Comprehensive report on the validation of competences relating to Creativity and Innovation Management

WP 6.5

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1. Summary

The CIM project dealt with the acquisition and validation of competences related to Creativity and Innovation. In the 2,5-years project more than 150 learners created innovative concepts and prototypes for products and services needed within European Societies which are existing in times of changes that are existentially disruptive. While we could count "digitalisation" and "industry 4.0" still under "revolutions"; Covid and climate change led to the conclusion that the way we live is no longer sustainable and will threaten our survival.

One of the very few countermeasures we have as human beings is our ability to learn and (in contrast to machine learning) to develop innovations that not only solve technological but also societal problems and challenges.

To achieve that we need (immediately) humans within an international, global workforce who are able to think interdisciplinary, intersectoral international and who are able to create innovations in teams.

The acquisition of competences needed to cope with this challenge was the first goal of the CIM project. It related to the "Competence to Spot Ideas and Opportunities".

To tackle these fundamental challenges, we need a paradigm change in education. 21st Century Skills cannot be brought about within the walls of formal education institutes – they require holistic Learning & Development approaches which are not entirely focusing on "qualifications". The should also promote personal development and the ability to think and work in complex, uncertain and ambiguous systems and to react on volatile frame conditions.

CIM developed an educational approach to provide competences to tackle these challenges, and trained more than 65 professionals in Higher Education and Business to bring about these competences, and to "Facilitate Design Based Collaborative Learning". These professionals, in turn facilitates Learning & Development of 90 students, interns and staff members in 66 learning projects in Academia and Business.

The document on hand describes, in its first part, the CIM Competence Oriented Learning and Validation approach, the competence theoretical background and illustrates the tools and instruments used within the CIM project.

In the second part it reports about the experiences made with the approach by the 16 partner organisations and puts a focus on the feasibility and the perspectives of the approach.

Assessment Packs and Documentations on the ECTS transfer are added as annexes.

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2. Background and Theoretical Framing of CIM

2.1. Learning 2030 - Didactics and Mathetics

Technology supported learning environments[1] are increasingly proving to be responsive to the individual profile and the web history of the user. Users will increasingly learn in an environment of their own, which differs from that of others.

This implies that the contextual component of competence (e.g. environment, preferences and expected quality) becomes more and more important and has to be considered in teaching and learning.

Society is moving in a direction in which we all operate in a rich and increasingly personalised work-learning environment (triggered for instance by the home-office and other non-traditional working modes). For matters of education and learning this implies that learning increasingly needs to become a mutual process rather than a one, or two-way process.

This requires new and different competences from both learners and trainers (including mentors, coaches and other learning supporters).

2.2. Didactics - Competences for Teachers and Trainers

To tackle these new challenges from the instructional point of view we need appropriate and specifically adapted approaches to teaching and learning in order to cope with the new societal (learning) environments.

It will require a paradigm change from a formalised, structured, subject and supply-oriented training and qualification approach to a more informal, demand oriented, needs-driven and individualised learning design.

In a time of nearly unlimited access to information, knowledge, facts (and fakes) the main task of teachers and trainers is not merely the processing of knowledge anymore, but rather the facilitation and (self-)management of competences of their learners.

2.3. Mathetics - Competences for Learners

In future, we will not only need competent teachers but also competent learners. Not just smart training and teaching skills will be required but also advanced learning competences.

We view teaching and learning as two sides of the same coin- although this is not a new idea. Already Comenius, who developed the concept of "Didactics" as the "Art of Teaching" also coined the term "Mathetics" as the "Art of Learning" in the middle of the 17th century.

The concept was re-discovered in the nineteen seventies by a few progressive educational scientists; however, it did not play a role in the increasingly formalised educational systems in the following decades up to 2020.

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[1] For the avoidance of misunderstanding: We are not promoting   solely technical solutions but rather blended learning ones as direct human interaction is vital for human learning and development.

In the third decade of the Millennium however, our societies are facing fundamental changes which will also affect our professional and educational lives. Mathetics, as a way to facilitate self-learning, may become a key approach to teaching and learning in 2030.

The affective (emotional, attitude and value related) dimension is of the utmost importance for self-learning competences, for instance:

- by using attractive, demand driven learning formats that create curiosity and motivation,
- which bring into play the rules and norms of central societal values and
- which consider the individual learning context and pre-knowledge and existing competence levels.

When it comes to technology aided learning, we are as yet scratching the surface and still admire the shiny but often didactically very poor video based, technology-driven learning assignments. These are too often just comprised of knowledge delivery or behaviouristic drills and as a consequence relate to low competence levels.

In most cases the non-cognitive components of learning are neglected or not considered even though we know about their importance. However, the affective competence dimension is what distinguishes human from computer-based learning.

In 2020 many educationalists are talking about "digital learning"[2], however, some refer exclusively to digital tools, others to solely video-based learning formats, while some other experts put nearly every didactic model in a Massive Open Online Course (MOOC) context. Today, many learning technologies (among them also Open Educational Resources (OER) tools like H5P) still offer rather poor didactic options and suffer from the limitations of "programmed learning", while other "hard coded" learning apps are lacking the options to design multiple learning spaces for the planning and delivery of various contents. Nevertheless, there are open source learning management systems ((LMS e.g. moodle) and e-portfolios (mahara) which are in use in many institutions in all educational sectors and which offer a fairly wide range of structuring, designing, delivery and methodological options and tools. However, the created learning environments are often unattractive for the learners – too complicated, too much related to formal "learning". In many cases these LMS are just used as carriers for learning materials.
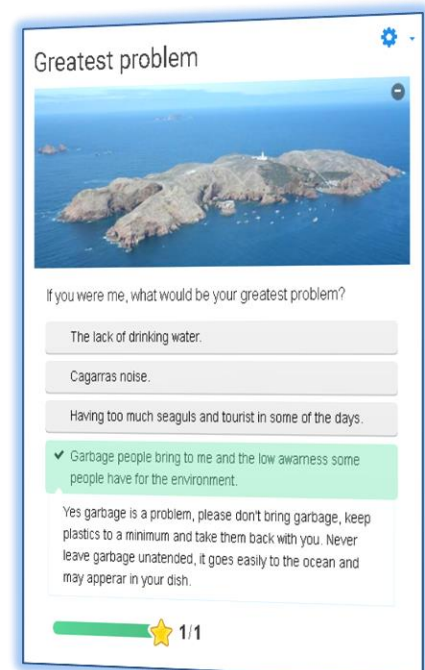
Whilst technology has changed rapidly, there remains a distinct lack of adequate didactic blended learning competences which will be necessary to help us explore the full potential of the new learning technologies. In the overall discussion we should not forget the threat that in our ever more technology-dependent societies, the "direct encounters" of social and socialised learning in the real world, may vanish behind a digital learning facade promoting just behaviouristic, programmed learning assignments. We run the risk of detaching learning from the lived experience and of becoming isolated behind our screens.

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[2] which creates a kind of contradiction in terms since it reduces learning to digital on-off processes and therefore comes as a completely misleading metaphor

It is important to state that we are not taking an anti-technology stance here: Digital learning offers great opportunities and we have been promoting blended learning since the beginning of the millennium – however we feel strongly that it should always be used to promote human learning and not to determine it.

We believe that it is not only the problem of the technologies but more the problem of the old-fashioned learning and teaching designs which prevent us from achieving a more successful use of attractive blended learning approaches which encourage learners to start and continue learning on higher competence levels.

If our aim is to promote more individualised, user-centred learning we have to change the educational concepts and training, teaching and coaching approaches – at least to some extent. Therefore, we consider a modern adult education system to be so important.

We have to enable and empower our learners to use learning technology in an appropriate and meaningful way, to make them drivers of the development and not just the passengers of externally driven learning programmes.

In the third decade of the Millennium, competitive economies in liberal and sustainable societies need creative, innovative, communicative, collaborative and critical thinking workforce and citizens. The old acceptance of 'Adult Education' as either a social luxury or as merely 're-tooling' a workforce as a cheaper alternative to automation has to be challenged. If our aspiration is to move to a truly circular economy where our civilisation's resources are preserved, valued and continuously up cycled then we have to apply this doctrine not just to energy, materials and the environment, but to people as well.

Education must respond to these needs and challenges.

It has to become less formal and more flexible, open and participatory. It has to offer a multitude of different entry gates for adult learners with interfaces between the formal and informal sector.

In a more learner-centred perspective, training will be more about support of navigation on the individual leaning pathway and collaboration with others than about pre-determined content and programmed learning.

Hence, we should expect a shift from teaching to learning and from instruction to more self-centred learning.

Mathetics – the art of learning - is going to become a crucial element in this development and it requires a competence-oriented learning and training approach. It is aiming for self-development and empowerment of the learners rather than their formal qualification.

Today we have reached a state of play in which the original differences of theories no longer substantially divide the experts. As in so many societal domains people pick and choose; they select the elements they find useful and compose their own mix of elements from the available theories and concepts. However, the mainstream approach to adult learning and education today includes elements of:

1. Social constructivism, as well as-
2. processes of creating and giving personal meaning, and personal growth, together with-
3. Blended learning in which the virtual environment plays and important role.

These three elements form the background against which we have opted for a competence-oriented approach to learning, educating and validating learning.

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2.4. Competence acquisition

2.4.1. The Concept of Competence

Competences as defined by various European bodies, as well as by educational experts throughout and beyond Europe, consist of three interrelated ingredients:

- Knowledge (cognition),
- Skills (capabilities and the overt behavioural repertoire) and
- Attitudes (emotions and values).

Competences consist of a combination of cognitive, behavioural and affective elements[3] required for effective performance of a real-world task or activity. A competence is defined as the holistic synthesis of these components.

If we see it this way it may be explained as the (inner) potential of a person to tackle a task.

From another (an external) perspective a competence may again be divided in three aspects. A competent person is able to:

- demonstrate behaviour
- in a specific context and
- at an adequate level of quality.
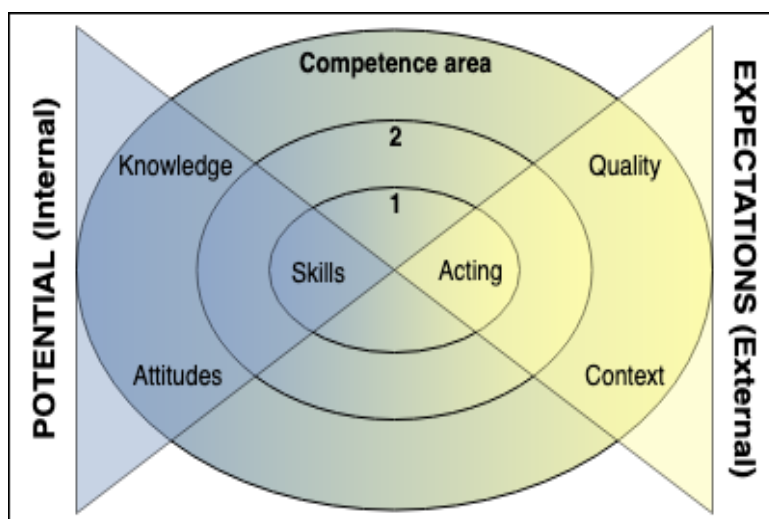

Fig. 1: Bow tie model of competence components

The "bow-tie model" in Figure 1 is a visualisation of all competence components and their interdependencies, brought together in one picture.

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[3] knowledge, attitudes and capabilities (to be exchanged?)

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In the model knowledge (as is quality) is only one component. We know that what is often criticised in formal education, is that feeding knowledge into learners' heads and then assessing the extent of its retention is simplistically used to measure 'quality'.

In this more accurate representation, the circle where the two triangles meet can be understood as a kind of "performance lens". Here, skills and capabilities are acted out and become externally visible with the activities and behaviours (of the learners). At the same time the performance lens also covers the other internal aspects (cognitive and affective) and external aspects (quality and context).

Knowledge and cognition are needed to understand the content matter, theories, principles, functionalities and the own behaviour.

The affective dimension is vital since learning is always connected to emotions and values which bring in curiosity, motivation and volition (commitment) to learn and develop more.

Eventually the context also becomes a crucial factor since it determines the environment in which the individual has to perform – and it is certainly a different matter to solve an exercise or to engage in

role play or to tackle a challenge in real life. At the same time, this critical element of contextualisation brings in the quality aspect.

The bow-tie model visualises that, for a holistic understanding of a competence, the performances should neither be reduced to just the knowledge and quality aspect or only the behaviour.

It demonstrates that the shape and the size of the performance lens will indicate the level and quality of a competence. Competence levels are schematically indicated as circles in this model – meaning that an individual is more competent the larger the area covered by the circle is and the more equally all the aspects are covered.

This is how educational scientists may describe what competences are.

To put this in terms perhaps better understood by the layman, this implies that what matters is not only what we know about things, but more importantly it is what we are able to do with this knowledge, and whether we are able to go on developing our abilities.

Should education make learners knowledgeable, or should it make them competent? That is no longer the question.

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2.4.2. Competence Taxonomies

The increasing level of control (management) over a particular competence can also be called a 'competence level'. This implies that a 'competence' is a dynamic concept – competences grow while learning. The question on how to measure and document different competence levels is as old as it is complex. It has probably challenged generations of educationalists on practical, administrative and political levels; in formal education but also in professional development domains, such as in Human Resources.

The problem in measuring competences is not only a certain ambiguity in the term 'competence', caused for instance by different connotations in different languages, but also by different cultural views on competence and learning theory.

