have the summary of the composition of the Modules and the total ECTS per Module (Assigned ECTS row).

This table allows you to:

- properly distribute ECTS among UoLs, taking into account the range specified in the *ECTS Table* (see DK5);
- check the overall amount of ECTS of the course, taking into account the EQF level.

PLAN OVERVIEW: LOs distribution 'per module'

In this third sheet, it is displayed which LOs compose the different modules, reporting the name of the Module and of the LOs included in each one.

Figure 6, the sheet reports the Modules (sections of the sheet) and the LOs that refer to the specific Module. For each Module, the tool automatically retrieves which LOs (number and name) have been assigned to it.

M2	MODULE 2 TITLE
LO2-A-B	Know the basic multidisciplinary activities of a vision rehabilitation program, related to vision health, and plan their implementation and assessment, in collaboration with the MDT
LO11-B-	Know health and social care organizations involved in visual impairment treatment and caring as well as relevant stakeholders at regional/local vision and refer to the in daily work
LO12-A-	Provide information and advice on vision functioning, risks for poor vision health, the degenerative process of visual conditions, risk factors, comorbidities and remediation potential, also suggesting coping strategies, in collaboration with the MDT and advocate for policy in relation to vision health-related challenges

M3	MODULE 3 TITLE
LO10-C-	Know the possible impact on vision of stroke and other diseases, in relation to daily living, family, employment and the environment, and apply the principles of systematic vision training with users affected by these diseases
LO12-D-	Know and apply the basics of active listening and empathy

Figure 6 – PLAN OVERVIEW (Modules and LOs overview)

HOW TO USE THE FLEXIBILITY TOOL: SUGGESTED STEPS

Step 1: Define the modules

- ✓ Based on the instructions provided in *DK3 – Definition of course modules,* identify 2 to 10 modules composing your course.
- ✓ Then, write the titles of the modules in the white cells available in the *Plan Overview* sheet (see Figure 6).

Step 2: Assign LOs to Modules

- ✓ Go to the *Macro-design table* sheet and work on the “Main reference Module” column; you have to select from the drop-down menu the Module you would like to associate to the LO
- ✓ As for optional LOs, if you don’t want to target them, you don’t have to associate them to any module
- ✓ In the event that the same LO is targeted by more than one Module, you have to identify the main one and select it in “Main reference Module” column. Then, it is possible (but optional) to select a second module in column D (*Other module addressing the LO*).

The selection of modules in the “Main reference Module” column will be automatically mirrored in the *Plan Overview* sheet, where LOs will be listed under the related module.

- ✓ Check in this sheet if your planned modules correspond to the automatically generated list.

Step 3: Define educational strategies

- ✓ In the *Macro-design table* sheet, work on the “*Educational Strategy*” columns.

- ✓ Keep the *DK 4 – Macro-design table* at hand and, based on the admitted values, select your choice from the drop-down menu, mirroring what you will implement in your specific course.

	MANDATORY / OPTIONAL	MAIN REFERENCE MODULE	OTHER MODULE ADDRESSING THE LO (optional)	EDUCATIONAL STRATEGY				
				Lecture (f2f or online)	Individual study	Group work (f2f or online) (e.g.: problem based learning, case study	Lab (f2f) (e.g.: role-play, simulation, etc.)	Work based learning (f2f) (e.g.: apprenticeship, stage, internship…)
UoL 1	To evaluate visual and global (overall) function and capability in visually impaired persons in collaboration with the wider healthcare t							
LO1-A-1	Mandatory							
LO1-C-D-E-1	Mandatory				f2f online f2f and online			
LO1-E-G-1	Mandatory							
UoL 2	To develop and implement an individualised vision-related rehabilitation program for visually impaired adults, using a multidisciplina							
LO2-A-B-C-	Mandatory							
LO2-A-B-C-	Mandatory							

Figure 7 – Educational strategy

In the event that you're not implementing the strategy, leave the cell empty.

Step 4: Assign ECTS to each selected LO

- ✓ In the *Macro-design table* sheet, work on the "*Assigned ECTS*" column.
- ✓ Keep the *DK 5 – ECTS Table* at hand and refer to the possible range of ECTS identified in the *Macro-design table* sheet
- ✓ Fill in the assigned ECTS one by one: if the provided value is outside of the suggested range, the Check column will turn red.

Then, you can modify the *Assigned ECTS* column in the *Macro-design table* sheet and adjust them until the totals in *ECTS overview* will fit the established ranges.

Step 5: Complete Assessment Scaffolding

- ✓ Go to the *Assessment Scaffolding* sheet and keep the *DK 8 – Assessment Guide* at hand.
- ✓ This sheet includes a table for each possible module: these tables will be filled in automatically with the data retrieved from the *Plan Overview* (modules' titles) and the *Macro-design table* (LOs association to modules) sheets: check their coherence.
- ✓ Then specify with an "X" when you plan to implement in your course the specific assessment method, taking into account the suggestions included in the *Assessment Guide*.

Annex 5: DK8 - Assessment guide

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Designers' KIT
Assessment guide

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

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 to motivate them.

Aside to the formal "summative" assessment assuring 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[19]), credits can only be obtained after successful completion of the work required and appropriate assessment of the learning outcomes achieved. As defined by ECVET[20], 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, many times LOs are 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;
- 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;

[19] https://education.ec.europa.eu/education-levels/higher-education/higher-education-initiatives/inclusive-and-connected-higher-education/european-credit-transfer-and-accumulation-system
[20] https://www.cedefop.europa.eu/en/projects/european-credit-system-vocational-education-and-training-ecvet

- 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 8 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**	
KNOWLEDGE He/she is able to: • Describe body, spatial and environmental concepts useful in guiding techniques. • Describe the skills required for orientation and mental representation. • Outline and describe all the methods, techniques and procedures related to all environmental and social situations encountered. • Know how to evaluate the proper place of the VIP and the guide in social interactions and other activities (e.g. administrative, shopping). • Describe protection and positioning techniques for unassisted movement, locating objects, and/or becoming familiar with a new place. • Describe the techniques for retrieving fallen objects.	SKILLS He/she is able to: • 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) • 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. • Support and develop the VIP's sensory skills, including available functional visual skills. • Explain and assist the VIP in gathering environmental information by interpreting the movements and codes issued by the guide. • Train VIP stratégies to manage stressful situations (noise, crowds, obstructions, élévation changes).
PERSONAL AND TRANSVERSAL COMPETENCES He/she is able to: • Know how to invest dynamically and constructively in the simulations and make them a major training lever • Be rigorous in the explanation and transmission of instructions and techniques	

Figure 8: 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 specify 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 9).

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 10). 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 9: A screenshot from the MACRO-DESIGN TABLE (IO2)

ASSESSMENT SCAFFOLDING

M1	MODULE 1: User needs assessment	ASSESSMENT METHODS				
		WE	OE	A-WBL	SSK	OTH
		33,33%	33,33%	16,67%	16,67%	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 10: 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 will be refined and shared in IO6.

