



EOHUB

Output 3.1

TRAINING STRUCTURE AND COURSE DESCRIPTION

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TABLE OF CONTENTS

1	THE AIM OF THE EOHUB PROJECT AND THE TRAINING PROGRAMME.....	2
2	SHORT DESCRIPTION OF O 3.1	3
3	TRAINING PATHS DEVELOPMENT.....	4
3.1	Target groups	5
3.2	Basic definition of target groups	6
4	DEFINITION OF LEARNING CONTENT MODULES	7
5	STRUCTURE OF THE TRAINING'S PROGRAMME.....	8
6	SELECTION OF THE FUNDAMENTAL MODULES	9
7	HARMONISATION AND VALIDATION OF THE LEARNING MODULES AND TRAINING PATHS. 10	
8	MEMORANDUM OF COOPERATION	11
9	UNITS FRAMEWORK.....	13
10	DEVELOPMENT OF THE CONTENT	14
11	GUIDELINES FOR TRAINERS.....	15
11.1	Basic concepts utilised	15
11.2	Teaching strategies.....	16
12	ENSURE OPEN LICENSES OER FOR TRAINING MATERIALS	22
13	REFERENCES	25

1 THE AIM OF THE EOHUB PROJECT AND THE TRAINING PROGRAMME

The aim of “EOHUB” is to increase the capacity of higher education institutions and business to integrate research results and innovative practice into the educational offer, and to exploit the potential for marketable process, methods and services in the field of EOs. This activity will focus on breaking down the learning pillars into smaller and more manageable training modules and units. The objective is that the granularity of the modules will be such that student and companies can meet all their needs, assuring that no unnecessary training is received.

Each partner will participate in this definition according to their expertise and best practice training (face to face, on-line, slides, video, etc.). The training modules are going to be organised according to analysis of priority order and local requirements. It is going to be reflected the results of the research and survey that it was done in WP2.

The partnership will receive feedback about the necessities from the industry by surveys in UK, Spain, Hungary and Belgium.

That information collated will be used to design the structure of the training program, training paths and training modules and units.

In this report, it can be found the proposed structure of the EOHUB Training Course, modules and units with an explanation of each one.

Finally, it is using some terminology that it is necessary to know to understand properly the structure of the Training:

- Training is the whole content that we will develop
- Full course: 15 ECTS:
 - Training paths, the different possibilities inside the Programme –9 ECTS
 - E-learning practical training – 3 ECTS
 - Personal work – 3 ECTS
- 20 pages as learning material (later compiled for a printed handbook)
- Modules, are made to regularize the contents of the Training and make its structure and Training paths easier to be understood.
- Units, is a branch of knowledge studied or taught. It will be referred to an important part of the contents of essential oils sector. Inside a unit, the content will have a common structure. Each unit has a number of ECTS, depending on the number of hours to acquire the required knowledge, skills and competences. Each unit could have: • a "powerpoint". • Videos (Mainly extracted from the MOOC) • Interactive websites • Practical material from Case Studies • Recommended readings • Evaluation of the Unit: Multiple choice/quiz.
- ECTS: European Credit Transfer and Accumulation System. It is a standard mean for comparing the volume of learning based on the outcomes and their associated workload. It is considered 25 hours per credit point (because we are considering an academic year of 1500 hours of total workload and 60 ECTS credit). Moreover, the ECTS is split in 40% of teaching content, 40% of student work and 20% of tutorship and exam, in conclusion, 10 hours of teaching content, 10 hours of student work and 5 hours of tutorship and exams.

2 SHORT DESCRIPTION OF O 3.1

The WP overall aim is to develop high quality (recognized and validated through ECTS), open-access, interactive, coherent and diversified training material while also providing EU university-business knowledge transfer through staff mobility.

O3.1 aims to will develop a clear training structure, identifying all different components and educational aims for each module. Particular attention is to be given to recognition and validation of the e-learning contents and structure through the ECTS system and the correspondence with the guidelines provided.

The following proposed structure is to be revised according to needs' assessment:

- 1) E-learning/interactive: introductory modules on project background and EOs disciplines, (1 ECTS equals 8/10 learning hours). (9ECTS)
- 2) E-learning practical training: New Challenges and Applications in Essential Oils Market-Entrepreneurship. (3ECTS)
- 3) Final evaluation. (3ECTS)

The training programme is to be designed in terms of the necessary areas of knowledge and the pedagogical methodologies optimized to fit the variety of job profiles and the industry, by providing a core training path, as well as training modules and their units in languages to address the specific needs of certain job profiles. It also will also contain guidelines to support trainers and lecturers. Furthermore, the strategy for protecting the training materials under open licenses is to be described.

The training's programme is based on the concept of Learning Outcomes.

Learning outcomes: *Statements of what a learner knows, understands and is able to do on completion of a learning process defined in terms of knowledge, skills and competence.*

Developing of materials related key topics like: - General notions about essential oils industry and research, Growing and domestication of aromatic, medicinal and spice plants, Extraction and processing of essential oils, Analytical methods and international standards of quality, Main uses and industrial applications of essential oils, Valorisation of co-products from the essential oil industry, Market issues and trade, Regulatory issues and concerns, etc.