Additional complexity comes in as competences are – unlike (school) subjects – always dependent on their contexts. Teamwork competences are (among others) dependent on the team composition and the task; leadership competences are dependent on the group and the environment in which it is practiced and teaching competences relate to the learning environment, the students and their familiarity with the learning schemes – among many other contextual aspects.

In order to operationalise competences, one needs certain reference points against which competences can be described. Taxonomies are such reference systems.

They are the major instruments to classify, and later to measure and document competence levels.

One of the best-known taxonomies was developed by Benjamin Bloom in 1956 as Taxonomy of Learning Objectives. He differentiates 3 main areas:

- Taxonomy for the area of cognitive behaviour
- Taxonomy for the area of affective behaviour
- Taxonomy for the area of psycho-motor behaviour

Fig. 2: Taxonomy according to Bloom [4]

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[4] Heer (2012), Iowa State University, CCBYSA

Bloom's taxonomy has been constantly further developed by his followers (Anderson/Krathwohl and others) and describes cognitive objectives, psycho-motor objectives and affective objectives

along a number of quality levels.

A second, well known taxonomy is for instance the European Qualification Framework and the related Credit Transfer Systems (ECTS and ECVET).

Level	Knowledge	Skills	Competence
Level 1	Basic general knowledge	basic skills required to carry out simple tasks	work or study under direct supervision in a structured context
Level 2	Basic factual knowledge of a field of work or study	basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools	work or study under supervision with some autonomy
Level 3	Knowledge of facts, principles, processes and general concepts, in a field of work or study	a range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	take responsibility for completion of tasks in work or study adapt own behaviour to circumstances in solving problems
Level 4	Factual and theoretical knowledge in broad contexts within a field of work or study	a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities
Level 5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge	a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems	exercise management and supervision in contexts of work or study activities where there is unpredictable change review and develop performance of self and others
Level 6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles	advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study	manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts take responsibility for managing professional development of individuals and groups
Level 7	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research Critical awareness of knowledge issues in a field and at the interface between different fields	specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams
Level 8	Knowledge at the most advanced frontier of a field of	the most advanced and specialised skills and techniques, including synthesis and evaluation, required to	demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained

	work or study and at the interface between fields	solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice	commitment to the development of new ideas or processes at the forefront of work or study contexts including research

Fig. 3: EQF-Taxonomy

Both taxonomies not only differ in structure (EQF is clustered in Knowledge, Skills and Autonomy/Responsibility and has 8 levels while Bloom distinguished Cognitive, Psycho-Motor and Affective traits on 4-6 levels).

The main difference between these taxonomies – and this is often forgotten – is their purpose.

While 'learning' was in the focus of Bloom's taxonomy, 'qualification' is the main driver for the establishment of the EQF.

What all taxonomies have in common is that they aim to describe competence dimensions (the vertical columns) and competence levels (the horizontal competence qualities) with the help of learning outcome descriptors. These learning outcome descriptors have to be precise and consistent in order to facilitate distinguishing between different competence quality levels.

There are several other competence models and taxonomies which try to explain and describe competences and try to operate them for different purposes.

The REVEAL group has developed its own taxonomy (LEVEL5) based on the post-Bloom taxonomy in a blend with a derivate of the emotional intelligence taxonomy. It consists of Knowledge, Skills (capabilities) and Attitudes (emotions/values) on 5 levels. This taxonomy facilitates assessing, documenting but also planning competence developments in highly context-dependent environments such as learning in mobility or learning on the job or in leisure time activities.

LEVEL	KNOWLEDGE	SKILLS Capabilities	ATTITUDES Emotions/Values
5	**Know where else…** (Transfer Knowledge, *Strategic Knowledge*	**Transfering** Developing/ Constructing *Versatility*	**Incorporation** (Internalising) *„Unconscious" Competence*
4	**Know when…** Practical (Procedural knowledge	**Discovering/** acting independently (disturbed systems)	**Commitment** *Affective self-regulation (Willing)*
3	**Know how…** Theoretical knowledge	**Deciding/** selecting (Known systems)	**Appreciation** Motivation
2	**Know why**… (Distant understanding)	Applying **Imitating** (Exercising)	**Perspective taking** (Curiosity)
1	**Know-that…** Basic Perception	**Perceiving** Listening	Self orientation **Neutral**

Fig. 4: LEVEL5 Taxonomy

As Fig. 4 shows, the LEVEL5 taxonomy comes with general descriptors ('level titles') which are derived partly from Bloom's systems and partly from other taxonomies and concepts, like levels of 'emotional intelligence' and 'affective competence' and affective self-regulation.

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The LEVEL5 taxonomy is the basic system for so called 'reference systems' in which the taxonomy is transferred to distinctive competences.

In the reference systems competences are contextualised with the help of specific learning outcome descriptors for each of the cells.

¤	COGNITIVE/KNOWLEDGE¤		ACTIVITY¤		AFFECTIVE¤	
L¤	Level·Titles¤	Individual·description/·explanatory·statement¤	Level·Titles¤	Individual·description/·explanatory·statement¤	Level·Titles¤	Individual·description/·explanatory·statement¤
5¤	Know·where·else¶ (knowledge·for·Transfer·¤	Knows·how·to·develop·high·quality·flexible,·adaptive·learning·environments·and·programmes·for·competence·oriented·learning·which·promote·COL·related·to·contexts·which·are·not·familiar¤	Developing/¶ Constructing↵ Transfer¤	Is·able·to·transfer·competence·oriented·learning·systems·to·other·domains¶ ¤	Incorporation¶ Internalisation¤	Striving·to·continuously·develop·the·teaching·and·learning·process·to·facilitate·competence·oriented·learning·processes·in·other·domains·and·contexts¤
4¤	Know·when↵ (Implicit·understanding¤	Being·able·to·plan·and·develop·COL·programmes·for·contexts·(in·lessons,·projects,·extracurricular·activities·etc.)¤	Discovering/¶ acting·indepen¬dently¤	Can·develop·programmes,·modules·and·that·include·competence·oriented·learning·activities·in·the·own·programme·context¤	Commitment¶ Volition¤	Is·pro-active·to·apply·competence·oriented·learning·in·other·fields·of·the·own·learning·environment·¤
3¤	Know·how¤	Knows·how·to·plan·and·develop·a·competence·oriented·environment·in·regard·to:¶ •·Assessing·learners'·needs·and·motivations¶ •·Designing·and·constructing·trainings·and·programmes¶ •·Planning·and·designing·the·learning·process¶ •·Deploying·different·learning·methods,·styles·and·techniques¶ •·Creating·competence·oriented·learning·offers·¶ •·Creating·an·open·learning·environment¤	Deciding/·selecting¤	Can·plan·the·a·selection·of·competence·oriented·learning·units·(resources,·tasks·and·assignments·based·on·the·COL·approach¶ Being·able·to·evaluate·the·own·learning·units·according·to·COL·quality·criteria¤	Appreciation¶ Motivation¤	Is·motivated·to·be·more·involved·in·the·COL·approach¤
2¤	Know·why¶ (Distant·understanding¤	Knows·that·competence·oriented·learning·brings·specific·additional·requirements·to·the·task·of·developing·effective·learning·experiences¤	Using,¶ Imitating¤	Can·choose·and·deliver·learning·activities·to·be·included·in·a·competence·oriented·learning·process·as·provided·in·the·REVEAL·exercises¤	Curiosity¶ Perspective·taking¤	Is·open·and·interested·to·learn·about·new·teaching·and·learning·concepts·that·facilitate·learning·related·to·new·contexts·and·competences.¤
1¤	Know-what/know·that¤	Being·aware·that·competence·oriented·learning·is·a·way·of·approaching·education·affect·his·future·educating/developing··tasks¤	Perceiving¤	Perceives·that·there·are·other·ways·of·teaching·than·subject·orientation¤	Self·oriented,·neutral¤	Has·no·strive·and·sees·no·reason·to·apply·new·learning·and·teaching·approaches.·Is·happy·with·the·own·way·of·teaching·and·training¤

Fig. 5: LEVEL5 Reference system with general descriptors on teamwork

With the help of the reference systems each competence can be described properly on 5 quality levels along their three basic dimensions: the knowledge, skills (capabilities) and affective (value) competence components.

2.4.3. Competence Development and Learning Pathways

The development of competences is a very complex matter and is certainly not always a linear process, despite terms like 'learning trajectory' which imply the contrary.

Competence development is a process which is highly dependent on the competence itself[5], the potentials (stages) of the learners and, as stated above, also on the external factors such as context and quality expectations.

LEVEL5 was designed to facilitate and arrange learning in a competence-oriented way in all kinds of possible learning settings, be they formal, non-formal or informal (but not 'unintentional'[6]).

A learning facilitator may design, based on a sound reference system, a learning pathway which crosses certain learning outcomes/objectives and different quality levels.

KNOWLEDGE			SKILLS Capabilities			ATTITUDES Emotions/Values	
Knowing where else (strategic transfer)	Knowing how to transfer idea creation skills and concepts into other contexts. Knowing how to help other people act successfully in different entrepreneurial structures in this respect.	Developing, constructing, transferring	Being able to transfer ideation and prototyping strategies into new business contexts. Actively planning and creating new entrepreneurial activities based on ideating and prototyping.		Incorpora-tion	Having internalised ideation and prototyping as a fundamental personal entrepreneurship mindset. Being an inspiration for others in their ideation and prototyping activities.	
Knowing when (implicit understanding)	Knowing when to apply right instruments from the portfolio of different ideation and prototyping approaches and tools. Knowing when to use certain ideation and prototyping strategies.	Discovering acting independently	Deliberately searching for and selecting appropriate ideation and prototyping techniques and instruments for the own business. Creating and executing an ideation and prototyping strategy for the own context and professional domain.		Self-regulation, Commit-ment	Being determined and pro-active in using and improving ideation and prototyping in the own environment. Finding it important to be creative in this respect.	
Knowing how	Knowing different ideation and prototyping approaches, techniques related to: • Spotting opportunities • Creating ideas • Working towards a Vision • Valuing ideas • Checking for Sustainability. Theoretically knowing how to act along an ideation and prototyping concept.	Deciding selecting	Taking part in ideation and prototyping activities as they are offered by others in safe (undisturbed) contexts. Choosing singular ideation and prototyping tools from a given (known) portfolio		Motivation/ appreciation	Valuing ideation and prototyping in general. Being motivated to develop own ideation and prototyping competences and visions.	
Knowing why (distant understanding)	Having basic knowledge on creativity and innovation. Knowing that idea creation, a multiperspective view on the ideas and the check of ideas is an essential part of the product/service and business development. Understanding basic aspects of the ideation and prototyping.	Using imitating	Occasionally taking part in non structured activities related to the creating of ideas Carrying out ideating actions when being instructed to.		Perspective taking	Being curious and interested in ideating and prototyping and spotting of opportunities.	
Knowing what	Knowing that entrepreneurship is based on innovation and the creation of ideas.	Perceiving	Perceiving and recognising the concept of creating ideas and opportunities without taking further steps.		Self-orientation	Perceiving the concept of creating ideas and opportunities without relating it to oneself.	

Fig. 6: Schematic learning pathway

Fig. 6 visualises the learning process as a meandering, but upwardly moving trail.

For facilitators of competence-oriented learning the reference system is a central instrument in the learning design process.

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[5] language competences for instance usually develop in a series of plateaus rather than in linear or exponential ways while other competences can develop in a more linear fashion)

[6] Reference to annex „Informal learning"

2.4.4. The Engine of the Learning Process

There are a number of circular process charts that are used in management and human learning and development. Among others there are, for instance, the Think-Do-Act Circle (Levin) used as a background model for his concept of Action Research; the Deeming Circle in Quality Management (PDCA) and David Kolb's approach to Experiential learning[7].

A circular approach has the big advantage that it always comes back to its beginning and provides as such the opportunity to check if a planned status has been reached. Hence management and learning circles support iterative developments that are of growing importance in our professional lives, for instance in programming and design thinking processes.

From the learning point of view these principles are extremely important since they offer different (interesting and attractive) modes to approach a subject and at the same time offer "reflection points" – quasi "fermatas" in the process which invite to think about was has been achieved and what is still ahead. At the same time, they also support the learning-by-doing principle.

Fig. 7: The components of competence

Fig. 7 is a model which includes the main drivers for learning and competence development. It further develops the (still rather static) bow-tie model and illustrates the dynamics of competence development as a circular process.

The light blue lower sector represents the knowledge, skills and attitudes that serve as the potential of the learner to use these learning outcomes once they are needed. The upper sector includes the actual behaviour in a concrete context at a certain level of quality.

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[7] In his models Kolb considers certain learning preferences and learning stages (e.g. doing, reflection, evaluation etc.) and combines them in a cyclic process.

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Fig. 8: Development of components of competence

The circle in the middle of the scheme includes the actual behaviour that shows the level of control over a particular competence – the competence level which can grow with every circle around the process, starting for instance with the identified needs, converted by reflection into goals and objectives taking on board challenges and opportunities to come to a higher construction and competence level.

The social constructivist learning process is conceived as a kind of engine in which the actual experience of performing in a context, and finding out to what extent this has an adequate quality/effect, leads to a need to find out more about it, to develop skills and to get motivated to again try to perform but now at a hopefully higher level of quality. Thus, the experiential process and the acquisition process inspire each other and bring the learner in a spiral trajectory to a higher level of performance and to an increased potential to do so.