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 7 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 2. 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.

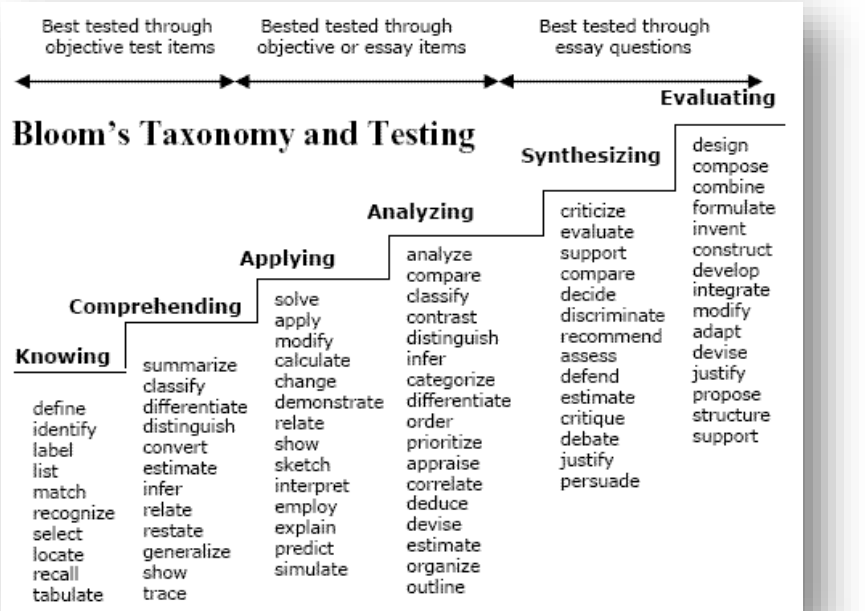

Figure 11. Bloom's taxonomy and associated appropriate testing methods.

	MSQ test	Essay
Reliability	Reliable	Reliable
Bloom's taxonomy	Recall Understand Application Analysis Evaluation	
Range of curriculum tested	Wide	Limited
Scoring	Easy, time efficient	Difficult to objectively score, time-consuming
Limitations	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 2. 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 assess 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 as 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)[21]; 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.

[21] 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

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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

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Annex 6: DK9 - Work-Based Learning Guidelines

oMERO Project

an eu curriculuM for visual disabilitiEs RehabilitatOrs

Designers' KIT

Work-Based Learning Guidelines

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

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1 Introduction

This document is divided into two main sections.

The first section is a general introduction to Work-Based Learning (WBL) in Higher Education, while the second one focuses on the implementation of WBL within the oMERO Curriculum.

2 WBL in Higher Education

2.1 Definition of work-based learning

From a strategic point of view, the provision of high-quality work-based learning is at the heart of current education and training policy. Collaboration between training providers and companies in all occupational sectors is regularly promoted (at national and European level). Work-based learning is increasingly recognized as a means of ensuring that learners of all ages acquire the knowledge, skills and competences required by the future labour market[22].

In terms of delivery, work-based learning can take place onsite, in a company or organisation, or within a more traditional learning environment such as a classroom or training centre, the latter targeting learning that is vocationally or occupationally relevant and which centres on meeting the needs or expectations of a particular industry or profession.[23]

Work-based learning (WBL) is often seen as a powerful vehicle for developing workplace skills and promoting productivity of the labour force. Realising the potential of work-based learning requires firms and trainees to engage in work-based learning that effectively increases productivity. Understanding the dynamics of the costs and benefits of WBL and ensuring that those are reflected in the design of WBL schemes is essential to ensure that firms provide high-quality WBL and trainees perceive WBL as an attractive career option.[24]

Designing structured WBL schemes requires policy choices to be made – and only well-designed schemes can yield the expected benefits. The potential consequences of poorly designed WBL schemes include insufficient provision of WBL opportunities by firms, low take-up rate by learners, poor learning experience and limited productivity increases for learners and wasteful use of public and private resources.[25]

The benefits for **employers** enhance:

- An increase in the competences of employees appropriate to the context of their work
- Tailoring the educational pathway of employees to the needs of the employer
- Increased employees' motivation thereby reducing staff turnover in the company
- Reducing the cost of staff training

For **employees** the main gains are the following:

- Reducing skills shortages of employees

[22] Web site: WBL-toolkit.eu
[23] Web site: WBL-toolkit.eu
[24] Web site: OECD (https://www.oecd.org/fr/education/apprendre-au-dela-de-l-ecole/work-based-learning-and-productivity.htm)
[25] Web site: OECD (https://www.oecd.org/fr/education/apprendre-au-dela-de-l-ecole/work-based-learning-and-productivity.htm)

- Tailoring the educational pathway of employees to their real needs and possibilities
- Higher satisfaction of employees with professional development

The main advantages for **academia** include:

- Competitive educational offer that better suits the needs of local employers and employees
- A source of additional income
- Making the foundations for a more sustainable cooperation with employers in local labor market (enterprises, institutions)
- Improvement of the image in the local labor market as the initiator of positive changes

An indispensable workplace component:

A substantial part of learning, i.e. half of it, should be done in the workplace, with some of this work-based experience being acquired abroad as far as possible. Taking into account the diversity of national systems, the aim is to work towards achieving this proportion of work-based learning over time.

2.2 Work-based learning – taking a quality assured approach

2.2.1 The EQAVET framework and the building blocks

The European Quality Assurance in Vocational Education and Training (EQAVET) 'Quality Assuring Work-based Learning' framework identifies a series of common themes, called 'Building Blocks', which have been used to establish and strengthen quality assurance processes in work-based-learning.
The EQAVET Framework[26] identifies 6 main BUILDING BLOCKS aimed to provide guidance and to set out activities that help VET providers to develop and support a quality assurance approach for WBL.
The building blocks are designed to be useful and appropriate for the three main models of WBL:

- Apprenticeship schemes which combine training in companies and VET schools or other education/training institutions;
- On-the-job training in companies which typically cover internships, work placements or traineeships which are a compulsory or optional element of VET programmes leading to formal qualifications;
- Integration into a school-based programme through on-site laboratories, workshops, junior or practice firms, simulations or real business/industry projects and assignments.

The 6 building blocks are:

1. Design work-based learning
2. Improve the quality
3. Respond to learners' needs
4. Communicate
5. Train the staff
6. Assess the learners.

Quality is ensured by following all stages of the implementation of an internship/traineeship.

These quality elements are declined in second section of this guide.

[26] EQAVET - Quality assuring work-based learning - http://www.euroapprenticeship.eu/UserFiles/File/quality-process/eqavet-quality-assuring-work-based-learning.pdf

Appendix 1 provides a list of WBL Quality Indicators, suggested by the EQAVET Framework for each building block, which should be taken as a reference when implementing WBL.