The E-learning material will provide to the student to the enough knowledge of EO that will guide young scientists toward entrepreneurship, innovation and conservation in the field of Essential Oils. For that, this pillar is the base of the EOHUB training course.

This E-Learning allows to students to build skill sets and knowledge base that will give opportunity to have a full comprehension of the EO sector. SMEs will not always have the full compliment of machinery or industrial processing processes. It is therefore important that students have an appreciation of state of the art processes available to them through outsourcing. Graduates who find employment will be encouraged to complete CPD to maintain cutting edge knowledge of EO sector possibilities which will contribute to the aim of the project to support young entrepreneurs to succeed in the EO sector of business though access to knowledge.

These E-learning modules aims to prepare students and stakeholders interested in the EO sector.

The training also aims to provide the student with all the regulation and standards related with the commercialization of the EO products. For that, is a supporting pillar of the manufacturing process pillar that will lead the enterprise to the success in terms of barriers of commercialisation.

3 TRAINING PATHS DEVELOPMENT

Training (Learning) path (pathway) is normally described as the chosen route, taken by a learner through a range of (commonly) e-learning activities, which allows them to build knowledge progressively.

Training Path methodology uses a performance improvement approach to learning / training and defines a Training Path as the ideal sequence of learning activities that drives target users (participants) to reach proficiency in their knowledge / experience / job in the shortest possible time.

Creating a curriculum is one of the essential functions within an education or training system, as it constitutes the guideline for planning, conducting and assessing learning processes. Existing literature reveals that curriculum development can be approached from three different perspectives (Smith and Keating, 2003, p. 121):

The first perspective is to regard it as 'rational' or 'linear': i.e., it is a logical process that proceeds from objectives to the selection of learning experiences to the organisation of learning material to evaluation.

The second perspective sees curriculum development as a 'cyclical' model, where the whole learning process is a cycle that continually renews itself so that evaluation leads to the reformulation of objectives.

The third perspective shows an 'interactive' model that assumes curriculum development can commence at any stage and that feedback leads to constant change at any stage.

The two most commonly used methods for curriculum development – DACUM and functional analysis – can be rated and described as linear models. DACUM (an acronym to represent developing a curriculum) is a method to define systematically the tasks, jobs, competences and tools associated with a certain type of workplace. DACUM is an inductive approach that defines small units so that it is possible to gradually extend those units and apply them in a broad context.

Three assumptions are underlying DACUM: First, people who regularly perform certain activities can describe them in a realistic and precise manner. Second, an efficient means to analyse a job is to describe the tasks of a specialist precisely and completely. Third, every successfully completed task requires special knowledge, skills, equipment and behaviour, which can be identified implicitly through work and job analysis.

The job analysis that is required by DACUM includes several elements, such as the analysis of occupations, jobs, duties, tasks and single work steps. Additional issues such as workers' behaviour, their general knowledge and skills, tools, equipment, supplies and materials, as well as future concerns, should be considered. Gonczi et al. (1990, p. 38) defined steps to be undertaken to set up and conduct a DACUM procedure:

1. First, it is necessary to choose an expert facilitator and select participants from various levels of the relevant occupation. Participants must have a profound knowledge of the occupation and it is important that different interests (e.g., educators, practitioners, unionists) are involved.
2. Second, a pre-DACUM session must be organised in order to explain the process of curriculum development. At the beginning of the session, the facilitator has to give a general introduction to and review of the occupational area. Then the main duties within the occupation must be outlined; associated tasks, sub tasks and required competences must be identified.

Additionally, the importance of each task, sub task and competence must be rated according to the frequency of its performance and its importance for a holistic work performance. The results

must be structured and recorded for a final report, which is then disseminated to the relevant authorities.

The steps of a typical DACUM session are outlined below:

1. General introduction and orientation
2. Review of occupational area
3. Identification of the duties
4. Identification of tasks, sub-tasks and competences associated with each duty
5. Reviewing and refining the outcomes so far
6. Establishing importance of each task and /or competence by rating the frequency of performance, its degree of importance, etc.
7. Final structuring
8. Recording final results
9. Preparing final report.

Problems articulated regarding DACUM include the status quo of a job description being taken into account, and so methodical aspects, as well as assessment designs, are disregarded. To address this problem, a holistic approach to curriculum development is necessary. This determines not only learning targets in terms of competence standards, but also respective and appropriate assessment guidelines, as well as methodical support for teachers or instructors. However, it seems unrealistic to set-up appropriate procedures that generate elaborated curricula within a short period of time. Functional analysis is another method for curriculum development that is widely used in the UK in a variety of industries. Functional analysis is a deductive and target-oriented approach (Gonczi et al., 1990, p. 43).