2.4.5. Competence Oriented Learning and Education

In this section we move from general ideas on what competences are to competence-oriented education. Competence based learning and competence-based education do not consist of traditional teaching situations. They are based on the idea that the learners learn by experience and discovery. This concept has an impact on how learners may be educated. The idea is that learners need to be actively involved in the learning situation. They learn best in meaningful contexts and in co-operation and interaction with others and with their environment. Thus, they enable themselves to acquire knowledge, construe knowledge and check and cross check their newly constructed ideas with those of others. Of course, this in no way denies the importance of teaching; it emphasises the necessity of teaching in a highly responsive and learner-centred way without neglecting the obligation of showing learners new horizons and perspectives and enthusiasm for things they may never yet have heard of.

Key features of Competence Based Education

Competence based learning requires an approach to education that differs from the traditional approaches to teaching. In competence-based education one tends to stress the importance of

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powerful, or rich learning environments, that enable students/learners to engage in meaningful learning processes. The most distinctive features of this approach may be summarized as follows:

- *Meaningful contexts*

    For learning to take place it is recommended to create or to look for meaningful contexts in which students will in a natural way experience the relevance and the meaning of the competences to be acquired.

- *Multidisciplinary approach*

    Competences are holistic and consequently the educative approach needs to be integrative and holistic as well.

- *Constructive learning*

    The philosophy of competence-based education has its roots in the social constructivism that pervades our views on learning today. Learning is conceived as a process of constructing one's own knowledge in interaction with one's environment, rather than as a process of absorbing the knowledge others try to transfer to you. The consequence of this view is that educative processes are better when they are constructive. By focusing on the construction of models, products, guidelines, rules of thumb, reports, or other tangible outputs the learning easily and naturally will turn out to be constructivist. This is the opposite approach from using learning processes that focus on information processing first, after which the actual application of the knowledge will have to wait for another time.

- *Cooperative, interactive learning (with peers, teachers and heritage providers etc.)*

    The basic idea behind competence-based education is to help learners to develop and construct their own knowledge and seek ways to make optimal use of other people's competence in their learning itinerary. This is what social constructivism is about.

    Co-operation and interaction are both domains of learning as well as vehicles of learning in other domains. If learning is supposed to be self-initiated, self-regulated, and aimed at developing personal competences, the educative approach must allow for diversity in needs and related to that in goals and objectives. This requires an open approach in which education includes dialogues between learners and educators about expectation, needs, goals, choices etc.

- *Discovery learning*

    Open learning processes require learning that may be characterized as active discovery as opposed to receptive learning. This does not imply that learning content should not be made available and accessible. It means that the way of acquiring this knowledge or these competences, should not be just a process of providing information, but should always be embedded in a discovery-based approach.

- *Reflective learning*

    Competence based learning requires, apart from a focus on the key competences, also an emphasis on the learning processes as such. By reflecting on one's own needs, motivation, approach, progress, results etc. one develops learning competences/strategies that may be considered *meta-competences*. The competence meant here is usually referred to as the process of 'learning to learn'.

- *Personal(ised) learning*

In the competence-oriented theories learning is conceived as a process of constructing one's own personal knowledge and competences. Information, knowledge, strategies etc. only become meaningful for a person if they become an integral part of one's own personal body of knowledge and competences. In education this implies that students need to be able to identify with the contexts, the persons, the situations and interests that are included in the learning domains involved.

2.5.   Validation

Validation of informal and non-formal learning is one of the major educational initiatives in Europe. It has been developed since 2002 and comes with a number of very powerful instruments like the EQF, ECVET and EUROPASS which have been promoted in the European Educational field. The main purpose is to make skills and competences of the individuals visible, transparent and transferable and with it to contribute to European mobility and cohesion.

The year 2018 marked the official European introduction of validation of informal and non-formal learning in political and administrative structures in all European member states.

Validation of competences is an integral part of the applications for KA1 projects. Hence Adult Education professionals should be competent in validation.

Up to now, however, validation of competences is still unknown territory to the vast majority of (adult) educators in Europe.

Our surveys over the last few years[8] show that a competence validation is not being managed, its' potential usefulness is not even explored and the need for it remains undiscovered by the large majority of educational stakeholders in Europe. The reasons are manifold, and it certainly requires a larger publication than this to explain them.

Validation is often reduced to certification, connected only to the delivery of proofs of attendance or considered as a rather formal exercise to deliver some kind of proof that learners crossed a certain threshold for whatever reason and for whichever purpose. In the utilitarian world of purely work-related learning, the only driver for this is often regulatory compliance by the employer.

It has to be emphasised though, that the validation of competences can be far more than just another (isolated) assessment and certification exercise. It is also a great opportunity to invent new forms of learning and to improve teaching, training and learning design.

It inherits the identification, documentation, assessment and certification and related counselling, training and learning activities.

Most educational stakeholders in Europe are still a long way from a feasible and attractive integration of competence validation in their training offers.

However, innovative learning formats (especially also online, blended technology supported) can contribute a lot to holistic learning approaches which also include validation processes, be it identification, assessment and documentation and eventually also certification.

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[8] PROVIDE, IMPACT, REVEAL

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2.5.1. Levels of Formality in Learning

Since the full title of the concept is called "Validation of non-formal and informal learning" it is crucial to understand the concept of formalisation in learning and education.

As with many formal structures in society we take our education systems for granted – we consider them as quasi-natural systems. We are simply used to them, and many of us (educationalists) never really question them or reflect about major principles.

Some official documents define 'informal learning' as a 'precursor to learning" or 'unintentional' learning; in other words: learning which cannot be influenced. However, the term 'informal learning' was coined in the 1970s in connection with adequate (informal) learning strategies to educate citizens in the former European colonies. In this case it was the opposite of 'unintended'. In connection with validation the term was hijacked and used for a rather unconscious state of competence acquisition which can be exploited for qualification purposes.

Some other approaches developed concepts of the 'Recognition of Prior Learning' which at least have a learning aspect in it.

However, at the beginning of the invention of validation of non-formal and informal learning, the 'learning' part was not more than a pre-stage that was not considered at all.

As well as this, more than 15 years after the first official concept and 10 years after the specifications of VINFL[9] there is still the danger that either validation is treated as an add-on to adult education or conversely that adult education is not a part of validation (which is far worse). In this case (and from a solely utilitarian point of view) validation would become just a smart tool for qualification, an instrument to speed up certification processes and to produce certified individuals without development of their competences. This is exactly the structural threat of validation for informal and non-formal adult and youth education: the risk is that they might become obsolete since learners (or more likely their employers or the state) only need assessments and certifications and not the learning part – especially where training providers are being 'paid by results'

With the 2016 guidelines for VINFL it seems that also the CEDEFOP[10] realised this danger and the fears expressed by some of the AE and youth stakeholders[11] and emphasised the necessity for guidance, counselling and accompanied training.

However, what is missing is a holistic approach to integrate Validation in Adult Learning, not only for the sake of the individual learner but also as an improvement of the quality of the learning offer and as a starting point to Competence Oriented Learning. To fully understand all implications of the concept of "Validation of Informal and Non-Formal learning" (and its integration into COL) it is worth taking the time to reflect a bit on the nature of formality and informality in education.

---

[9] VINFL validation of non-formal and informal learning specs 2009, European Commission
[10] Cedefop (European Center for the Development of Vocational Training) is one of the EU's decentralised agencies. Founded in 1975 and based in Greece
[11] Who still clashed in the 2013 conference on validation of informal learning

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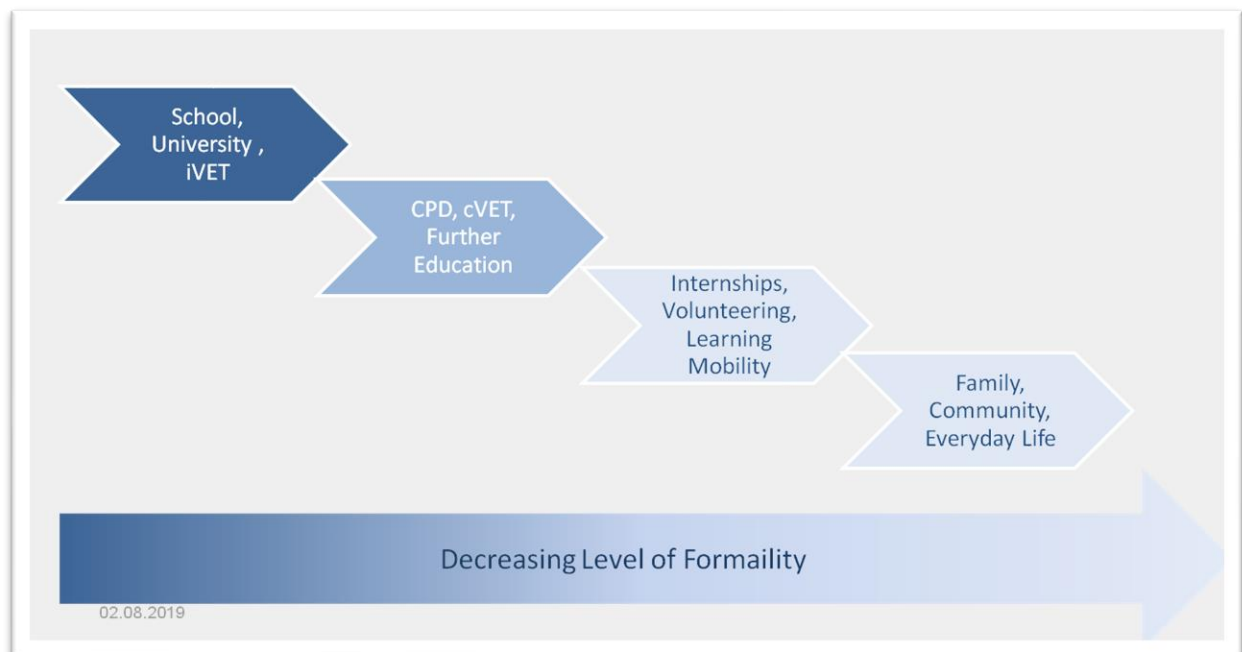
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Fig. 9: Learning offers in relation to the level of formalisation

Fig. 9 shows the main educational domains and training/learning offers along a decreasing level of formality.

From the purpose point of view the focus of formal education (in school, university, iVET) is clearly on qualification – as a doorway into the labour market.

The focus of CD is still very much on qualification, however it allows more choices and probably also tackles more generic competences.

In the fourth cluster there is still a more or less conscious personal development component like in internship, learning on mobility, volunteering and other societal engagement – however, the learning is more practical and overlapped by other motives like travelling, discovery, trying out, help and support etc.

The last area is unintentional learning such as that which occurs within the family and communities.
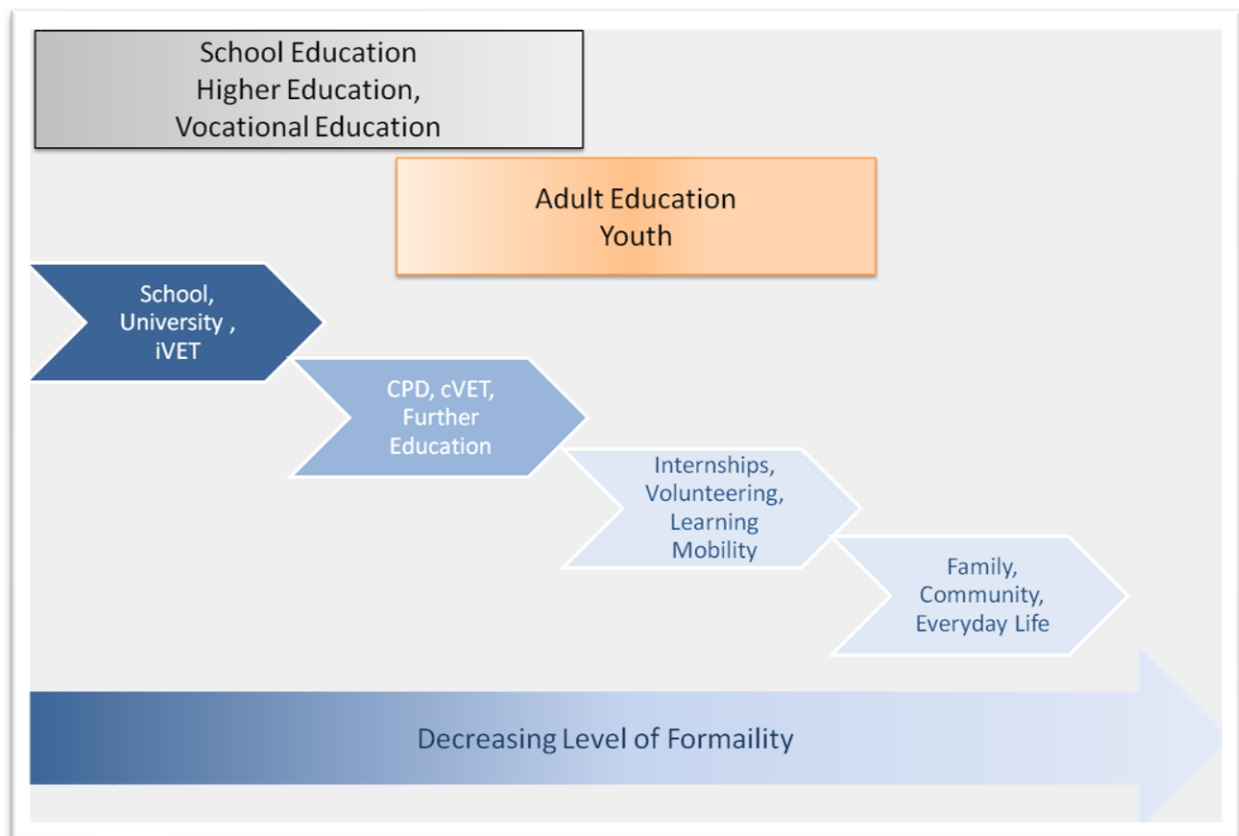
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Fig. 10: Education sectors in relation to the level of formalisation

It goes without saying that adult and youth education are operating in less formalised sectors.