2.3 The growing importance of apprenticeships in European higher education

Through the principle of subsidiarity, higher education policies in Europe are under the responsibility of the member states. However, education and therefore higher education was formally recognised as an area of European competence by the Maastricht Treaty in 1992. The European institutions have since 2017 sought to develop a new strategy to match the development of skills in higher education with the needs of the labour market.

Apprenticeships have seen their place fully recognised in these new policies. Since 2014, the ERASMUS programme has included an objective of higher education mobility for learning purposes. In December 2016, the Commission launched scoreboards on how to encourage students and apprentices to go abroad.

In its resolution of 14 September 2017, the Parliament recognised the extremely positive effect of the Erasmus+ programme, in particular in increasing the chances of integration into the labour market, but also in encouraging active citizenship and a sense of European identity. However, he stressed that the new programme should be more open and accessible and focus more on vocational education and training, lifelong learning and non-formal and informal education. This recognises the interface of learning between higher education, employment and European citizenship.

2.4 Policies and Restrictions

Apprenticeships have the double merit of combining training and employability, thus facilitating better professional integration. Betting on apprenticeship therefore means showing confidence in the adaptability of the public concerned and in the creative will of companies. It has long been known that training policies must be brought closer to the needs of companies. However, in view of these important issues, it very quickly became apparent that it was essential to set precise objectives and a clear framework for apprenticeship policies.

In March 2018, the European Council adopted a recommendation on "effective and quality apprenticeships" to help young people enter the world of work. The European Commission, for its part, has proposed different criteria to determine what constitutes a policy for developing apprenticeship, in compliance with national or sectoral requirements or collective agreements. The criteria concern training, working conditions and general conditions.[27]

The following conditions are thus considered necessary:

- **Written contract**: Apprenticeship should be based on a written contract between the employer, the apprentice and the vocational training institution.
- **Definition of learning outcomes**: employers and vocational training institutions should define a set of comprehensive learning outcomes that ensure the acquisition of specific job-related skills and personal development.
- **Pedagogical support**: Company trainers should be appointed to cooperate closely with Vocational Training School providers and teachers. Support should be given to teachers and trainers to update their skills.
- **A strong workplace component**: at least half of the apprenticeship period should be spent in a workplace and the possibility should be given to gain some of this experience abroad.
- **Remuneration and/or allowance**: apprentices should receive remuneration and/or allowance, which should be determined taking into account the cost-sharing arrangements between employers, apprentices and public authorities.

[27] Website: cnefop.gouv.fr

- **Social protection**: apprentices should have the right to social protection, including the necessary insurance.
- **Respect for working conditions, health and safety**: relevant rules and regulations on working conditions, including health and safety legislation, should apply in the host workplace.

In addition, in July 2020, the European Commission launched a new version of the EUROPEAN ALLIANCE FOR APPRENTICESHIP. Its aim is to encourage national coalitions, support SMEs and strengthen the participation of social partners, including at sectoral level, mobilise local and regional authorities and support the representation of apprentices in the Member States. In addition, this renewed alliance will address important horizontal issues such as gender equality, social inclusion and the internationalisation of vocational education and training.

The challenges for the different participating states can therefore be summarised as follows:[28]

- **A well-defined regulatory framework**: a clear and coherent regulatory framework should be put in place on the basis of partnership and transparent dialogue between all parties concerned.
- **Ensuring good participation of the social partners**: the social partners, especially at sectoral level, should be involved in the design, management and implementation of apprenticeship programmes.
- **The establishment of a business support policy**: financial and/or non-financial support should be provided, in particular to small, medium and micro enterprises.
- **Enabling flexible pathways and mobility**: conditions for access to apprenticeship should be flexible and opportunities for further education and training should be available. Apprenticeship should lead to a nationally recognised qualification. Transnational mobility should be a component of learning.
- **Developing vocational guidance and awareness-raising**: to ensure successful acquisition of learning and to limit drop-out, the apprentice should be provided with vocational guidance, mentoring and learner support.
- **Ensuring transparency**: transparency of and access to apprenticeship opportunities within and between Member States should be guaranteed.
- **Ensuring quality assurance and monitoring of graduates**: there should be a mechanism for quality assurance of apprenticeship and monitoring of the employment and career progression of apprentices.

On a microeconomic level, measures to support companies and to develop the attractiveness of apprenticeship are essential. For companies facing recruitment challenges, generation renewal or skills shortages, apprenticeship is a solution. It is a positive investment because it will enable them to train a young person in their working methods and corporate culture and, subsequently, to have a motivated and operational employee. Business leaders must therefore have at their disposal new measures (e.g. fixed-term apprenticeship contracts) and financial aid to facilitate the long-term recruitment of apprentices as well as attractiveness and loyalty at the end of the apprenticeship period.

2.5 The main actors of WBL in Higher Education

Apprenticeships, Internships, Traineeships and other forms of VET, differently defined according to national rules and the training contexts of each organisation, may vary as well as the level of students' autonomy and the type of supervision provided.

However, when implementing WBL in Higher Education institutions (HEIs), we can identify different roles and actors within universities and hosting organisations.

[28] Web site: cnefop.gouv.fr

1. **WBL secretary:** the WBL secretary is responsible for coordinating the WBL activities from the administrative point of view; he/she is usually an administrative staff person (or sometimes someone involved in the teaching programme) of the HEI. The secretary establishes formal relationships with the hosting organisations. Students can contact the WBL secretary for all questions concerning their practical training.
2. **WBL coordinator**: each WBL is assigned a coordinator who, from the outset, becomes the WBL contact person for both students and WBL mentors. He/she is usually a faculty member of the HEI, either on a tenure or on a contract. A WBL coordinator stays in touch with the WBL mentor and the student.
   The main task of the coordinator is to supervise the process. This includes:
   a. the WBL implementation according to the Curriculum and the selected LOs;
   b. the monitoring of activities and assignments;
   c. supporting the mentor in the final evaluation of the student
   d. mediating, steering and intervening in the event of problems.
3. 3**. WBL mentor:** is an on-the-job contact person, working for the partner/hosting organization. The WBL mentor is often referred to as 'external tutor', but for clarity in this guide we will always refer to him as 'mentor'. The mentor shows the trainee how to manage the activities and relationships of the job in order to foster the trainee's abilities, career development, and professional growth. He/she is mainly responsible for the substantive supervision of the WBL on the job. He/she must be involved in the student assessment and keep in touch with the WBL coordinator.

2.6 The Covid-19 impact on WBL

The coronavirus pandemic (COVID-19), together with the containment and physical distancing measures, has led to significant changes in education and training. At the same time, it has led to many questions being asked, resulting in numerous innovations, particularly in learning.

For example, distance learning has been successful in ensuring some continuity in learning and skills development in technical and vocational education and training (TVET).

However, due to the social and digital inequalities already in place before the crisis, there is a risk that the most economically fragile groups, deprived of educational continuity, will accumulate even greater difficulties. Depending on the country concerned, the pandemic has tangibly increased inequalities in learning.