In the analysis, the central task of an occupation is defined and complex functions are derived. Furthermore, basic sub-functions and simple tasks are derived from complex functions of the occupation. Therefore, functional analysis may be characterised as a process of disaggregating complex functions into smaller components, where functions are the defined outcome of a realised activity without describing the specific context of the activity. Functional analysis leads to small units and elements of competence that compose the design of a competence standard. One arising problem is that functions should be generally defined, although they are not necessarily suitable for all the different contexts. Another difficulty is that the complexity of work processes and occupations cannot be easily addressed simply by disaggregating complex functions into smaller units.

Although both functional analysis and DACUM are complex procedures that require sufficient expertise from practitioners, they depict the most commonly used methods for curriculum development in Competence-Based Education and Training. Other methods – such as expert interviews, questionnaires, and Delphi – could not be established as appropriate tools for curriculum development within Competence-Based Education and Training on a large scale.

3.1 Target groups

EOHUB consortium will identify appropriate Target Groups (users/students/training participators) for the Training's curriculum, based on consortium partner's preliminary research and knowledge, discussion, identification and set up via project consortium regular communication and project meetings.

Tree (3.) Target oriented user groups were defined:

1. Managers
2. Post-graduate Students
3. Professionals

(technical engineers from various essential oils sectors).

3.2 Basic definition of target groups

Manager is a person engaged in management. Management / Business managers are responsible for overseeing and supervising a company's activities and employees. Small businesses rely on the business manager to keep workers aligned with the goals of the company. Business managers report to top executives in a larger organization, but in a small company, the manager might either own the company or report directly to the owner.

Types of Business Managers Business managers oversee the day-to-day operations in large and small organizations. In a big company, managers typically oversee an individual department, such as marketing, sales or production. In a smaller company, the business manager might oversee operations in all departments. Office managers oversee the work of clerical or support staff in the business.

A post-graduate student is someone who is enrolled in a degree-granting program (either undergraduate or graduate) at an institution of higher education and registered full-time or part-time according to the definition of his/her respective public academic education institution.

Professionals in the case of EOHUB are mostly chemical, agriculture, processing technicians / technical engineers working in various thematic sectors or industries that are some kind involved in the EO sector.

A technician / technical engineer, is primarily trained in the skills and techniques related to a specific branch of its sector, with a practical understanding and has general fundamental technical concepts. He often assists engineers and technologists in projects and research and development.

Professionals solve technical problems. They build or set up equipment, conduct experiments, and collect data and calculate results. They might also help to make a model of new equipment. Some technicians works in quality control, where they check EO products, do tests, and collect data. In EO manufacturing, they help to design and develop products. They also find ways to produce things efficiently. There are multiple fields in this job such as; software design, repair, etc.

4 DEFINITION OF LEARNING CONTENT MODULES

This document presents a preliminary framework of EOHUB E-learning offer for the Essential Oil sector, including modules, units, abstracts. Changes may be necessary because Training content could evolve during the development of the contents. For that, the distribution of the Learning content in this document is considered as a Draft.

- Point 4, there are an explanation about the main structure of the E-Learning Course with the number of modules and units
- Point 5 and Point 6, these points are focused in the selection of the modules and units according precious steps of the project
- Point 7 is focused in the structure of the units
- Point 8 is referring to the responsible and collaborators entities in the moment of develop the content
- In Point 9 could be found the modules which are composing the E-Learning
- Point 10 is about the 5 possible learning paths
- Finally Point 11 is focused on each unit with their content, units and knowledge, skills and capacities you could acquire.

5 STRUCTURE OF THE TRAINING'S PROGRAMME

EOHUB course is composed by two modules:

- Module 1: Six units about essential oils
- Module 2: Entrepreneurship in the essential oils sector.

The final structure of modules content run as follows:

UNIT NAME	PARTNER
MODULE 1	
1. Introduction and definition of Eos	P1 - UPM
2. Source of EO, plant cultivation and collection	P4 - SZIE
3. Post-harvesting and processing techniques	P4 (SZIE) - P5 (LIEGE)
4. Quality Control and regulation	P5 (LIEGE) - P9 (BELGAGRI)
5. Biological activities in Eos	P6 - AKOS
6. Food/flavour and Cosmetic applications	P1 - UPM
MODULE 2	
New challenges on application in EO and entrepreneurship	P1 - UPM

Each UNIT must contain:

- 20 pages as learning material (later compiled for a printed handbook)
- 1 video (5 minutes, .ppt, mp4-produced in-house)
- Evaluation of the unit 10 questions test:
 - Multiple choice / quiz
 - T/F
- Practical activity: exercise from one case study
- External links to videos (youtube, vimeo, etc.)
- Recommended readings

6 SELECTION OF THE FUNDAMENTAL MODULES

The main modules will be selected according the consensus of the sector.

MODULE 1:

1. Introduction and definition of Eos - UPM
2. Source of EOs, plant cultivation and collection - ZSIE (hereinafter, MATE)
3. Post-harvesting and processing techniques - MATE/Liege
4. Quality control and regulations - Liege/Belgagri
5. Biological activities in Eos - AKOS
6. Food/Flavour and Cosmetic applications – UPM

MODULE 2:

7. New challenges on application in EOs and entrepreneurship - UPM

7 HARMONISATION AND VALIDATION OF THE LEARNING MODULES AND TRAINING PATHS.

Thus, The e-learning course finally has the following structure: E-learning/interactive: introductory modules on a wide range of topics on EOs: Introduction to Essential Oils-basic terms, Active principles, Applications Essential Oils-New Challenges, Cosmetic industry, Agri/Food industry and Medicinal uses, Entrepreneurship, and personal work (15 ECTS, 450 hours).