This is one of the reasons why adult education and youth education providers should pay more attention to VINFL and integrate it into their learning offers. This goes together with the competences which are acquired in these less formal learning areas. They are less formalised and more contextualised, not so much looking to be certified, not so much anchored to curricula and more are more generic in nature.

This does not mean that they are less important as a quick check through the job adverts will certainly reveal. Enterprises are looking more and more for team workers, networkers, communicators and interculturally skilled labour.

Given the fact that these competences can be validated, this is a great opportunity for adult and youth educators to gain more importance and influence.

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Characteristics of formal, non-formal and informal Learning			
	Formal	**Non-formal**	**informal**
Absicht	• Long-term and proof of entitlement-based	• Short-term and specific	• situated learning, specific, activity/experience-based
Timeframe	• Long-term cycles / preparatory / full-time	• Individualized / output-oriented	• individualised
Content	• Standardized, • input-centered • AcademicEntry requirements determine clientele	• Individualized / output-centered • Practical Clientele determines entry requirements	• Individualized, contextualized • Practical knowledge • Individual interests and needs
Delivery	• institution-oriented • Isolated from environment • rigidly structured • teacher-centered, resource-intensive	• environmentally based, community based • flexible, learner-centred and resource-saving	• Community-based, practice/work context, community-based, collegial • Flexible, not price based
Controle	• External / hierarchical	• autonomous / democratic	• self-guided
Curriculum	• top-down • given curriculum	• mixed, top-down or bottom-up • negotiated	• bottom-up, conversation-based, non-curricular, interest and need

Weiß et al. (2005)

Fig. 11: Characteristics of formal, non-formal and informal learning

Fig. 11 shows indicators for each of the educational areas.

Certain characteristics can be assigned to each of the areas though it has to be emphasised that this table as well as the previous graph visualise a continuum and not discrete categories. Even in school and university there are hopefully also informal (or less formal) traits and activities and there may also be formal aspects in mobility activities (e.g. the mobility supplement to the EUROPASS).

However, what the table from Weiß clearly shows is that informal learning is also intended learning – intended at least from one learning partner – either facilitator and/or learner.

2.5.2. Validation Stakeholders

"Validation is the process of identifying, assessing and recognising a wider range of skills and competences which people develop through their lives and in different contexts…"(Bjoernavold 2004).

In order to fully understand the concept of validation we have to think about the stakeholders and their (potential) motivations in being part of the system.

From the side of the European Commission the idea is clear:

"The purpose of validation is to make visible the entire scope of knowledge and experience held by an individual, irrespective of the context where the learning originally took place. "

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” Lifelong learning requires that learning outcomes from different settings and contexts can be linked together.“

“In lifelong and life-wide learning, 'validation' is a crucial element to ensure the visibility and to indicate the appropriate value of the learning that took place anywhere and at any time in the life of the individual. “ (Colardyn/Bjornavold 2004)

Given that the CEDEFOP and the authors represent the will of the EU, the main idea is to make competences of individuals more transparent and comparable and to contribute to the European Cohesion and economic growth.

One has to see validation in the larger context of the growing Europe and its educational policy, starting already in the years after the Rome treaty (to support guest labourers and their children) through the Maastricht and Lisbon contracts (Lifelong Learning) up to the European Skills Agenda (2018) and its components.

Below the European and national political stakeholders there are four other groups which play decisive roles in validation:
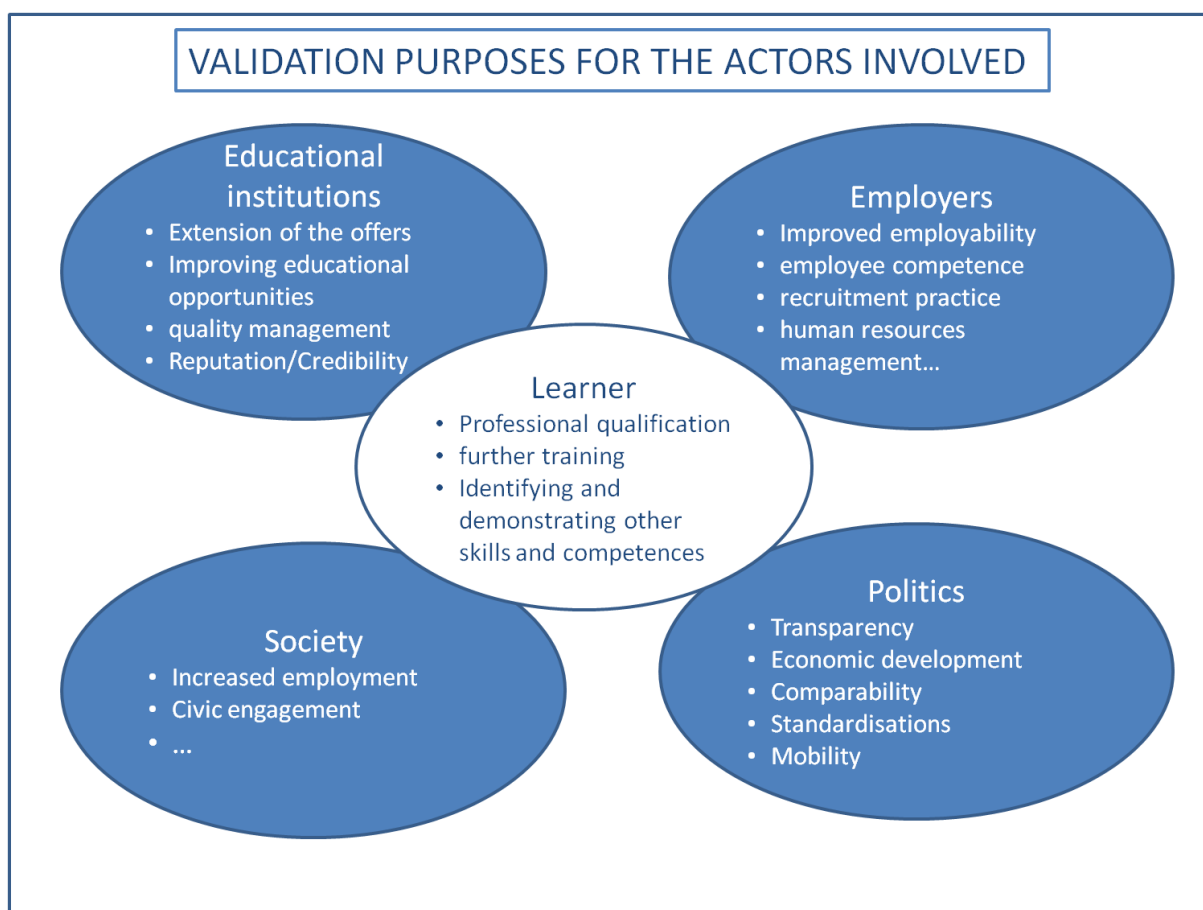
Fig. 12: Stakeholders involved in validation

Following the idea of the inventors of validation the individual learner should be in the centre of the system and improve his/her employability and through the management of the competences.

Employers expect a more competent labour force and better access to and visibility on competent human resources.

Educational institutions expand their offers, improve their quality and credibility.

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Eventually the European societies benefit via higher employment greater productivity and higher social engagement.

This is of course still rather visionary and up to now we neither have the administrative nor the educational structures to effect a reasonable introduction. However, the system inherits chances for innovative and creative adult education institutes.

2.5.3. Validation Purposes

Validation purposes can firstly be clustered along organisation levels:

1. EUROPEAN level (European Commission)
   - Transparency of qualifications
   - Mobility
   - Comparability
   - European economic growth and stability
2. INSTITUTIONAL level (enterprises, public institutions, schools)
   - Finding personnel
   - Providing evidences of own capacities
   - Organisational development
3. INDIVIDUAL level
   - Showing potentials and competences
   - Finding jobs
   - Collecting evidences in CV
   - Sharing competences for private projects/purposes

As far as educational stakeholders are concerned the purpose changes with the level of formality. This is especially important for Adult Educators since a sole qualification purpose would not bring any added value in their working area.

Hence, one could differentiate 2 opposite sectors, derived from the levels of formality as outlined in 6.1.

Professional Formal Qualification:

Purpose: 'profiling', identifying levels of competences and measuring 'performances'

Means: -> summative assessments and high level of formality, certification

Personal development:

Purpose: incentive for civic engagement, showing potentials of learners

Means:-> identification, formative assessment and low level of formality

Between those two poles there are a large number of different scenarios ready and waiting for competence validation:

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- Continuing professional education and training,
- Learning on the job,
- Training on social/personal competences like teamwork, communication, customer orientation etc.,
- Orientation projects for young (unemployed) adults,
- Mobility projects for those Not in Employment Education or Training (NEETs) – what used to be known as the Intermediate Labour Market or ILM - to develop their potentials and to bridge to the working life or formal education again,
- Self-learning arrangements, to give evidence to competences acquired in rather informal learning contexts, e.g. in volunteering,
- Competence Oriented Learning Arrangements, e.g. Design Thinking workshops for young entrepreneurs -

just to name a few.

2.5.4. Validation procedure

Validation, as a European concept, is based on a 4-step procedure consisting of

- identifying,
- assessing,
- documenting and
- recognising

Knowledge, Skills and Competences[12] acquired in formal, non-formal and informal settings.

CEDEFOP glossary, EU Communication on LLL:

" Validation is the process of identifying, assessing and recognising a wider range of skills and competences which people develop through their lives and in different contexts…"

The EU-wide agreed process of validation of informal and non-formal learning (EU Directives 2009/2012) consists of the four steps of identification, documentation, assessment, certification of "learning outcomes achieved by a person in a non-formal or informal way".

Learning outcomes play an essential role in the validation concept - they are descriptions of what a learner should know and be able to do (after completing a learning activity).

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[12] For educationalists of certain member states the 'competence' component sounds rather odd or tautological (since knowledge and skills are parts of a 'competence'). In this definition 'competent' marks the level of autonomy and responsibility that a person shows in the working process.
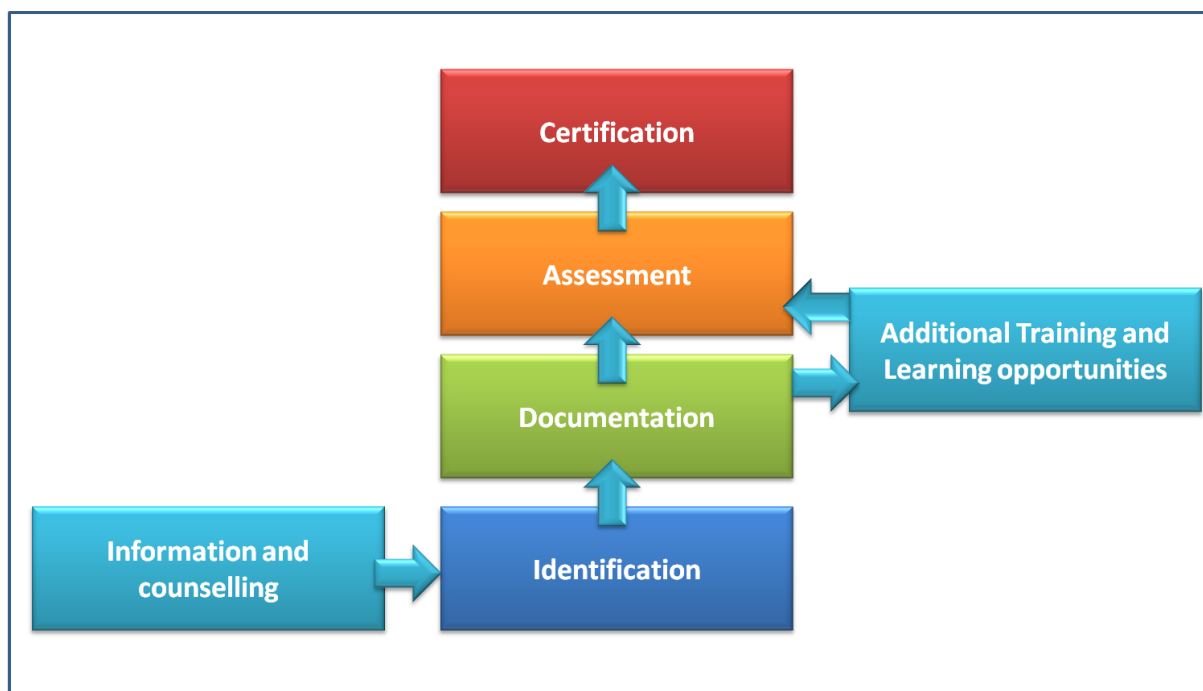
Fig. 13: Validation steps and necessary support measures (information, counselling, training)

'Identification' is the collection and identification of existing competences and learning outcomes of the individual.

'Documentation' means that the competence proofs and learning outcomes are collected in appropriate tools, for instance in e-portfolios. To identify potentials, strengths and competences, biographical tools such as ProfilPASS play an important role, as the purpose of the collection phase is also to increase the awareness of the results of previous learning experiences.