For the International Labour Office (2021 report on the COVID pandemic and vocational training), with few exceptions, the increased use of distance learning in TVET programmes has not promoted the acquisition of practical skills or the organisation of work-based learning, key elements of successful technical and vocational training.

However, for the I.O.B., "the crisis may not only have negative aspects - a multitude of promising practices have emerged to make teaching more flexible and to develop new assessment procedures using high-tech or low-tech solutions, or even without any technological input. Adapted to local contexts, these new solutions have continued to evolve as the crisis has deepened.

Thus, without delay, private and public TVET stakeholders established partnerships to facilitate access to distance learning systems, design new training programmes and mobilise additional resources to address skills and labour shortages in sectors hard hit by the health crisis.

These collective efforts have borne fruit and resulted in innovative solutions in response to the pandemic. Distance learning has proved to be a very effective tool, including for the development of practical skills.

More generally, the COVID-19 pandemic has transformed our relationship with the economy and society in general. The policy choices that governments make now and in the near future will determine success in the transition to a greener, more inclusive and sustainable future.

This is an opportunity to chart a course that allows everyone to face the future with confidence. Work-based learning will be part of the pathway to that future and will have to be complemented with alternative methods such as self-learning on recorded material, online courses and other not yet developed/known ways of sharing knowledge.

3 WBL in oMERO Curriculum

This is a step-by-step guide for the design of an effective Work Based Learning when localizing the EU VDR Curriculum. A checklist is provided (***see Appendix 2***) to verify the fulfilment of the described main steps:

1. **State the general aims, quality assurance and ethics**
2. **Design the WBL experience**
    a. Timing and length
    b. Identify workplace and partners
    c. On the job experience and Mobility options
    d. Partnership and safety documents
3. **Student orientation**
    a. Orientation
    b. Educational contract
    c. Monitoring and evaluation
4. **Selection of WBL Coordinators and Mentors**

The following sections introduce important quality and general guidelines for the WBL instantiation and the consequent practical tools that are needed to carry out properly for the WBL experience.

3.1 State general aims, quality assurance and ethics

Defining the **general aims of the WBL** for highly specialized professionals, a few important factors can be pointed out as relevant:

- learning at the workplace is contextual, and learning is characterized by contextual reasoning and flexibility;
- theory and practice at the workplace are seamless, and learning develops situation-specific competences.
- many activities at work require collaboration with other people, and person's ability to function successfully depends on the performance of other individuals;
- group working promotes knowledge exchange and sharing of expertise; to make this possible, ability and possibility to learn in collaboration with others is crucial to students.

In order to make the most of learning at the workplace, it is needed to design meaningful interaction and integrate theoretical and practical knowledge when developing professional competence into WBL.

In this context, oMERO project embraces the perspective put forward by the *Pact for Skills*, promoted by the European Commission in 2020, that is intended to mobilise a concerted effort among private and public partners for quality investment in skills for all working age people across the Union; to this end, the project adopts the following key principles:

- Building strong skills partnerships
- Monitoring skills supply/demand and anticipating skills needs
- Working against discrimination and for gender equality and equal opportunities

- Promoting a culture of lifelong learning for all

Quality issues address the effectiveness as far as the attractiveness of traineeships for all the parts involved, gaining an enforced link between educational and occupational needs.

It also relates to the potential societal benefits resulting from increased skills levels (and perhaps employability) such as the quality of services and the occupational opportunities for the next generation.

Regulatory frameworks for VDR internships should be settled clear, coherent and comprehensive, encompassing key aspects relevant to quality and having clarity regarding which organisations are responsible for which quality aspects. The regulatory framework should be based on a fair and equitable partnership approach including a structured and transparent dialogue among all relevant stakeholders.

Written documents and opportune monitoring tools, as described in the next section, will provide guidance and transparency into the quality approach.

Appendix 1 provides a useful list of WBL Quality Indicators, suggested by the EQAVET Framework for each building block, which should be taken as a reference when designing WBL for HE courses implementing oMERO Curriculum.

Willing to perform the most useful experience for the trainee and the best value for the learning process there are to be granted some quality issue, made upon parties' responsibility, respect and **ethical issues.**

In addition to the policies and practices provided by the internship site organization, the program expects all students to always conduct themselves in a professional manner. This includes but is not limited to:

- following all rules and policies as required by employer.
- maintaining strict confidentiality regarding information, especially regarding medical records (in this line, a signed consent to follow the rules of confidentiality should be provided)
- demonstrating honesty, cooperation, integrity, courtesy and a willingness to learn.
- treating all customers, clients, supervisors, and fellow employees with dignity and respect.

Students undertaking Work Based Learning are not employees of the provider and always remain students of the HEI:

- the intern should not replace the role of paid employees,
- the intern should be engaged in meaningful activities,
- there are no guarantees of employment consequent to the internship,
- the employer that provides the training derives no immediate advantage from the activities of the intern,
- religious, ethnic and sexual discrimination are in no way tolerated in the settlement of internships.

3.2 Design the WBL experience

The way work placements are structured affects the benefits that may be expected by students and employers from the experience. It is suggested to deepen internship opportunities and fellowships in advance, considering partners, skills and availabilities.

3.2.1 Timing and length

The amount of WBL in VDR training course will be stated by HEIs as a fundamental part of their course designs. The EU Curriculum for VDR proposed by the oMERO Project targets graduated professionals and aims to award EQF7 level certifications through academic courses awarding from 60 to 120 ECTS. Aside to the flexibility of the Curriculum in terms of awarded credits, WBL should cover a significant percentage of the workload in order to allow students to apply all the core competencies and to perform the professional skills.

For the VDR profile, a minimum of 300 hours of workload is suggested to be carried out in WBL in a course awarding 60 ECTS. The workload may be extended to cover half of the course, consistent with the total number of credits awarded.

As for the length, the WBL placement undertaken at the end of the programme, for example, can allow students to put into practice skills learnt at school and connect with potential employers. Short work placements throughout the programme or creating an on-the-job block in the middle of the programme may also foster students' motivation, building on and feeding into learning at school[29].

3.2.2 Identify workplace and partners

On-the job approach and settings

WBL training can be located *on-* or *off-the-job* or can be a combination of both. Combining *on-* or *off-the-job* locations for work-based continuous VET can be a way to make the off-the-job sequence prepare the on-the-job one: learners first receive basic theoretical and practical training on the off-the-job site (emphasis is placed on role playing, group working, observation and study trips, individual project work) and then, when ready, are placed in on-the-job positions where they will use what they have learnt, realise its value and consolidate it. (CEDEFOP) While the decision on the location may be arbitrary or pragmatic, it may also result from choices in terms of pedagogy and instructional strategy.

Considering the experiential approach to the key competences of the VDR curriculum, the internship is due to contextualize learning and to practice into the relationship with the VIP. Therefore, the methodology preferred would be starting from observing (not participant) towards a former collaboration within the MDT team under supervision of a mentor. Autonomy of contribution must not be interpreted as undertaking responsibility of the professional intervention or in substitution of a working colleague (see code of ethics).