The following proposed structure according to needs' assessment is accepted:

- 1) MODULE 1. E-learning/interactive (9 ECTS): introductory modules on project background and EOs disciplines, (1 ECTS equals 8/10 learning hours).
- 2) MODULE 2. E-learning practical training (3 ECTS): ENTREPRENEURSHIP. New Challenges and Applications in Essential Oils Market-Entrepreneurship.
- 3) MODULE 3. PERSONAL WORK. 3 ECTS. Individual and personal work on a particular aspect of EO (subject to be validated by the professor): Business Plan Proposal or Research work.

8 MEMORANDUM OF COOPERATION



EOHUB PROJECT - MEMORANDUM OF COOPERATION

This Memorandum of Cooperation is made on *the 07 of July 2021* among partner universities in the Expert Course in ESSENTIAL OILS AND ENTREPRENEURSHIP, EOHUB.

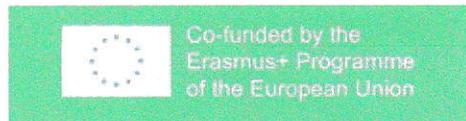
Universidad Politécnica de Madrid – School of Forest Engineering and Natural Resources - Spain

Buckinghamshire New University- United Kingdom

Université de Liège - Gembloux Agro-Bio Tech - Belgium

Magyar Agrár- és Élettudományi Egyetem – Institute of Horticultural Science - Hungary

1. The partner universities share a commitment to the provision of high-quality education and recognise the value of the international dimension of their activities and the mutual development of teaching activities.
2. This Memorandum of Co-operation witnesses that the institutions wish to develop their collaboration in the Expert Course in ESSENTIAL OILS AND ENTREPRENEURSHIP. The above-mentioned programme has been jointly developed within the framework of the Erasmus Project of the Knowledge Alliances Programme (KA2) of the European Commission.
3. Due to its innovative character and to the fact that the new programme responds to clear social demand the Programme has been successfully validated in Europe. The structure and the content of the programme have created an excellent opportunity for the further collaboration in delivering it in a collaborative manner.
4. We are committed to further collaborate in delivering the programme. The respective institutions acknowledge that any academic admission, enrolment, progression and curriculum development arrangements will need to be subject to Due Diligence investigations, quality assurance procedures and the development of a formal contract.
5. To further enhance the collaborative provision, possibilities for Erasmus exchanges –students and lecturers-may be considered.
6. Multilateral collaboration between partners could include: Exchange of faculty members; exchange of students; joint research activities; participation in seminars and academic meetings; special short-term academic programs; professional development programs.
7. The EOHUB project webpage will be used as a platform to share learning and teaching materials.
8. This Memorandum of Co-operation establishes the commitment of the partner universities to pursue the possibility of developing closer academic links. It is, therefore, agreed that the respective institutions do not wish to be legally bound by this Memorandum, but may enter into formal contractual arrangements in the future. No financial obligation on either institution is implied by this Memorandum.



Signed
Professor Jose Luis GARCIA RODRIGUEZ
Head of Department

Date 07/07/2021

Universidad Politécnica de Madrid – School of Forest Engineering and Natural Resources -
Spain



BUCKINGHAMSHIRE
NEW UNIVERSITY
EST. 1997

Signed

Professor Florin IORAS
Director of Research and Enterprise
Buckinghamshire New University- United Kingdom

Date 07/07/2021



Signed

Professor Marie-Laure FAUCONNIER
Head of the Laboratory of Chemistry of Natural Molecules
Université de Liège - Gembloux Agro-Bio Tech - Belgium

Date 07/07/2021



MATE
MAGYAR AGRÁR- ÉS
ÉLETTUDOMÁNYI EGYETEM

Signed

Professor Éva ZÁMBORINÉ NÉMETH
Dep. director

Date 07/07/2021

Magyar Agrár- és Élettudományi Egyetem – Institute of Horticultural Science
- Hungary

9 UNITS FRAMEWORK

These units will have a similar framework to facilitate the study of the learners and their acquisition of knowledge and skills. Each unit will have, at least:

- Each unit will have an independent e-learning content to work in, learners could access to this content through e-learning platform which is developing in WP3
- Base support document with the development of the explanation of the unit. That document could be used by the student to achieve the required knowledge of this unit. The content will be ample and easy to understand without any extra support.
- Knowledge, skills, and competences to be acquired or developed in the module
- Practical exercises in order that the learner could acquire skills or competences related to this unit and put into practice the achieved knowledge
- Assessment criteria of the unit with different suitable questions

Units will have different type of material according to the necessities: videos, slides, bibliographic material, hands-on training sessions...