'Assessment' is the third validation step in which the existing evidence of competences and learning outcomes are classified according to specific reference points and / or standards. This step requires high quality measurements for the credibility and transparency of the procedures. According to the 2016 Guidelines, this step will use "similar methods and tools as used in the formal education and training system". However, at a time when social, personal and organisational competences are becoming increasingly important, the question arises as to how these competences are also taken into account in the validation process.

The fourth element of validation is '**Certification**', which seeks to 'authorize' a person to perform certain activities by awarding a formal qualification (or partial qualification, or 'license').

The multiple meaning of the term '**competence**' becomes clear at this point: In formal, qualification-oriented contexts, being competent may have the main meaning of 'being allowed to'. In a pedagogical context it describes the comprehensive ability of a human being, to apply a mixture of knowledge, skills attitudes/values in a defined context (which may also be professional) in a certain quality.

For qualification purposes, learning outcomes are assigned to defined professional skill levels, for example through the European Credit Point System for Vocational Education and Training (ECVET). Here, the European Qualifications Framework (EQF) serves as a background system and orientation framework for the descriptions and classification of different qualification levels. The EQF is the central

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European reference system that integrates and links the different national qualifications frameworks and thus serves to make comparisons and transparency of qualifications possible.

A broader understanding of the concept of validation, as increasingly articulated in the CEDEFOP 2016 Guidelines, creates new opportunities for adult learning and its actors. The purpose of validation is to make visible the full range of a person's knowledge and experience, regardless of the context in which the learning originally took place. This vision includes at least in principle essential elements of adult education conception (e.g. a competence orientation), even if the objective of the validation was originally entirely occupation related.

EU Member States should include by 2018 the necessary regulations for the introduction of the four validation steps, which "give individuals the opportunity to use each of these steps, either individually or in combination, according to their needs."

This makes it clear that, in contrast to input-oriented education models, the validation of informal learning focuses on the individual and the validation steps and instruments used should be flexible.

Secondly, it emphasizes that validation does not necessarily have to include all four steps. Thus, 'validation' is also to be understood as an umbrella term for all recording, documentation, evaluation and certification activities.

2.6.   European Tools and Instruments

The EU has developed a number of instruments to facilitate the Validation of Non-formal and Informal learning (VINFL).

The most prominent ones are the EQF (European Qualification Framework) and the credit transfer systems:

ECTS for the Higher Education sector, based on time-related credit points and ECVET is the European Credit Transfer System for VET. In contrast to ECTS the ECVET system is based on learning outcomes, which are descriptions of what a learner knows, is able to perform in which grade of responsibility and autonomy.

As outlined above, the EQF is a central taxonomy to compare 'qualifications' among member states with the help of 8 levels.

The ECVET system is entirely based on the EQF level descriptions that should be transferred into an occupation-specific taxonomy. In reality, the system was implemented without much success. Even in more than 100 funded model projects only a minority kept to the ECVET specification and only about 10% delivered reasonable models for 10 VET and CPD areas[13].

EUROPASS has been designed as European wide CV with several interfaces to practical learning and mobility learning documentation.

The instruments serve as assessment and documentation tools.

For identification purposes the German ProfilPASS may be mentioned as well as the YouthPass for youth and volunteering actions.

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[13] Survey crried out in the framework of the IMPACT project (https://mahara.vita-eu.org/artefact/artefact.php?artefact=20068&view=3270)

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2.7.   The LEVEL5 validation approach

REVEAL has developed and maintained the LEVEL5 system since there are a number of shortcomings that relate to a solely formal validation approach as it has been brought forward by the Commission and the CEDFEOP in recent decades.

Firstly, LEVEL5 aims to also validate those competences that are not related to qualification or curricula. Nevertheless, they are becoming increasingly important in our professional lives. We cluster them in social, personal or organisational competences, among them teamwork, communication, flexibility, creativity and innovation, conflict management, client orientation, critical thinking and spotting ideas and opportunities, just to name a few.

A second aspect which differentiates the LEVEL5 validation from the above-mentioned systems (EQF, ECVET, ECTS) is its purpose: while the EU systems aim at summative assessment and validation, LEVEL5 can also be used in a formative approach. Formative assessments aim primarily at empowering learners, while summative assessment is a sort of grading process which aims at measuring performances related to knowledge or expected behaviours. We can therefore say that formative assessment is diagnostic in nature while summative assessment is evaluative. For us the diagnostic functionality is very important since the learning process is very much in the focus of our members and not just the assessment and grading of the learners. Nevertheless LEVEL5 can also be used as a summative tool to judge the performances; hence it allows a balanced assessment based on both functions, thus delivering on the one hand necessary information about the next steps of the trainers and learning providers and motivating learners to go on, and at the same time measuring the student's learning regarding to the taxonomy.

Eventually – and this goes along with the second aspect, LEVEL5 does not relate only to one measurement at the end of a learning process but to several points in time which allows a documentation of the progression of a learner. This progression is displayed in the LEVEL5 cube and the LEVEL5 certificates.

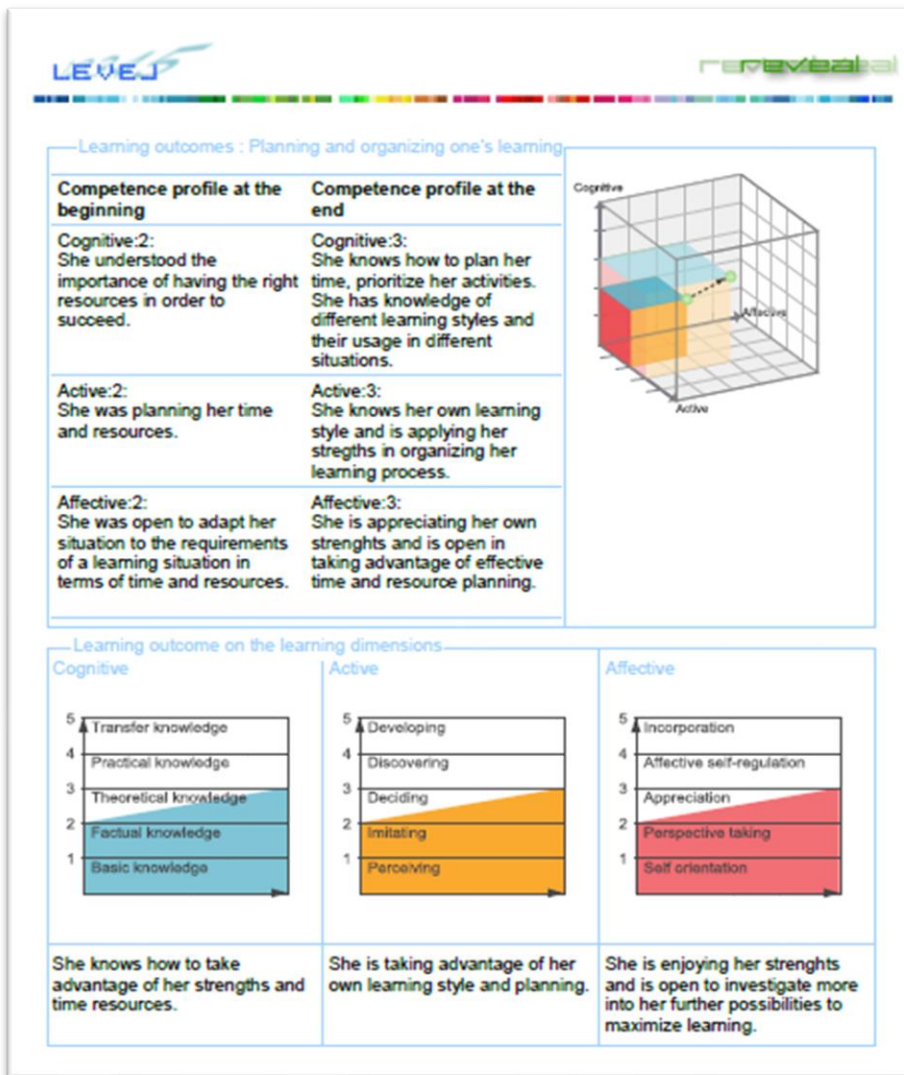*Fig. 14: Excerpt from a LEVEL5 certificate*

To conclude: LEVEL5 is not just a validation system but an approach which combines Competence Validation with Competence Acquisition; a holistic training, learning and validation approach which we call "Competence Oriented Learning and Validation".

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2.8.   How to apply Competence Oriented Learning and Validation

As mentioned earlier our approach is based on the definition that a competence is the ability of a person to apply

- Knowledge,
- Skills and
- Attitudes

in a specific context and in a particular quality.

Unlike in this holistic model the third affective dimension is mostly neglected in formal and professional education, particularly in traditional learning settings and in connection with the assessment of 'learning outcomes'. The attitudes of the learner, if they are reported on at all, are usually relegated to general notes at the end of a tutor's assessment.
Neurobiological (brain) research in recent years, however, has clearly proven that the affective (emotional and non-cognitive) dimension of learning is of utmost importance for the learning process. Feelings, attitudes and values are crucial for learning, especially for the development of social and personal competences – which play an increasingly important role in our modern societies, be it in professional or civic life.

Communication, teamwork, service-mindedness, intercultural and diversity management, autonomy, flexibility and problem solving belong to these competences, but also the complex 'key competences' like entrepreneurship or active citizenship which cannot be efficiently 'taught' in school but are mostly acquired in practical and real life learning situations.

For efficient learning in formal or non- formalised learning contexts we need innovative learning approaches that promote tailor-made, needs driven and situational learning for the integrated development and validation of these skills and competences.

2.9.   Core Elements of Competence Oriented Learning and Validation

According to our philosophy, all three dimensions have to be considered to design learning and validate competence development along a comprehensive, holistic and effective learning approach.

Therefore, LEVEL5 is based on a three-dimensional model which maps the development of:

- Knowledge (-> cognitions)
- Skills (-> actions) and
- Attitudes (-> emotions and values)

along five quality levels – from beginner to competent expert.

This model forms the basis for the two core LEVEL5 instruments:

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The LEVEL5 *cube* visualises a person's competence development in a specific (preferably practical) learning field which is described in the so called LEVEL5 *reference system*.

The LEVEL5 *reference systems* facilitate the design and planning of informal/non-formal learning and the validation of competences in a specific practical action and learning field.

The LEVEL5 *cube model* reduces significantly the complexity when visualising and describing learning outcomes and therefore provides an attractive presentation and documentation system for learning.

With LEVEL5, learning and validation of competences is promoted in practical, rather informal learning situations (e.g. learning on the job, in internships, volunteering and in mobility programmes etc.) and in innovative competence fields (e.g. entrepreneurship, active citizenship and other key-competences).

2.10. Principles of Competence Oriented Learning

Competence oriented learning is based on human centred educational concepts that are backed up by educational research and practice.

We believe that it should contain the following features:

- Active learning
- Experiential learning
- Contextualized learning
- Explorative learning
- Collaborative learning
- Constructive learning
- Personalized learning
- Reflective learning

These principles and features should be considered when designing, planning and delivering a learning module or learning pathway.

There are several tools and instruments that support competence-oriented learning. Design Thinking approaches, for instance contain a large number of instruments and tools for different phases of visioning, spotting and creation of ideas, refinement and prototyping.

Open source learning technologies offer multiple learning pathways be it as LMS or e-Portfolios. They are also rich development and collaboration pools.

Especially in mainly informal learning environments (for instance in mobility learning, volunteering etc.) well designed learning apps can be used as (hidden) navigation to lead learners through intended learning steps. Here explorative (e.g. app-guided) learning arrangements can be the methods of choice, especially when working with non-mainstreaming or hard to reach learning groups such as those excluded from conventional schools, Hence there is no lack of state-of-the-art technologies or creative approaches to design and deliver Competence Oriented Learning. What we identified as a shortcoming is a lack of a systemic approach to create a holistic, quality driven method of developing competences and the means to assess and document them.

To design and deliver Competence Oriented Learning we have to leave the formal education domains and plan learning in real life scenarios in which we make use of real demands and interests of the

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learners. This was the original idea of 'informal learning': It should relate to challenges in REAL life, should have an immediate effect and use more practical and fewer theoretical learning resources.

We do not want to be misunderstood here: of course, we need knowledge and theory to learn – but we have to construct knowledge rather than just transfer it from teacher to learner. We have to stimulate learners to be more active: show them how to them explore knowledge and research sources and do not just transmit theory at them but let it be constructed by action, reflection, and comparison to real life experience!

2.11.   Planning and Delivering Competence Oriented Learning

There is a high demand for Professional Development for Educational personnel, be it trainers, teachers, coaches, learning providers or e-Learning designers – but increasingly also professionals without a professional educational background who deliver learning to others.

For both groups, professionals working in formalised education and other competent learning providers working in informal learning we wanted to set up an easy-to-use approach to plan and deliver Competence Oriented Learning and Validation.