Considering possible difficulties in targeting a larger group of students in workplaces (very a few organizations in VIP services and often small sized) and in the eventuality of pandemic related restrictions to in presence participation, part of the WBL credits can be delivered in an *individual project work* deployed under the supervision of one of the teachers plus an external professional expert.

Partner/Hosting organizations

It would be important to identify partners that can enable trainees to experience professional skills, by selecting places or partners that can offer expertise on more than one OU.

The WBL secretary ensures that on-the-job Internships take place within organizations with certain mandatory requirements. It is required that:

- The hosting organization must be dedicated to VIP or have an explicit competence area (i.e. rehabilitation area, blind and low vision representative and associations, hospitals or health centres, applied research centres).
- There must be at least 3 different professionals in the MDT, in order to observe the different intake of the specialized competences and to participate to the team collaboration.

[29] OECD papers WBL in school-based VET https://www.oecd.org/education/skills-beyond-school/work-based-learning-in-school-based-vocational-education-and-training-vet.htm

- The hosting organization must ensure at least 3 of the VDR key activities defined in the VDR Professional Profile (core competences from UoL 1 to 11), as EU Council recommendations state that apprenticeship schemes should be competence-based in order to enable trainers to attain the appropriate standards to work competently and safely.
- The WBL mentor should be identified from among the workers or established collaborations (different mentors should be indicated in case of multiple internships or to be alternated in the time schedule).

3.2.3 On the job experience and Mobility options

Opportunities for transnational mobility of apprentices should be provided: in this case mobility should be accompanied by necessary preparations and support before and during the internship, including foreign language learning. The international collaboration of oMERO project could support the student exchange options.

There are many tangible advantages of mobility periods as part of apprenticeships. These are for example improved foreign language skills, greater awareness of another culture and general health system approach, a greater ability to adapt to new situations, better interpersonal skills, better opportunities for subsequent employment or wider academic knowledge.

Once the hosting organization is recognized it is important to establish an appropriate regulatory framework, whereby the responsibilities, rights and obligations of each party involved are clearly formulated and are enforceable.

3.2.4 Partnership and safety documents

Contract with partner/hosting organizations

The partnership should be formalized in advance through Agreements with hosting organizations.

HEIs usually have a list of previous agreements with Partner Organizations. This list should be formalized so that students can select the Hosting Organisation in which they wish to have their WBL experience.

In compliance with HEI regulations and/or laws in force, these Agreements should detail:

- The full name, address and legal reference with power of signature for all the organizations
- The definition of curricular traineeship (alias internship or professional practice) and learning objectives
- the exclusion of a working relationship commitment for the hosting organization towards the student
- the fulfilment of safety and health regulations
- the number of students admitted in internship simultaneously or sequentially.

The Agreements should also formalize that the HEI is supposed to grant an insurance fully covering all described activities by the hosting organization.

It is the responsibility of the HEI's WBL Secretary to ensure that all administrative tasks associated with the WBL activity, including any required health and safety forms are completed.

Aside to the Agreements, an Educational Contract with the student should be formalized every time a WBL experience is activated. The Educational Contract is further detailed in section 3.3.1 of this guide.

Safety procedure and risk assessment

The hosting workplace must comply with security standards and guarantee a safe learning and working experience for learners engaged in apprenticeships.

Apprentices should be entitled to social protection, including necessary insurance in line with national legislation (EU Council recommendations). WBL organisers have a duty to ensure that health and safety arrangements are sufficient and appropriate.

Moreover, health and safety awareness would normally feature as a part of apprenticeship training.

According to local and international legal frameworks student are due to an opportune course (online or in presence) about safety procedures and workplace risk assessment.

Students, while on WBL, have the same health & safety responsibilities as other employees in the workplace, so they must take reasonable care of themselves and other people who may be affected by their acts and omissions.

CRITICAL ISSUES

Setting up WBL in a course implementing the oMERO Curriculum, designers may face some difficulties, such as:

- ✓ **Difficulties in finding partner organizations**: since Visual Rehabilitation is a sectoral and specific health-based activity and the VDR professional profile is not yet included in major organization schemes, it could be difficult to identify partner organizations and/or mentors within the limited surroundings of the HEI. The opportunities of WBL must be founded at least in the national area, considering in the advance the student mobility issues.
- ✓ Apprenticeship programmes should meet the actual employment and skills needs of employers within the framework of sectoral and/or national priorities. This means that apprenticeship programmes will rarely cover the full vocational profile, but will often deepen only some (and not all) of the core competences targeted by the curriculum. As long as the curriculum is not formally recognised and if it has not been previously registered in Social Health Services organisations, partners may have an interest in adding new profiles or express the need for different specialisations for future collaborations.
- ✓ **Cost of training**: WBL should be properly funded, with equitable cost-sharing between employers and public authorities at regional and/or national and European levels. It is ruled at local or national level where and if a reimbursement of internship is due and the eventuality of economic advantages for hosting companies. In any case the hosting organization has to engage effort and time that have to be intended as an investment. Placement of different financing arrangements for the covering the wage of apprentices and the staff costs of supervisors/mentors, depending on the framework arrangements, is due in advance
- ✓ **Health system restrictions and privacy**. Due to the particular professional role of the VDR the internship is often intended in the social-health system organizations that have to observe restrictions to participation and are obliged to limit the access to personal information. VIP recipients, or their representative, ethical boards or professional association could be asked to agree to the opening positions of internship.

3.3 Students' orientation

3.3.1 Orientation

Considering the broad career paths (EQF 6 bachelor's degrees) potentially leading to the VDR profile and the few niche organizations providing rehabilitation services to VIP, it will be important to introduce the WBL options to students in advance.

Adequate and timely career guidance must be provided to give orientation to foster the experiences and professional skills, to complete the profile.

Starting from an individual interview – once the wider learning programme is started – it would be useful to identify personal choice of tasks or competences between the curricular Units of Learning in order to suggest appropriate internships. Also, localization and participants' origin, motivation to mobility or limitations, other useful skilled knowledges as spoken foreign languages and driving licence, can be collected in the personal information form that will be useful to introduce the candidate intern to the hosting organization.

It is the responsibility of the HEI's Secretary to ensure that all pedagogic tasks associated with the WBL activity, including orientation and special needs assessment will be performed.

From a quality perspective, it is important to state the entry requirements for an apprenticeship for VDR: students must fulfil the programme course (percentage of participation and all the examinations) collecting the necessary prior learning before starting the on-the-job curricular traineeship.

3.3.2 Educational contract

Written contracts between Hosting Organizations, HEIs and learners are important to specify expectations and responsibilities of the different parties involved (EU Council, 2018).

A set of comprehensive learning outcomes should be defined for the apprentice in which specific job-related and key competences are balanced and support both the personal development and career opportunities of apprentices.

This would address the criticism that is raised against apprenticeships as fostering only the development of job-specific skills and not addressing transversal skills.