The content of the modules and units will be done in English, however the consortium will analyze the possibility of releasing some of the content in Spanish, Hungarian and Belgium, depending on the necessities, but the consortium agrees that it is considered a language training for the learners to do the whole master in English. In this case, it will be possible for the students to learn professional terminology in English and it will be easier to improve their possibilities of working abroad. In spite of this, at least, the abstracts of each unit will be done in Hungarian, Belgium and Spanish too.

10 DEVELOPMENT OF THE CONTENT

Each unit will be carefully reviewed and improved to make ensure a smooth transition between the different units in order that the unit has an internal consistency and without any redundant or missing part.

The development of each unit will be assigned to a consortium partner according their expertise as leader, the rest of partners will contribute to those units but following the instructions of the Unit Leader.

1.1 GUIDELINES FOR TRAINERS

A commitment was made within the EOHUB project to develop Guidelines for the Trainers involved in delivering the content for the training material. The Guidelines below are largely based on materials produced by (a) European Centre for the Development of Vocational Training (Cedefop), (b) the City and Guilds Centre for Skill Development in the UK, (c) the Handbook of VET Providers, published by Human Capacity Development (HCD) for Vocational Education and Training produced (Mannheim), Germany.

The ideas presented in these Guidelines could be read by all those engaged in Course's as a standalone text that could guide the thinking and the practice of preparing young people for any profession at vocational level. The intention is to offer readers an opportunity to reflect on their own practice and to enrich it by exploring what others do successfully. The bibliography at the end could serve as a tool for those who intend to explore in more depth some aspects of teaching and learning at all levels but mostly connected to Course's education.

1.1.1 Basic concepts utilised

It is assumed that all those involved in teaching within HE institutions are qualified and possess an adequate level of knowledge and practical skills. The guidelines intention is just to remind teachers of the main elements that are considered 'good practice' at a European level. The framework developed by Hopkins, 2007 has been widely used in Europe as it highlights key elements that should be considered for effective teaching – Teaching Skills, Teaching Relationships, Teacher Reflection and Teaching Models. The framework is widely used to analyse examples of vocational teaching and learning in practice. The 'framework' contains essential components that could guide the novice or the advanced teacher and synthesises the best practice.

Teaching relationships:

- It is widely admitted that teachers' commitments to their learners – the relationships they develop with their learners and the range of roles that teachers take – are crucial components in VET as well as in any other educational environment at all levels.
- Teaching relationships refer to the relationships teachers develop with their learners as well as how learners relate to each other. The tutor-learner relationships are identified as 'the most important link in the learning process', (TLRP, 2006). A meta-analysis of learner-centred teacher-learner relationships confirmed its importance. It seems that positive teacher-learner relationships are associated with optimal, holistic learning with above average mean correlations when compared with other educational innovations for cognitive and behavioural outcomes (Cornelius-White, 2007).
- The way in which a teacher interacts with learners sets the scene for the subsequent learning to take place. Teachers felt that their relationships with learners were of prime importance for the teaching and learning to be effective. The features of effective teacher relationships included:
 - Getting to know learners, knowing which learners need more attention
 - Good rapport – listening, high expectations
 - Building trust
 - Humour – used appropriately and never descending to sarcasm
 - Relaxed atmosphere – relaxed learning with elements of fun
 - Mutual respect – respect of other people's opinions
 - Behaviour management – so that all of the group have the chance to learn.

Active learning, while carrying out assignments or projects, for instance, gives many opportunities for teachers to build relationships with learners. The teacher's role during this activity can take various forms: demonstrator, organiser, coach, mentor, facilitator, reflector and even co-learner. A relationship of trust between the teacher and learners is likely to develop while working together and discussing issues at various stages of the assignment, so that the teacher becomes an 'accomplice' in the learning process rather than the knowledge base.

11.2 Teaching strategies

Strategies are the 'tools for teaching and learning' that teachers have available to them and 'teaching skills' are the ways in which teachers select and use the 'tools' at their disposal to achieve effective learning.

Teaching strategies are the tools that teachers have at their disposal to engage learners and enable learning objectives to be met via effective teaching and learning and teaching skills are how they select and use these strategies.

Teaching strategies are differentiated from teaching models by using our definition of a model as the sequence of steps or phases (the syntax) used to achieve particular types of learning outcomes.

The existing literature tends to divide the analysis of examples of skills and strategies observed in practice into the following three broad categories that follow the teaching and learning process. These are:

1. Planning and preparation
 - Strategies for differentiation
2. Managing delivery
 - Strategies of presentation and demonstration
 - Strategies involving technology
 - Strategies for group and individual learning
 - Strategies for reinforcing learning
 - Strategies for more effective learning
 - Using multiple strategies
3. Assessing learning
4. Strategies for assessing learning.

Planning and preparation

Duckett and Tartarkowski (2005) suggest that planning effective teaching and learning sessions should include the following processes: (a) specifying the aims and objectives or outcomes for the session, (b) showing how to review the previous session, (c) explaining the links to the current and next sessions, (d) identifying appropriate content, activities and strategies by which the learners will learn, (e) presenting strategies by which learning will be assessed, (f) selecting the resources, materials and media to support learning, and (g) considering how to summarise at the end of the session.