Therefore, we developed the LEVEL5 system which builds on a simplified Plan-Do-Check step procedure:
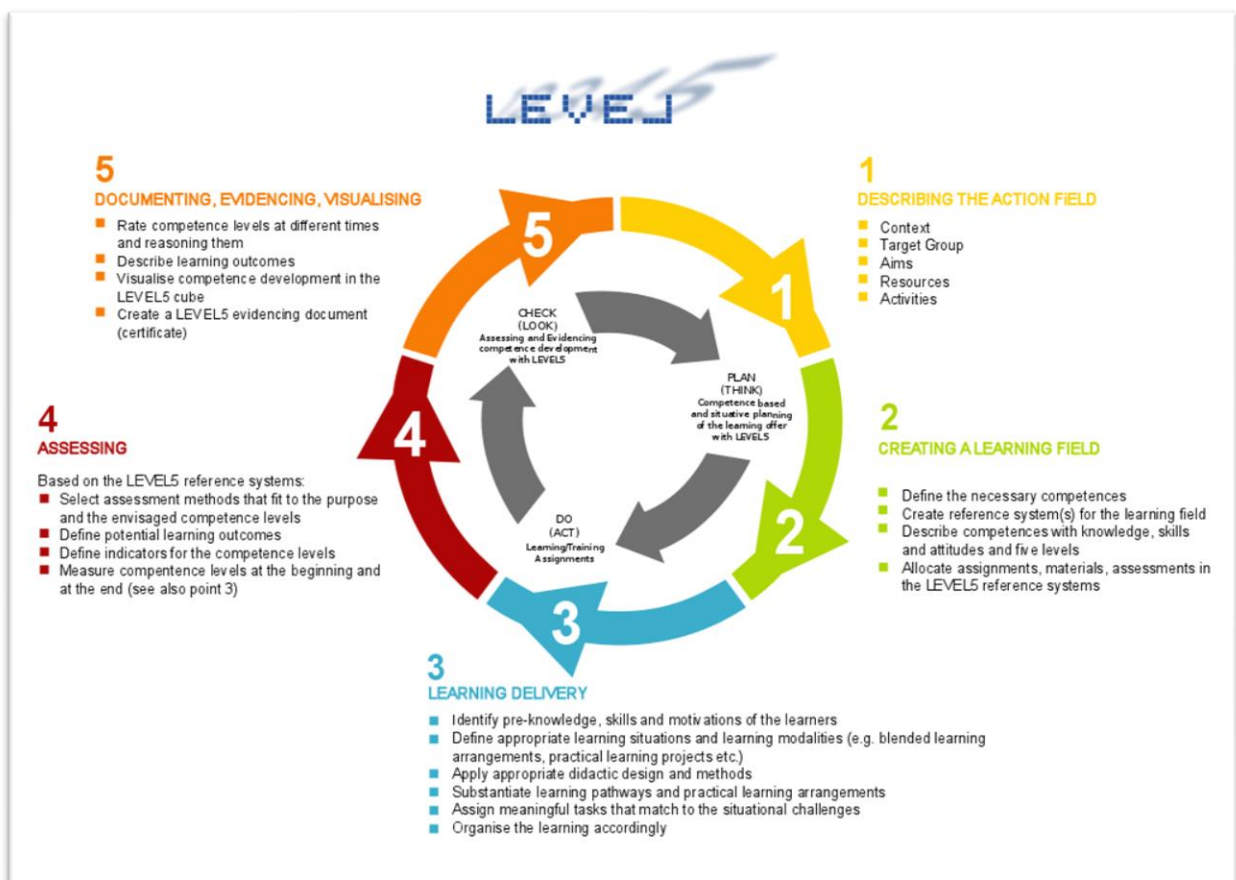

Fig. 15: Procedure to plan and deliver COL&V

Plan:

The starting point of the planning is the so called 'action field' in which the learner is located. It describes context, actions, resources and objectives of his/her activities.

The conversion of this action field into a learning field is facilitated by the LEVEL5 reference systems which derive the competences that are necessary to tackle the actions and solve the tasks in the field.

Do:

The delivery of learning is highly dependent on the context. It can range from a rather informal, self-guided learning (e.g. in learning on the job or in mobility settings) to more formal arrangements (e.g. in school projects or more guided continuing professional development (CPD) actions).

LEVEL5 largely supports blended, web-aided learning arrangements. The REVEAL community offers state-of-the-art learning technologies and an open learning space for these purposes.

Check:

The check-element refers to the validation within LEVEL5. Dependent on the identified action and learning field it covers the identification, documentation, assessment and certification of competences. It is largely based on the LEVEL5 reference systems that facilitate individual and contextualised validation. The learning outcomes are documented in LEVEL5 certificates including the dynamic LEVEL5 cube.

2.12.   Instruments for Planning and Delivery

Based on the procedure we have developed four main instruments to plan and deliver Competence Oriented Learning and Validation.
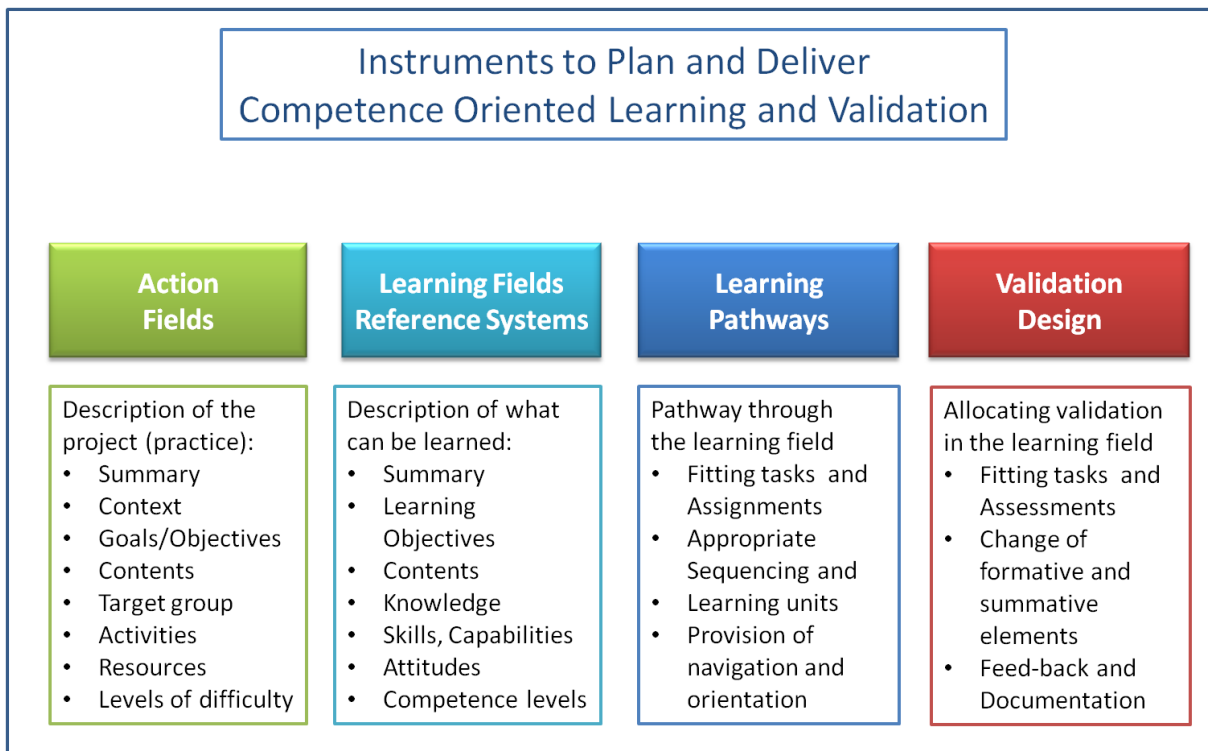

Fig. 16: Tools and Instruments for Planning and Delivering COL&V

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The instruments are easy to use tools that facilitate the planning according to a logical step-by step procedure. The first step (action field) scans the practical field and the challenges therein.

The learning field connects to learning objectives and envisaged competences levels and sets up a contextualised reference system. In the third step a learning pathway is designed and reasonable tasks and assignments are located on it. In the last step a reasonable assortment of assessments is assigned to it (formative and summative if applicable) as well as meaningful documentation and certification.

2.12.1.   Action fields

The first planning step is always related to the practical situation and describes:

What is the acting field and what does the individual has to perform in a specific context –(what are the tasks, the challenges, the visions, background and the perspectives)?

The action field is thoroughly described in a pre-defined project pattern. This step represents the planning of modern, practical and contextualised learning. It can be applied in a large variety of learning sectors ranging from modern HR-management for highly efficient continuing professional development (CPD at the workplace) to practical learning projects in NGOs or in innovative (primary, secondary or VET) schools, e.g. in climate friendly management, system thinking or other interdisciplinary action fields.

The action field already comes with five different quality levels and describes the challenges and tasks that the individual is confronted with in his/her field of action (which can be professional and/or private).

2.12.2.   Learning fields

In the next planning step, the action field is turned into a learning field, following the question: Which competences do we need at which (quality) level in order to tackle the situation successfully? At this stage the LEVEL5 reference systems establish a framework which maps the necessary (contextualised) competences on three dimensions and quality levels.

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	KNOWLEDGE		SKILLS Capabilities		ATTITUDES Emotions/Values	
L	Level Titles	Level description	Level Titles	Level description	Level Titles	Level description
5	Knowing where else (strategic transfer)	Knowing how to enhance team processes in different teams. Knowing how to help other people act successfully in teams and to assign specific responsibilities to people keeping in mind their relevant skills.	Developing, constructing, transferring	Leading a team in a way that members are able to contribute to the best of their abilities, supporting them to do so. Being able to strategically develop a team.	Incorporation	Having internalised the "culture" of constructive team work and to accomplish goals through mutual support. Inspiring others to improve their teamwork skills.
4	Knowing when (implicit understanding)	Having substantial knowledge on how and when to join/form a team. Understanding strength and weaknesses of team members. Knowing the importance of communication and how to coordinate workflows.	Discovering acting independently	Being able to assign and coordinate specific tasks and roles to team members on the basis of their strengths and weaknesses. Monitoring team processes. Trying out new roles for one-self.	Self-regulation, determination	Feeling the importance to refrain from own preferences (e.g. in regard to procedures, own solution strategies, methods etc.) for the sake of the team and the teamwork. Being determined to be a good team worker.
3	Knowing how	Knowing the basic dynamics and demands of teamwork. Knowing how to engage in a coordinated work flow where the skills, qualities and limits of each member are taken into account in order to work efficiently.	Deciding/ selecting	Actively reaching out to join a team or help create a team. Contributing to the team process according to own strengths and needs for reaching the shared goal.	Motivation/ appreciation	Having a positive attitude towards working together in a team and to appreciate team diversity. Finding it important to have a 'team spirit'. Being motivated to develop own competence to successfully work in a team.
2	Knowing why (distant understanding)	Knowing that teamwork is a more effective way to achieve results. Knowing it demands from individuals to coordinate their work considering individual competences and abilities.	Using, imitating	Contributing to team work when being invited or instructed to. Fulfilling assigned tasks in a team by following the example of others.	Perspective taking	Being interested in the potentials of team work and to learn more about it.
1	Knowing what	Knowing that teamwork is collaborating with others to reach a shared goal.	Perceiving	Recognising situations in which teamwork is feasible to reach goals.	Self-orientation	Seeing teamwork as something positive, but without considering developing own team work competence.

Fig. 17: LEVEL5 Reference system (Learning field)

Knowledge, skills and attitudes in the learning field are described in a consistent way on the five quality levels including potential learning outcomes. Appropriate learning activities, materials, resources, and potential validation settings are assigned to and allocated in the reference systems.

2.12.3. Learning Pathways - Planning not formal learning

Fig. 18: Learning pathway with envisaged activities in the Learning field

In a nutshell: What do we have to consider while planning and delivering COL?

- Assigning the right tasks to the right boxes; Depending on
- content levels (level of complexity)
- levels of difficulty
- levels of knowledge, skills
- attitudes
- intention of the designer

The action and learning fields help the learning designer to identify different competence levels, to describe learning outcomes related to the levels and the three dimensions (columns) knowledge, skills and attitudes. They are then able to deliver a kind of landscape to develop a consistent and high-quality learning pathway – also in informal learning settings.

Based on these landscapes, designers can also plan entrepreneurial learning or learning trajectories when the learner is not in a classroom (e.g. in internships, volunteering or on mobility) and/or connected with mobile learning apps.

2.12.4.   Validation Design for informal and non-formal learning

Validation is a complementary process to planning and delivery of competence-oriented learning. As outlined in the competences for AE professionals, validation refers to the identification of already available competences, their documentation, a competent assessment and (if needed) a certification as formal proof of the learning activity.

The identification can be easily integrated into the learning processes, for instance as entry questionnaires or competence spiders based on self-assessments.
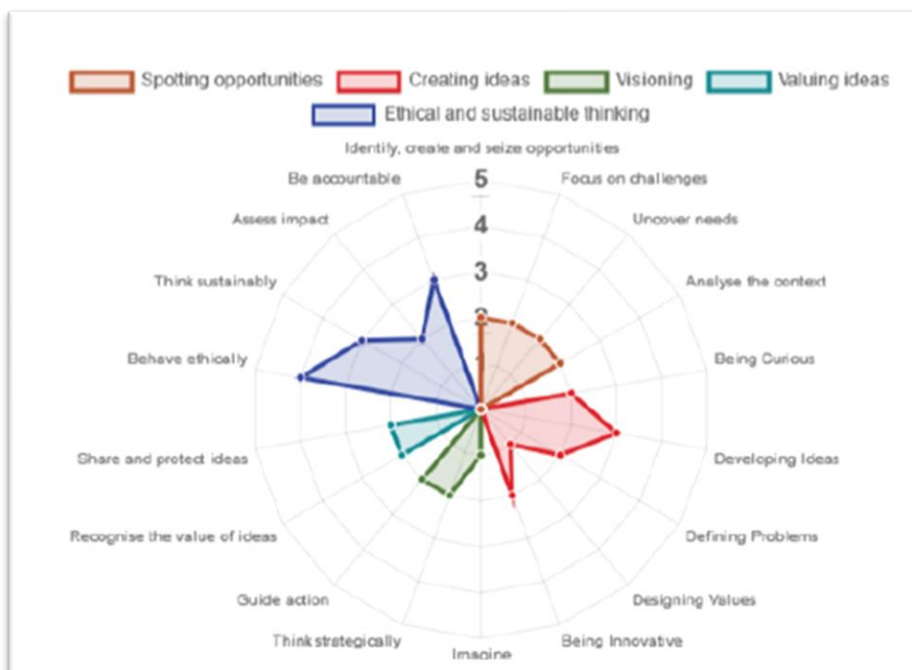
Fig. 19: Competence spider on the Competence to spot ideas and opportunities used in design thinking

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Documentation, as outlined above, can be facilitated with e-Portfolios (e.g. mahara as an Open Source tool). Here, the learning proofs or artefacts can easily be collected and connected to the learners' competence profiles.