On the other hand, the settled intern needs some clear information about his/her own practical activities, timetables and rest time, designed contact persons, responsibilities and formal duties, presence registration, internal rules observance and privacy principles, which should be expressed in the contract details or in attachment.

The contract must contain the following information:

- the identity of organizational host and the project reference person
- the identity of the trainee
- the objectives and the competences targeted by the traineeship
- the date of signature, the starting date and the duration of the contract
- all rights and obligations of the parties
- the place of learning and the eventuality of home services or other locations
- all other conditions agreed between the parties concerning, for example, housing, food, remuneration.

The student is asked to sign within the contract the duties, activities and chosen curricular competences, engaging herself/himself in respectful actions and maximum effort.
The same curricular competences chosen for the educational contract will be evaluated at the end of the traineeship both by the student and the WBL mentors.

3.3.3 Monitoring and Evaluation

The quality approach, described in section 2.3, is pursued by ensuring that the competences gained and the learning process of internships are of high quality and compliant with defined standards for learning outcomes is recommended on the responsibility of the establishment of a European Quality Assurance Reference Framework for VET[30].

A number of broader, transversal and transferable skills should be targeted as a complement to job-specific competences, ensuring that participants can adapt to change after completing their training. The EU Recommendation described these competences as: communication in the mother tongue, communication in foreign languages, mathematical competences and basic competences in science and technology, digital competences, learning to learn, social and civic competences, sense of initiative and entrepreneurship, cultural awareness and expression[31].

The same curricular competences chosen for Professional Profile and Curriculum in the educational contract will be evaluated at the end of the traineeship both by the student and the workplace mentors, together with useful transversal skills chosen by parties between the one listed above. The HEI's Secretary and the coordinator (pedagogical reference for WBL) will be ensuring fair, valid, and authentic assessment of learning outcomes providing suggested and shared criteria to the workplace mentor (see ***Appendix 3***).

In this final evaluation, the student's gained competences (certified by the self-evaluation and the mentor's evaluation), the learning process (guidance, preparation of internship, company requirements, qualified roles, methodology and opportunities of learning, cooperation between HEI and work-based training) and prior knowledge level will be measured and assessed, in order to propose improvement and refinements in future collaborations.

An open qualitative section can be included in the final evaluation as a final note.

It is suggested to start the monitoring process after the first week of internship in order to be able to settle timely adjustments, even with a simple questionnaire or interview of involved parties (student, mentor). In some cases, the local framework requires the coordinator to carry out an inspective meeting to evaluate the effectiveness of the internship, its locations and tools. Even if this is not necessary and not formally requested by the local framework, it would be useful to organise such an inspective meeting, where possible.

The number of evaluation activities should not be too large and they should not be too demanding in terms of time and administration of procedures or activities about which employers are complaining. Moreover, the evaluation criteria of the traineeship process should be specified in advance and timely planned.

Timetables signed by the student must be collected in order to have evidence or participation and gain curricular credits.

Monitoring should be as far as possible based on scaled interviews or forms, in order to collect homogeneous data and to be able to underpin improvement areas. Quantitative evaluation requests also less effort in tracking a global evaluation of the WBL and allows transparency towards the student, the hosting organization and the global framework.

3.4 Selection and training of WBL Coordinators and Mentors

HEIs need to develop mechanisms to profile mentors in workplace organizations and to support those who have the relevant competencies to use specific WBL methods. HEIs also ought to ensure

[30] High-performance apprenticeships & work-based learning: 20 guiding principles. Cedefop. 2015.
[31] European Reference Framework of Key Competences for Lifelong Learning, 2006.

that employers understand the language of academic quality and to provide feedback on quality issues to employers and learners, facilitating meaningful dialogue, task observance and feedback[32]

Given the demands of WBL, in-company mentors have a particularly important role to play. They provide a learning environment within the company, supervise and assess the apprentice's learning activities and provide a link to the apprentice's training institution. For some in-company mentors, these skills come naturally, for other they do not, and so they need support.

Mentors should have access to various and flexible training programmes that provide opportunities to develop their competences, update existing ones to the required level or to close competence gaps. Competence development should especially cover training-related competences (see ***Appendix 4,*** trainer global competences from Cedefop 2013), while technical domains and company knowledge as well as transversal competences would be assessed at the beginning of the traineeship. The training programme would be optimized after final evaluation in order to act continuous improvement and perform major adherence to workplace issues and professional needs.

The WBL mentor, as a preceptor, through the acquisition of formative strategies, becomes an expert and specialist in a determined context which, with critical thinking skills and communicative abilities, accompanies the student in the practical experience, delivering it as meaningful training.

Hence the acknowledgement that the tutorial intervention implies "competence" in this context, intended as methodological guide of a process, which resides in the mobilization of the individual's resources (theoretical and procedural understanding, procedural, experiential, and social know-how), and not in the resources themselves. It takes shape, therefore, as knowing how to act (or react) in response to a specific situation-problem, in a specific context, with the purpose of delivering a performance.

Main educational methods in training WBL interns should be:

- learning by observation
- leaning by doing
- learning by communication
- cultural acknowledgement

The WBL coordinators' training programme, should include:

- introduction of roles, responsibilities and objectives in WBL
- methodological and educational opportunities in WBL
- professional competences aimed trough the WBL experience
- relationship and communication competences
- monitoring tools and final evaluation

The learning development of the student also turns out to be based on the relational dimension of competence, which favours above all the inclusion of the student within the professional healthcare staff (onboarding). This dimension shows that the dual relationship that is established between the trainee and the trainer who, as an expert, promotes the professional development through reflection on the experience (to reconstruct concepts and knowledge from practice). This relational dimension of competence is usually realized by the participants mainly through open communication with the student, mutual trusting and attention given to supporting the student toward a good outcome of the formative process (educational-relational approach).

Therefore, awareness of the internal role and training objectives is the very first step in the enrolment of the WBL Coordinators in the formative approach.

[32] https://cesie.org/studi/work-based-learning-benefits-wbl/

The last dimension of WBL coordinator competence, namely the organizational one, focuses their tutorial action on the creation of the organizational conditions with the purpose of supporting the student in optimizing performances. The organizational dimension of competence is dedicated to select and introduce tools and instruments, internal documents, select activities and process stages to be followed or participated (create learning-conducive work environments) and, where necessary, express rules or instructions.

Opportune activity plans need to be given to the student in order to make the experience operational and not casual.

Furthermore, this cooperation should be supported by mutual and regular feedback mechanisms. Monitoring how the learning outcomes are reached should take place through continued monitoring systems, in which both teachers and in-company trainers cooperate.

HEI's WBL secretary and coordinator should expressly be available for role supporting to mentors during the whole WBL process, both for practical and educational issues.