Differentiation is central in effective planning, ensuring that all learners can learn effectively and are sufficiently challenged. It is identified by LSIS as one of ten approaches to effective teaching and learning.

There is no single definition of differentiation, but all definitions are underpinned by a view of learners as individuals. Some approaches to differentiation suggest that differentiation needs to be considered at the planning stage of a session.

While the learning objectives and standards should remain the same, time and support given to learners by the teacher should be varied according to individual learner need. There are also the differences ways in which learners prefer to learn – visual, audio or kinaesthetic – that should be taken into account when using differentiation in the learning process. Understanding the different learning needs of individual learners, their strengths and weaknesses and how they learn best is of paramount importance to enable effective differentiation. Examples of differentiation utilised during the visits include:

- Advising and keeping learners on track by providing individual support, giving the weaker learners individual instruction and taking the stronger learners that bit further so they are not bored
- Providing the right amount of 'stretch' for individual learners while also managing the group
- E-learning activity allows for wide differentiation with, for example, board games acting as an alternative approach for learners who have not fully understood
- Using group and paired work, with careful selection of those who work together to enable different pace of learning as well as styles, 'I wouldn't generally pair a weak learner with a strong one but there are occasions when this can work with the stronger learner being a mentor and also learning more themselves through explaining to others' selection of different resources to reflect the group and individuals within the group, taking account of the learner experiences.
- Using different forms of assessment to meet the needs of the learners: for example; written, filmed or recorded.

This following example illustrates differentiation in an ICT class and seeks to include everyone in the activity at their appropriate level of ability. It describes how a teacher sets a task allowing learners to choose how they wish to complete it according to their different levels of ability.

Strategies for giving information

Presentation

Presentation encompasses giving information in a number of ways, including:

- Teacher explanation often at the start of a session – 'this is what we are going to do, these are the objectives for the session'
- Giving information/instruction and checking that learners understand by, for instance, use of questioning
- Clearly presenting information at the start of a session and then linking to other teaching strategies – presentation followed by immediate activity
- Guest speaker input – from the relevant vocational sector

- Providing information through different sensory modes: visual, audio, kinaesthetic
- Providing information through a variety of mediums – video, board, paper, work-book, actual demonstration, verbal explanation, questions and answers and practical activity
- Short PowerPoint or other computer-based presentations for information, recapping on a previous session, setting exercises or structuring a session.

Some teachers use PowerPoint presentations as a convenient way of structuring their sessions and as an *aide memoire* to ensure that they cover everything.

Slides cover the learning objectives for the session and instructions for tasks or activities and can be printed to give to learners during or after the session.

Demonstration

Demonstration has the added dimension of an explanation by example, a display of some sort – often accompanied by verbal explanation, though not always. It is usually important to follow the demonstration with a related activity. A teacher can use a variety of technological aids.

- Demonstration examples include:
- The physical demonstration of a skill such as holding and using a blow torch, or how to decommission and reassemble a computer
- A means of showing how something is done and that the tools being used are adequate for the job.
- Demonstration of an activity, showing how to develop a planning process – for instance, with a sample of what the end result could be like
- Using technology such as Moodle and/or Storyboard to show what is required as well as giving information to set the scene, and use of Smart Board to demonstrate tasks such as putting a joint together in construction.
- While showing the way to do something, ensuring that learners understand that there are different ways of doing things and that if the end result is successful then that is alright.

With demonstration, impact is an important factor: the following example as described by a senior manager shows how a simple demonstration can really help the learning process.

Strategies involving technology

Educational technology is the study and practice of facilitating learning and improving performance by creating; using and managing appropriate technological processes and resources.

Use of technology in the delivery of teaching and learning for any vocational area is increasing all the time. It is also one of the ten approaches described by LSIS as effective in promoting effective learning. Examples drawn from the literature include:

- Interactive whiteboards
- Computer(s) in each learning room for various uses
- Web pages for storing and accessing learner work
- Multimedia learning

- H5P: free and open-source content collaboration framework to make it easy for everyone to create, share and reuse interactive HTML5 content: Interactive videos, interactive presentations, quizzes, interactive timelines and more. To use HTML5 ensures that can be displayed by all LMS (Learning Management Systems) platforms independently of the operative system, device and the navigator.
- Moodle (Modular Object-Oriented Dynamic Learning Environment) providing an organised interface for e-Learning, or learning over the internet
- OPIGNO: Open Source e-learning platform based on Drupal (broad used Content Management System) that allows you to manage your online trainings, and efficiently ensure that student, employee and partner skills remain up to date.
- E-Learning through applied packages and on-line learning
- M-Learning – learning on the move including use of mobile phones
- IT-based packages for self-assessment
- Computer-generated quizzes and games
- Internet research
- Podcasts
- Mobile-phone technology
- Computerised tracking.

Learning organisations are changing at different rates. Some have utilised state-of-the-art technology, which has been useful in the engagement of learners, and some are lagging behind. Funding is one issue here, along with cultural change.