Assessments have to be competence-oriented as well. This refers to

1. the competence column (knowledge, skills and attitudes): there is no need to identify and measure complex attitudes with simplified tick-box questions.
2. on the other hand, to the competence level (again, the higher the competences level is, the greater the need for a more complex assessment)
3. to the purpose (formative to empower, summative to measure performances)
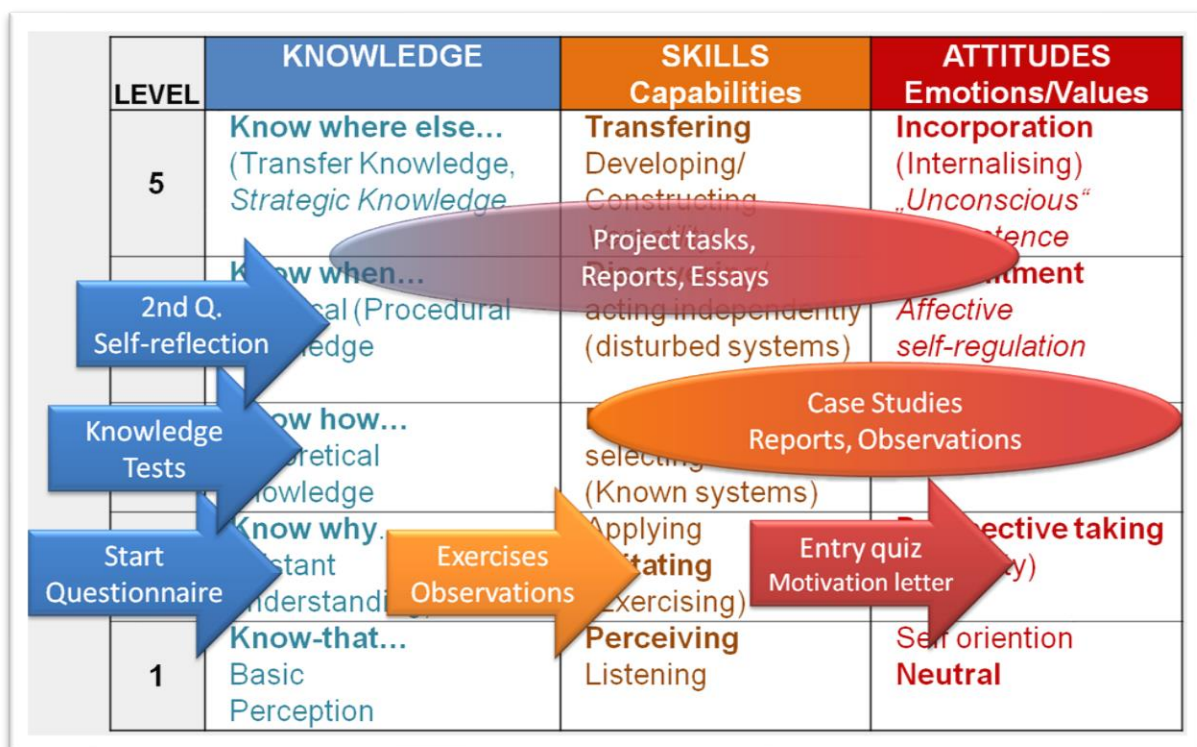
Fig. 20: Schematic ordering of assessments with a reference system for competence-oriented learning

When looking for proofs of learning we should also consider that a smart assignment is often a very powerful assessment tool. Especially in higher competence regions it is not helpful to only go for a knowledge related assessment, since the performance quality can only be observed by looking at all three dimensions.

At least from level 4 the complexity of a challenge is in most cases so high that it needs more than just a simple, descriptive report to understand capabilities, motivation and commitment but also procedural knowledge. We can expect a rather high level of reflection on a problem and self-reflection (metacognition) which will only be revealed either in more complex essays and/or in complex pieces of work.

Given that, it is only logical that the individual (who is in the centre of the validation, remember?) has the opportunity to organise his/her learning proofs accordingly, for instance in a web-based portfolio which also facilitates a 'management' of these proofs of competences.

Eventually the learning outcomes have to be documented and (if useful) certified.

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A standard LEVEL5 certificate is displayed below, in this case related to a design-thinking learning project and the validation of the competences to spot ideas and opportunities[14] and intercultural teamwork.

As outlined above LEVEL5 is not only designed to proof singular performances but the development of a learner in a practical and complex learning project.
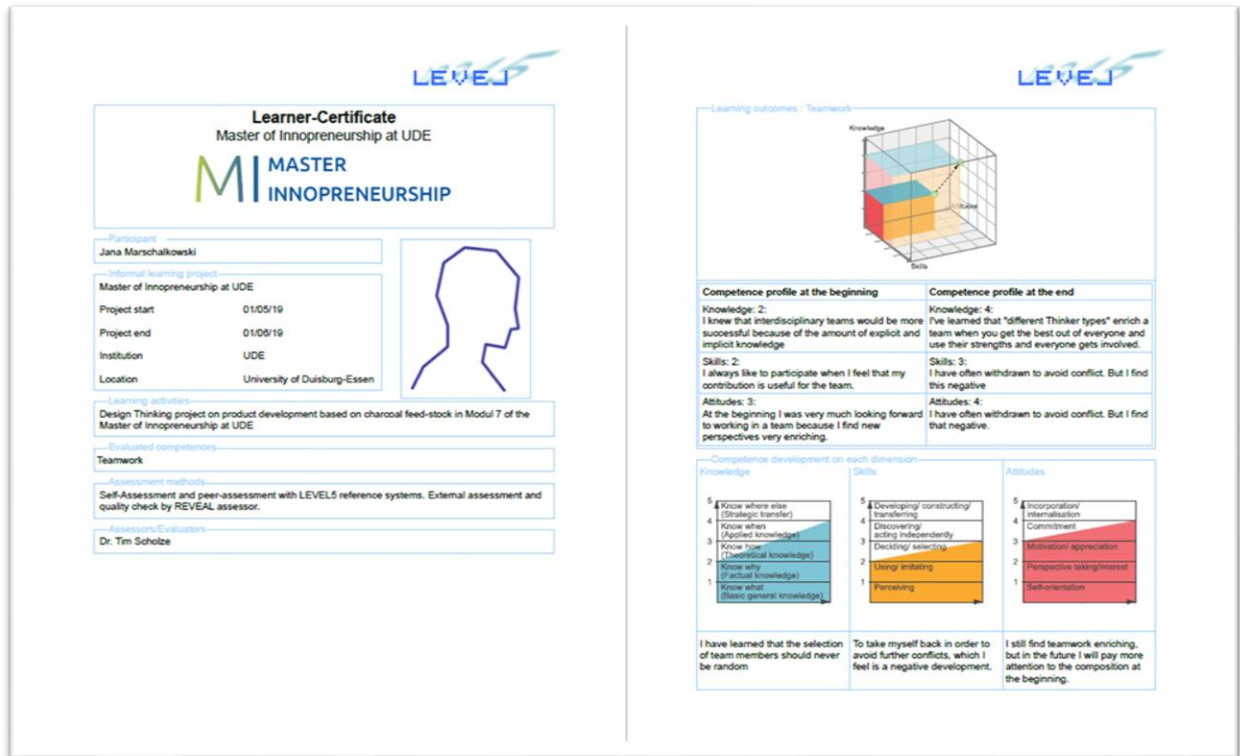
Fig. 21: LEVEL5 certificate template

The competence development is displayed in the 3-dimensional LEVEL5 cube and in the 2-dimensional visualisation of knowledge, skills and attitudes.

The learning outcomes at each stage are described to the left of the cube and below the dimensions. If needed learning outcomes related to the ECVET systems can be easily included, if the learning providers in adequate settings (e.g. in formal VET contexts) wish to do so.

Competence descriptions (learning fields with expected learning outcomes) are annexed to the certificate to describe the context and the learning environment.

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[14] Based on the EntreComp framework

3. Validation Procedure in CIM

3.1. Assessment Packs

The students/interns and professionals acquired and developed CIM competences and the respective facilitation during the CIM learning programme.

The assessment was carried out in a combination of self-, peer- and external modes.

In general, at the end of the learning programme a self-reflection unit was provided. In other cases the procedure was varied by just using external assessments (based on the reference systems) or in other cases also essays and several assessment rounds were included.

The basic setting was the following:

The learners were asked to reflect on your competence levels before the course (at the time of entering the learning programme and at the end of it.

Participants used the patterns attached to this report with the reference system and the descriptors.

This has been the basis for a self-assessment and rating.

- They first ticked boxes on the levels of knowledge, skills and attitudes, for the beginning and at the end of the CIM learning programme (only one rating possible per dimension)

- Examples should be given that illustrate and justify the ratings.

- These ratings and the reasoning were discussed with the team mates.

- After this step the examples and justifications were finalised).

- There was a consistency check from the coordinators and the LEVEL5 certificates will be produced as PDF

3.2. Validation for Facilitators

The following competences for teaching/mentoring personal are relevant for professionals who are supposed to plan, deliver and validate competences which are connected to Creativity and Innovation Management.

Apart from the "field competences", e.g. in regard to the aforementioned competence to spot ideas and opportunities or creativity and innovation competences (see below) we identified seven useful methodological competences which are needed to teach / train/ or promote Creativity and Innovation among students, interns or trainees.

Planning Competences

1. Creating competence oriented learning
2. Creating an open learning environment

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Delivery Competences

3. Facilitating (open) learning processes
4. Mentoring an intern/trainee/apprentice

Validation Competences

5. Assessing competences and competence developments
6. Evidencing competence developments
7. Integrating validation concepts promoted by the EU

3.2.1. Competence to Facilitate Design Based Collaborative Learning

The professionals can facilitate a design based collaborative learning environment using various methods and tools, concepts and approaches. He/she can adapt and develop concepts and designs for collaborative learning for different target groups and is flexible in re-planning and adapting to the needs of the situation. The facilitator can motivate others and inspire participants to develop their own competences in this context.

Design based collaborative learning is both constructive (oriented along a development process which aims at a concrete product or prototype) and teamwork driven.

In CIM design based collaborative learning is applied to facilitate joint learning and development processes related to Creativity and Innovation Management in a HE course or an internship.

Facilitators can be either educational professionals from HEI and from businesses (e.g. mentors).

The competence framework below comprises the most relevant learning objectives/outcomes in regard to planning and delivery of DBCL.

Knowledge: The trainer/facilitator knows…

- what collaborative learning is about, and which components and theories belong to the concept,
- what it takes to plan and implement collaborative learning concepts, for instance to consider multiple perspectives and concrete individual experiences,
- the role of a facilitator in this process,
- at which points he/she should intervene within the collaborative learning process in a supportive/facilitative manner
- relevant teamwork and creativity concepts

Skills: The trainer/facilitator is able to…
- create collaborative relationships,
- create and sustain a participatory environment,
- formulate and apply a strategy of enquiry to enable individuals to explore issues and develop insights,
- evoke the creativity of a group,
- plan appropriate group processes,
- guide groups to appropriate and useful outcomes and

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- facilitate design based collaborative learning based on a repertoire/collection of methods, concepts and tools

Attitudes: The trainer/facilitator …
- understands the shortcomings of traditional educational formats
- appreciates the collaboration of learners
- is motivated to promote learning conditions that are constructive and output oriented
- is curious to continuously learn new approaches of participatory learning
- is open for unexpected learning outcomes
- also appreciated unambiguous results
- is ready to re-define the own teaching/training/counsellor role

3.2.2. Outcomes of the Facilitators' Validation

All competences were combined in the learning field for facilitators, taking on board the learning modules developed for the CPD (delivered in the F2F events and the following accompanied piloting phase in which the trainers applied their knowledge and skills in DBCL projects with their students and interns.

Within the project a total of 66 facilitators from HE and business participated in the CIM CPD programme and the same number of certificates could be issued stating that:

The CIM Continuing Professional Development Programme consisted of a 5 days F2F course plus preliminary and ex-post theory sessions on Competence Oriented Learning and Validation. Different creativity techniques and design thinking were deployed to facilitate learning and development in academic and business contexts. During the CPD each participant had to design and deliver a pilot learning project including a competence validation of the learners.

The validation consisted of a combination of self-, and external assessment; provided by CIM Assessment Pack in combination with a partner report, based on the LEVEL5 taxonomy.

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3.3.   Validation for Students and Interns

The following competences were

15 transversal competences, which belong to the skill set of the European key competence "Sense of Initiative and Entrepreneurship" and the EntreComp framework are of particular relevance in the context of entrepreneurship education in Higher Education, were described in general terms and in terms of the dimensions knowledge, skills and attitudes. Based on this, LEVEL5 reference systems were developed as basis for the assessment and validation of the competences of students.