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Appendix 1 - WBL quality indicators recommended by EQAVET framework

Here below are listed a set of WBL quality indicators suggested by EQAVET Framework (EQAVET - Quality assuring work-based learning - http://www.euroapprenticeship.eu/UserFiles/File/quality-process/eqavet-quality-assuring-work-based-learning.pdf). They have been identified in research as the most important under the four following headings:

Plan

1. Commitment to WBL at senior level (statement of intent)
2. Roles, responsibilities and authority are clearly defined
3. Resources allocated to facilitate WBL
4. WBL is part of talent management strategy
5. Work-based learning policy present

Do

6. Appropriate matching of student to the work-placement
7. Skills profile of WBL students established prior to placement
8. Recruitment of student based on company needs
9. Productivity return on WBL student
10. Onboarding of WBL students facilitated
11. Retention rate of students
12. Exposure to real-life work experiences
13. Time allocated for support and supervision (between student and mentor)

Check

14. Monitor and measure satisfaction levels (Company, Student and VET)
15. Internal communication and feedback loops established
16. Opportunities for Improvements
17. Conduct regular (annual) audits and review of WBL processes

Act

18. Relationship between Company and VET Provider established
19. Structured communication in place between company and VET provider - feedback, problem solving, etc.
20. Improvement opportunities determined and actioned

Appendix 2 – Checklist: organizing WBL for VDR curriculum

PRELIMINARY STEPS	
The HEI organization has pointed out the Learning Outcomes relevant for the VDR professional to be targeted within the internship (WBL) from the curriculum	☐
Regulatory frameworks for VDR internships are settled clear in HEI	☐
There is an expressed code of ethics for student's internship	☐
If YES, it is delivered to the student	☐
HEI resource dedicated to pedagogic responsibilities in WBL (LO and orientation)	☐
HEI resource dedicated to student/workplace support and monitoring	☐
DESIGN THE WBL EXPERIENCE	
Timing and length of WBL internship are settled	☐
If YES, it is settled at the end of the programme	☐
If YES, experiences are also included in the middle of the programme	☐
Partner/Hosting organization, fulfilling the minimum requirements, i.e.	
it is dedicated to VIP or with explicit competence area	☐
it involves at least 3 professionals in the MDT	☐
it ensures at least 3 of the VDR key activities defined in the VDR Professional Profile (core competences from UoL 1 to 11)	☐

it clearly identifies WBL Mentors	☐
On the job experience and Mobility Options	
integration with Project Work	☐
transnational mobility option	☐
a check on foreign language skills (especially in the event of a transnational mobility option)	☐
Partnership document with hosting organization signed	☐
Insurance extension to the workplace and activities	☐
Safety procedures and workplace risk assessment checked	☐
Safety course taken by the student	☐
STUDENTS' ORIENTATION	
Student orientation interview performed (in advance)	☐
If YES, student personal information form or description is envisaged	☐
If YES, curricular exams and participation is checked	☐
Educational contract signed	☐
If YES, curricular competences expressly listed	☐
If YES, practical information for the apprentice included	☐
Mobility support is provided	
by HEI organization and administrative resources	☐
by the hosting partner	☐
MONITORING AND EVALUATION	
Process quality indicators selected and monitoring process planned	☐
If YES, in-progress evaluation is planned	☐
If YES, final evaluation is planned	☐
If YES, results analysis and feedback is planned	☐
SELECTION AND TRAINING OF WBL COORDINATORS AND MENTORS	
WBL Mentors' tasks and profile shared with hosting organization for assessment	☐
WBL Coordinators' Training programme developed and planned	☐
If YES, the training programme has been carried out	☐
Direct support to WBL Mentors available	☐

Appendix 3 - Final Evaluation criteria (suggested)

	Trainee evaluation (or self evaluation)	**Coordinator evaluation**

Appropriate matching	- correspondence with student's goals and professional interests - adherence to curriculum LOs - practical support from HEI	- previous knowledge of student - correspondence with company's mission and professionals - practical support from HEI
Onboarding process	- coordinator support in practice - staff integration - practical and clear information	- student's motivation - behaviour with staff - efficiency
Training process	- clarity of educational contract - variety of learning opportunity - coordinator's support - coordinator's ability to transfer	- clarity of partnership contract - clarity about roles and tasks - quality of trainers' training or information
Learning Outcomes (curricular)	- acquired experience for each UOL in the educational contract -- UOL1 -- UOL3 -- …	-acquired competence for each UOL in the educational contract -- UOL1 -- UOL3 -- …
Other competences (transversal)	-opportunity to exploit wider transversal competences: i.e. communication, foreign language, mathematical and research, technology and ICT, learning to learn,	- transversal competences performed: i.e. communication, foreign language, mathematical and research, technology and ICT, learning to learn, social and cultural,

	social and cultural, innovation and entrepreneurship	innovation and entrepreneurship
General satisfaction	- personal satisfaction (suggested Likert scale 3 points or 5 points)	- personal satisfaction - global evaluation of the student
Transferability	- usability of experience and transferability to other workplaces	- estimated opportunity for employment

Appendix 4 – WBL Trainer competences to be assessed and/or trained - Cedefop (2013)

1. Competences related to technical domains, sectors:

(a) qualification in training;

(b) good knowledge of the subject, expertise in the sector;

(c) experience;

(d) awareness of legislation and developments in the sector and industry;

(e) knowledge of qualification requirements;

(f) awareness of related occupations in the sector.

2. Company specific competences:

(a) awareness of the company's core business and structure, activities and working methods, strategy and objectives, staff's profile;

(b) awareness of emerging skills and skill needs of employees in a company.

3. Training-related competences:

(a) training (learning) needs assessment:

- ability to assess competences of the staff (apprentices, trainees), identify competence gaps and relevant training (learning) needs,
- ability to combine company needs and individual aspirations of learners,
- ability to distinguish between short-term and long-term learning needs;

b) training design:

- ability to design a training programme based on learning objectives and outcomes and learning needs of specific learner groups,
- ability to assess and select relevant content and methodology,
- ability to specify theoretical and practical parts of the programme, methodology, evaluation methods, and resources needed,
- ability to plan the programme time schedule;

(c) training delivery:

- knowledge of training and learning facilitation methods and techniques; group dynamics; learning styles; equal opportunities principles; ethical principles,
- ability to create a positive and stimulating learning environment,
- ability to motivate learners to apply their knowledge, skills and competence in workplace situations,
- ability to select and apply appropriate training methods and techniques and flexibility of approach;

(d) assessment of learning:

- knowledge of formative and summative evaluation methods,
- ability to assess comprehension and progress of learners,
- ability to provide feedback and possibly guidance to learners,
- ability to apply various assessment and evaluation methods and techniques,
- ability to assess the training programme and identify issues for improvement.

4. Transversal competences:

(a) project management;

(b) positive attitude;
(c) ability to work in a team;

(d) communication skills;

(e) presentation skills;

(f) use of ICT to simplify learning;

(g) critical thinking;

(h) networking skills;

(i) multicultural awareness;

(i) conflict management,

(ii) self-assessment and self-development (learning to learn);

(j) ability to identify own knowledge and competence gaps and learning needs;

(k) ability to identify relevant and high-quality training options for updating one’s skills and competences.