The learning materials developed within EOHUB contain English, Spanish, French and Hungarian all the training materials developed during this project:

Assessing learning

Assessment can be either 'for' or 'of' learning and both types of assessment are evident in the existing literature.

Assessment 'of' learning can take a number of forms and may depend on the curriculum design and/or delivery methods. It includes self-assessment, peer assessment and teacher assessment by using questions, paper-based or computer-generated tests, demonstrations, or games. Assessment methods are not always under the control of the teacher as they might be specified by the awarding organisation.

Assessment 'for' learning is recognised as an effective way of assessing that also contributes to learning. Assessment is: 'about assessing progress and analysing and feeding back the outcomes of that assessment positively and constructively to agree actions to help the learner improve and adapt teaching methods to meet the learner's identified needs.' (QIA 2008). Ten principles of assessment for learning have been identified as being: (a) part of effective planning, (b) focused on how learners learn, (c) central to classroom practice, (d) a key professional skill, (e) sensitive and constructive, (f) capable of fostering motivation, (g) a promoter of understanding the goals and criteria, (h) an assistant for learners to know how to improve, (i) a developer of capacities for self-assessment (and peer assessment), and (j) a recogniser of all educational achievement (DfES

2002). It is about the teacher and the learner working together to assess progress and contribute to effective learning.

In practice, teachers tend to use a variety of methods of assessment including:

- Assessment as a learning tool – assessment for learning
- Self-assessment and teacher evaluation/feedback with assignments written on Moodle or OPIGNO, avoiding too much paperwork and automatically generating an achievement grid for learner/teacher assessment of progress, and hence feedback
- Self-assessment of understanding through the traffic-lights method
- Checklists to self-assess
- Peer feedback to provide assessment
- Workbooks
- Mock tests
- Quizzes, crosswords and games as sources of fun
- Learners being empowered to choose their own assessment format.

Different modes of testing keep the learners interested, as does the use of incentives.

Teacher reflection

Teacher reflection is a three-fold process comprising direct experience, analysis of beliefs, values or knowledge about that experience, and consideration of the options that should lead to action as a result of the analysis.

As work progressed against the framework, it became clear that there was one additional, distinctive feature that in part defined vocational learning and that was the context within which it takes place. Effective teachers are reflective; they constantly review their practice, discuss it with their colleagues, consider their learners' responses and seek to develop new and better ways of teaching. The concept of reflective practice was introduced by Donald Schon (1983) and given currency by Kolb (1984) in his experiential learning theory. It involves thoughtfully considering one's own experiences as one makes the connection between knowledge and practice, under the guidance of an experienced professional within a discipline (Schon, 1996). Moon (1999) defined reflective practice as 'a set of abilities and skills, to indicate the taking of a critical stance, an orientation to problem solving or state of mind.' In essence, it is a readiness to constantly evaluate and review one's practice in the light of new learning (which may arise from within the context of professional practice). After its introduction, many VET organisations started to incorporate reflective practice into their educational and professional development programmes. It was evident from practitioners in this study that reflection was an important and well-established part of their professional practice.

Examples are provided of reflective practice in terms of responding to learner feedback, improving practice through personal reflection and sharing with colleagues to improve practice. Teachers used a number of different ways of developing their repertoire of skills. These included: learning from experience, observation of teaching, as well as learning from the support of colleagues.

Reflective practice

There was considerable evidence from observations and interviews that good teachers are always learning, building their own skills and teaching themselves. They undertake lots of research to

inform their planning and delivery. They are self-critical, recognising when things do not go well, trying to understand why, and formulating ideas about how to improve.

Teachers evaluate their practice and reflect on how they might improve aspects of their sessions. They reflect on the way that they teach something so that they do not necessarily just teach it the way they were taught but think about how it might be improved.

Responding to learner feedback

The importance of learner feedback is evident from the literature with examples of teachers sharing practice with colleagues and collecting and using learner feedback:

It is experience really and assistance from my colleagues. You need to exchange practices so you do not stagnate to the same routine. I also give feedback sheets to students. I want to see through their eyes because sometimes as teachers we think of how we want to learn or what we would like but that doesn't mean that this is what the students like. Some approaches might suit me but that doesn't mean that they suit them.

Feedback from students

It is reaction from students that is important. You can walk out of a class and think to yourself: "that was brilliant but the students didn't think it was brilliant, so it's not brilliant". The students are your judges so if students are enjoying it and they're taking part, they're keen, they're answering questions, then you can say it's reasonably successful, you've achieved what you need to achieve.

If they're not, then there's an issue and one has to think of other ways. This teacher also reflected on the session from a learner's perspective, asking questions such as: "If I was a learner in that lesson, how would I have assessed it? Would I have enjoyed it? Would I have been interested throughout?"

12 ENSURE OPEN LICENSES OER FOR TRAINING MATERIALS

The results of the IMFUTURE project will be uploaded onto the project website where the different teaching and learning materials will be available to download. This section of the website will be open-accessed and teachers and learners will have free access to download tutorials, good practices manuals, etc. The consortium has decided that the full access to the materials will need a previous login. CETEM will manage the user administration to give future permissions.

Each of these digital materials will be open licensed and so will avoid the automatically applied copyright restrictions. The aim to open-licence the work and results of the project is also to spread the reach and recognition of the authors. From the organisations perspective, the resources are potentially exploitable for obtaining commercial benefits and thus the partners will have all-rights reserved as copyright. The organisations and the authors will be able to market these resources in the future, ensuring that it remains attributed to the original author after the content has been shared. This does not mean that the partnership will actively market the resources, it will mean that the intellectual property rights (IPR) of the partners and authors are protected.

By sharing of the digitalised materials between students and the institutions under this licence, the content will remain attributed to the original author. The intention of others to plagiarise the source materials will be reduced because they will have permission to use them under open source licence. ICTs will be essential for sharing the educational materials. Within the e-learning platform (IO3) a separate section for uploading the contents will be defined. In this open-access section teachers and learners will be able to download resources such as:

- Text: Teaching tutorials, best practices tutorials, modules content, templates, exercises, etc
- Images: Logos, photographs, diagrams, etc
- Video: Video Tutorials, animations, etc
- Audio: Audio-Tutorials, music, etc

All of these contents will have the most used multimedia formats like: DOC, TXT, PDF, HTML (for text); PNG, JPG, PDF (for images); WAV and MP3 (for audio); AVI, MP4, MPG (for video). Using these formats will make access simpler for users. This will include consideration of accessibility issues to ensure no users are discriminated against. In order to achieve the best practice for accessibility we will follow European legislation. **The selected alternative licensing has been Creative Commons (CC)¹**. These licenses have the aim of sharing and reusing the created work under some special conditions. The author authorises the use of their work, but it is protected and authorship is recognised. For every material this type of the CC license will be chosen. The options for the CC are:

1-Allow adaptations of your work to be shared:

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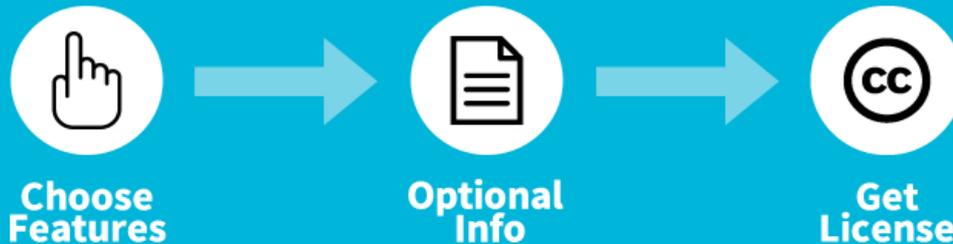
A-Yes

B-No

¹ <https://creativecommons.org>

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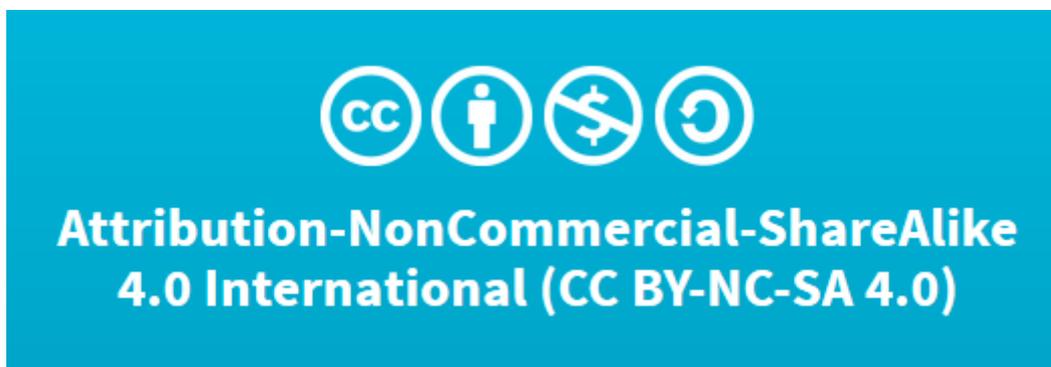


FIGURE 1 ICON FOR THE SELECTED CC SELECTED LICENSE

The training materials were protected under Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International. The user is free to:

- **Share** — copy and redistribute the material in any medium or format
- **Adapt** — remix, transform, and build upon the material

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- **Attribution** — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

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The consortium has used their know-how and expertise in the field of Essential oils to develop the training materials. Nevertheless, reference to other sources (text, images, etc) have been used to develop ARTURE course. The consortium has agreed to use Harvard Referencing Bibliography² to reference those sources.

² <http://www.citethisforme.com/harvard-referencing>

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EOHUB will contribute to achieve smart, sustainable and inclusive growth, through stimulating entrepreneurship and innovation in the field of EOs, fitting within the EU 2020 strategy. EOHUB aims to increase the capacity of higher education institutions and business to integrate research results and innovative practice into the educational offer, and to exploit the potential for marketable process, methods and services in the field of BAEOs. Moreover, it helps graduates and PhD students to develop new entrepreneurship activities and marketable services in line with their curricula.

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