Annex 7: DK10 - REALTER - Why and How to adopt the system in your training program

oMERO Project

an eu curriculuM for visual disabilitiEs RehabilitatOrs

Designers' KIT

REALTER

Why and How to adopt the system in your training program

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

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

What is REALTER?

The acquisition of rehabilitation techniques requires a strong immersion in the reality of daily life to understand how patients experience their low vision condition. If simulating absolute blindness is achievable with empirical methods, simulating low vision is much more complicated but fundamental for the accurate training of the rehabilitation operator. REALTER (wearable egocentric altered reality simulator) is a device that simulates, in real time, visual impairment in low vision conditions, to be used as a training tool for operators specialized in the rehabilitation of partially sighted subjects with particular reference to "orientation and mobility".

REALTER will provide an effective interface to experience the actual limitations and needs of visually impaired people (VIP), i.e., to orient themselves, manipulate objects and move around the environment on the basis of visual information accessible to a person with severe low vision.

Why could it contribute to your training program?

REALTER can extend the learning methods to innovative practical activities where the student can “experience” the impairments of disability first-hand, with a considerable reduction of time[33]. For example, while currently applied methods require a teacher-student ratio of 1:2 (reducible to 1:3) for classroom and outdoor activities, a planned use of REALTER, during practical sessions led by a technician, should significantly reduce teaching time, especially for graduate students, and allow truly immersive training experiences. Moreover, collaborative study (i.e., couples of students with exchangeable trainer/trainee roles) or self-training approaches could be implemented. Specific lesson plans delivered by oMERO will support the effective planning of these learning experiences.

[33] Yet, depending on the number of systems that can be purchased within the teaching program.

User's perspective factsheet

How to use

The current version of the system can be used indoors to experience the performance of simple every-day tasks (such as reading, pouring water into a glass, preparing a sandwich, etc.) under simulated low vision conditions.

It does not necessarily require a dedicated fixed space, as the system is easily transportable. However, it would be preferrable (and recommended) to have a dedicated working area (minimum 2 m x 1.5 m), where to mount the external base stations (see details in the following sections).

System components

The current prototype integrates several commercial hardware components and uses a software package running on Windows. The installation, calibration and upgrading of the software will depend mainly on the support available for single commercial components.

Specifically, REALTER is composed of:

- a commercial head-mounted display (HTC Vive Pro Eye) typically used for gaming (goggles + base stations + controllers). The HMD has a fully integrated eye-tracking system, which plays a key role for gaze-contingent visual alterations;
- an external stereo camera rig that can be mounted on the HMD;
- a PC with the following features:

System requirements

Component	Recommended system requirements	Minimum system requirements
Processor	Quad-core 3.0GHz or faster processor (e.g. Intel Core i7-9750H)	Quad-core 3.0GHz or faster processor
GPU	NVDIA GeForce RTX 2070 or higher	NVDIA GeForce GTX 1070 or higher
Memory	8 GB RAM or more	4 GB RAM or more
Video output	DisplayPort 1.2 or newer	DisplayPort 1.2 or newer
USB port	2x USB 3.0 or newer	2x USB 3.0 or newer
Operating system	Windows 10	Windows 7 SP1, Windows 8.1 or later, Windows 10

Providers and costs

The HMD can be purchased directly from the manufacturers or distributors (see details in the following sections) at an average cost of 1500 Euros.

The cost of the whole set of hardware components is around 3200 Euros.

Software

A first release of the graphic software engines is available as a free executable code, together with a technical user guide for demonstration purposes with no specific support. A commercial software suite is under development by a local company.

Technical assistance requirements

The whole system is designed to be managed by any ICT technician without specific training.

System set-up

This section lists all the necessary steps to make the system work.

1) Purchase of system's components:

  	HTC Vive Pro Eye The HDM comes with two base stations and two controllers	https://www.vive.com/us/product/vive-pro-eye/overview/
	ZED mini The ZED Mini comes with a 1.5m USB Type-C to Type-A cable, a 4m USB Type-C to Type-A cable, and a VR mount for Vive and Oculus headsets	https://www.stereolabs.com/zed-mini/
Personal Computer (desktop or laptop)		See previous section for minimum and recommended system's requirements https://www.dell.com/en-us/shop/desktop-computers/sr/desktops/alienware-desktops

https://www.dell.com/en-us/shop/dell-laptops/sr/laptops/vr-ready?appliedRefinements=9903

https://www.dell.com/en-us/shop/gaming-laptops/sr/game-laptops/alienware-laptops

2) Define the working area according to the virtual boundaries depending on the VIVE Pro Eye features. The first prototype of REALTER is designed for room-scale setup, but you can also use it for standing and seated experiences.
   Before choosing your setup, make sure that you have enough space. Room-scale setup[34] needs a minimum working area of 2 m x 1.5 m (6 ft 6 in x 5 ft). Seated and standing experiences do not have space requirements.
   - Find a space that you will designate as the play area.
   - Place your computer next to your play area. The headset cable extends approximately 5 m (16 ft 4 in) from your computer.
   - Make sure that there are power outlets close to where you mount the base stations. Use 12V extension cords as needed.

   Note: An upgraded version of REALTER is currently under development, it is expected to be used outdoor, avoiding the current working area limitations posed by base stations. When the upgraded version will have been released, these guidelines will be revised and integrated accordingly.

3) Before you can use REALTER, you will need to complete the VIVE Pro Eye setup process.
   To start the setup process, you can:
   - download the setup file on your computer from: www.vive.com/setup/vive-pro;
   - run the setup file and follow the instructions to complete the process;
     Note: Once you have completed the room setup, you will need to run it again if you have moved or adjusted the angles of the base stations or if you transfer your VIVE Pro Eye VR system to a different room.

[34] Room-scale VR (room-scale virtual reality) is the use of a clear space to allow movement for someone using a VR application such as virtual reality gaming. (https://whatis.techtarget.com/definition/room-scale-VR-room-scale-virtual-reality#:~:text=Room%2Dscale%20VR%20(room%2Dscale%20virtual%20reality)%20is,virtual%20environment%20seem%20more%20real)

- download the eye tracking SRanipal Runtime file on your computer from: https://developer.vive.com/resources/vive-sense/eye-and-facial-tracking-sdk/download/latest/
- run the setup file and follow the instructions to complete the process.

4) Other settings for the head-mounted display can be found in the VIVE Pro Eye User guide: (https://developer.vive.com/documents/718/VIVE_Pro_Eye_user_guide.pdf)

5) The software graphic engine for administering the simulated visual alterations is provided as a free executable code for demonstration purposes.
   Note: A commercial software through a joint venture between academic and industrial partners is currently under development.

Setting-up the whole system would require a couple of days of an ICT technician.

The presence of an ICT technician during the use of the system is suggested to promptly fix possible unexpected system faults