The CIM-competences are clustered according to:

- Personal competences,
- Social competences,
- Organisational competences and
- Field competences which include the entrepreneurial sub-competences based on the EntreComp framework with a focus on the competence to Spot Ideas and Opportunities.

They are representing the creativity and innovation part and also address the Design Thinking learning and developing methodology which was applied in CIM in different learning stages.

The competences relate to:

The derived CIM competence set is a four field cluster[15] consisting of 15 competences which can be listed as follows:

Field Competences (in order to tackle the challenges in the action field)

1. Spotting Ideas and Opportunities (as central CIM competence)
2. Entrepreneurship Competence (as general concept which can be applied in a potential Entrepreneurial practice project)

Personal Competences

3. Flexibility/Adaptability
4. Critical thinking
5. Problem solving
6. Creativity
7. Evaluating/Reflecting

Organisational Competence

8. Project Management
9. Planning and Resource Management
10. Networking

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[15] based on different competence theories and models (e.g. Research voor Beleid (2006), Erpenbeck, Sauter 2014, REVEAL group 2016/2019) in combination with the EntreComp model.

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Social Competences

11. Intercultural Communication
12. Communication
13. (Intercultural) Teamwork
14. Leadership
15. Client orientation

The competences are not discrete categories and overlapping.

Together they form a comprehensive framework in which the learners develop their competence profile.

Based on the EntreComp approach the CIM project focused on the competence "area" of "Spotting Ideas and Opportunities" since this is the procedural part of the innovation process which can best be tackled within HEI courses and internships.

3.3.1. Competence to Spot Ideas and Opportunities

This Competence requires knowledge on different ideation and prototyping instruments and strategies, e.g. Spotting opportunities, Creating ideas, Working towards a Vision, Valuing ideas, Checking for Sustainability, etc. and how to apply them in different situations

A competent person should be able to Identify and seize opportunities to create value by exploring the social, cultural and economic landscape, Identify needs and challenges that need to be met and establish new connections and bring together scattered elements of the landscape to create opportunities to create value. He/she should be able to create and value Ideas and act responsibly.

A competent person is pro-active and motivated to take the initiative and has a positive attitude towards innovation, collaboration and is conscious and committed to ethical and sustainable development.

Knowledge: The learner knows

- different ideation and prototyping instruments and strategies, e.g. Spotting opportunities, Creating ideas, Working towards a Vision, Valuing ideas, Checking for Sustainability, etc. and how to apply them in different situations

Skills: The learner is able to

Spot Opportunities

- Identify and seize opportunities to create value by exploring the social, cultural and economic land-scape
- Identify needs and challenges that need to be met
- Establish new connections and bring together scattered elements of the landscape to create opportunities to create value

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Create and value Ideas

Creating

- Develop several ideas and opportunities to create value, including better solutions to existing and new challenges
- Explore and experiment with innovative approaches
- Combine knowledge and resources to achieve valuable effects

Valuing

- Judge what value is in social, cultural and economic terms
- Recognise the potential an idea has for creating value and identify suitable ways of making the most out of it
- Assess the consequences of ideas that bring value and the effect of entrepreneurial action on the target community, the market, society and the environment

Consider Sustainability and Ethics

- Reflect on how sustainable long-term social, cultural and economic goals are, and the course of action chosen
- Act responsibly
- Imagine the future
- Develop a vision to turn ideas into action
- Visualise future scenarios to help guide effort and action

Attitudes: The learner…

- is pro-active and motivated to take the initiative in order to reach a goal
- is willing to undertake risks to achieve his/her vision
- values autonomy and accepts the risk to fail
- has a positive attitude towards innovation and development
- appreciates collaboration and respects others
- has an ethical consciousness

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3.3.1. Outcomes of the Validation of Students/Interns/Staff

Within the project a total of 90 learners from HE and business participated in the CIM CPD programme and the same number of certificates could be issued.

All participants received a qualified certificate about their competence to spot ideas and opportunities.

The purpose of this certification has been mainly formative – of course the learners were encouraged to take the certificates in their portfolios. However, the "value" for the students varied with their understanding of the concept and their view on the idea of competence validation.

Students in HEI courses

- If they strive for marks and formal merits (as for instance in case of more technically educated students in IPL, they expect formal certification (which could be supplied within the ECTS schemes – which are added below for each study course).
- In case of the educational studies (as reported from AUTH, UDE, VU and DCU) the students intensively reflected on the meaning and purposes of formative assessment and validation and discovered the methodology as an important instrument also for their professional development. Of course the formal aspect played a role, but they understood that a "school mark system" is meaningless when it comes to key competences or competences related to creativity and innovation.

Internships and CPDs in Businesses

The staff and interns (in CPDs and internships) highly appreciated the validation of their competences, firstly because via the reflections the created awareness about the value of what they have acquired. Secondly, many of them reported that for the first time they experienced a "structured and qualified" internship or practical learning project, which gave them orientation, security and trust in themselves. Last but not least quite a number reported that they have felt as full colleagues who could contribute to innovation in their practical learning environments.

Both groups

Both groups highly acknowledged that they could follow and recapitulate the development of their learning and development.

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4. Experiences and Conclusions

4.1.   Introduction

The experience (pilot) reports were set up by each project partner responsible for the monitoring of the learning projects and internships, considering the aspects of:

- Context, target groups, activities of the practical activities
- Planning and delivery of the learning activities
- Competence validation (including (LEVEL5 and ECTS validation) and
- experiences regarding feasibility, usability, acceptance and cost/benefit

The reports were clustered along the following topics:

1. Development process of the learning projects
2. Contents delivered
3. Methodology
4. Outcomes
5. Impact
6. Perspective
7. Professional Development

The reports were compiled, checked and analysed by the evaluator, who wrapped up the results and experiences in the following summary

4.2.   Outcomes

Setting: The pilot reports reflect the approaches, results and experiences made by the educational professionals of each CIM project partner.

The learning design developed in the first year of CIM was trained in the CPD course in Palermo in December 2019 and piloted with a total of 73 students and learners in all 8 European partner countries. This pilot phase started exactly at the start of the pandemic which jeopardised the practical F2F learning projects and the internships. As mitigation measures the partnership asked for a (granted) prolongation of the project and in parallel switched over to online learning and collaboration modalities.

The trained professionals transferred their learning projects in a timeframe between Autumn 2019 to Spring 2021. The project could reach all the quantitative targets in terms of professionals trained (some of them were trained also online in 2020) and overshooting the number of envisaged students and interns (of originally 48) to 73.

4.3.   Development process of the learning projects

The development and realisation of the learning course concept varied from institution to institution. On can mainly differentiate Higher Education Institutions (HEI) Universities and research institute) and

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the business partners (also coming from diverse contexts such as SME, education providers, HR institutes and chamber of commerce).

The universities partly delivered their CIM course in a separate course (1 course at UDE in the framework of a specific PhD study on creativity and innovation as 21st century skills) or as embedded in existing courses.

The business partners applied the methodology within "guided" and qualified internships. Especially the internships were largely jeopardised by the pandemic. Some of them could not be carried out (e.g. in the DIE which led to the transfer to CPDs for own personnel, others could be carried out supported by online collaboration and communication tools provided within the CIM project

Planning and delivery

All professionals either participated in the online CPD offers, 43 staff members at the F2F course in Palermo other partners already in a pre-liminary conference in Thessaloniki (link to video). Additional to the participants of the F2F course other staff members joined the CIM online learning units for professionals.

Challenges:

The concept of Competence Oriented Learning was rather new to most of the professionals. It goes without saying that one does not find many educationally qualified persons in business. However, what we can clearly state is that also the educational staff in universities is not necessarily well prepared for educational innovations. Many people had difficulties to change their teacher attitude and tasks, to accept the paradigm shift from teacher centred to learner centred education and to change from the lead person to a facilitator role. Many of them felt insecure, especially as the external expectations in terms of formal quality (known from formal curricula and traditional teaching) are still very much the drivers of the study designs. As this subject oriented teaching design is still the prevailing style the shift to COL brought quite some insecurity. This is quite an inevitable phenomenon – and all stakeholders had to stand this insecurity until the professionals had to make their own practical experiences with the new way of "facilitating learning".

Successes:

After a rather extended pilot phase the experience reports clearly showed that the professionals gained successful experiences, received very good feed-back and experienced in most cases, a really positive development of the teaching and learning quality within their courses. This is especially obvious in the feed-back from the university partners. The Irish partner reported, for instance that the collaborative, team-based online environment and approach was very successful and the whole process ran much more smoothly and effectively than the programme team had initially anticipated. All practice partners had a strong feeling that the COL approach increased the quality and also the competence validation was valued very positively. This is a clear difference to experiences from previous projects in which validation of competences was seen as an additional, time consuming tasks which was more associated with "documentation" and formalism as with an improvement of the learning processes.

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Some of the business partners could not perform as planned due to the Covid situation. Others could even deliver "online internships" very successfully a there were even 10 full jobs created in DE, BE and LV within the CIM internships.

4.4.   Contents delivered

Contents tackled in relation to Creativity and Innovation were on the one hand determined by the CIM programme itself and on the other hand by the strong reference to the Design Thinking Procedure.

As CIM referred to the EntreComp Competence model, the theoretical backbone was in many domains and partner projects based on the idea of:

Innovation = Putting creativity into practice to achieve an impact.

Partners in all institutions explained and brought about the singular elements in the following way:

- Creativity was understood, as "something new" (leading to innovations from incremental to disruptive),
- Practice was conceived as the context and/or the study domain and
- Impact was very often understood along the concept of sustainability, embracing economic, social and environmental effects.

The CIM approach was embedded in different ways – as part of in existing study programmes, as stand-alone courses (for Creativity) or in separate formats (study "projects" within courses).

4.5.   Methodology

In most cases the concept of COL&V could be applied as planned. This showed on the one hand that the training of the professionals (independent from their origin and professional domain) turned out to be successful – despite the insecurity of some of the staff members after the F2F course.

On the other hand, especially the high quality of the learning within the practical context shows that the COL approach is useful and successful in learning situations which are no linked to formal concepts ("curricula") and convert rather informal contexts ("action fields") into "learning fields" in which competence acquisition takes place along a quality concept (along defined competence levels which are linked to taxonomies of learning outcomes, such as LEVEL5 or ECVET.

Insofar the Planning aspect worked successful, as well as the Delivery of the learning since all partners used the online tools, platforms and instruments provided via the CIM project. This is maybe one of the very few positive aspects of Covid – the stakeholders (institutions and staff) were simply forced to use digital learning tools and thus even grateful to have an in depth training on these digital instruments. All partners and their learners could use the provided learning technologies and the project did not lose a single participant in the online communication and collaboration, neither in joint workshops (prior and after the F2F session) nor in the collaborative conferences in

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December 2020 and (CIM-ERASMUS days session (40 participants, CIM-REVEAL conferences >100 participants) which all contained collaborative online sessions, delivered via zoom and MIRO, based on CIM Design Thinking assignments.

4.6.   Outcomes

Most partners reported a clear competence development of their students and learners. The number of envisaged certificates was exceeded by 30 which is an indicator that the validation was considered important and that also the professionals could facilitate it.

The assessment and validation related in most cases to the competence to spot ideas and opportunities. The instrument for validation (Assessment Pack and Competence Framework) was based on an adapted EntreComp Framework and it showed feasible to assess the competence development on three quality levels: Self-, peer-, and external assessment.

The partners were qualified in online sessions to check the quality and could apply this (according to the results and descriptions) in good quality. However, what is also obvious is that there was already a high quality of the justifications of the students who were asked to doe a self-assessment of their competence development. The partners who reported about the experiences with the self-assessment grid were with few exceptions very positive. This shows another important learning aspect of the students: The understanding and created consciousness about "competences, competence development and the own learning process – in regard to an exciting theme like creativity and innovation.

All partners reported that students/interns/staff could develop their own products and prototypes, for instance:

- Prototypical learning offers
- Academy structures for specific target groups (older learners)
- Online academies
- Specific services for incoming ERASMUS students
- Alternative validation tools
- Learning apps
- Local educational networks
- Products and services created in CSR and sustainability learning offers, like circular couch, a sustainable start-up giving trees in the city a second life, creating ways to reuse paper, etc.
- product and a business plans.

4.7.   Experiences made in the Validation Processes

From the concluding discussions after the final events the CIM partnership states that the results and quality of the validations are dependent on the following aspects:

- Integration of the validation in a holistic programme

The better the planning, the better are the results and the understanding of the learners. If the learning field and the tasks and assignments are developed in a COL-way, the validation will run smoothly since it is a part which belongs to the whole process. Acceptance will be high as well as the "revelations" of the students. One example from the students: "I learnt in the process to develop my ambiguity tolerance". In which other format could we expect such a metacognitive reflection?

- Quality of the assessment and Faciliators' competence

The quality of the assessment design is decisive. For experienced persons, it is not a very difficult procedure to increase the level of difficulty and complexity in the assessments. However, the facilitators have to fully understand the approach and should also have some experiences with assessments. Some partners reported that the "catalogue of assessment methods" developed in WP2 was helpful to create this understanding. Statement of a professional in BG: The formative assessment will help us to improve our training and consulting quality since we better know about the concept of learning and acquisition of competences – and we could apply that in a series of very successful learning projects".

- Understanding of the learner

Formative assessment is not a one-way process. Different experiences in CIM revealed that those validations were very successful (in terms of satisfaction of the learners) when they were embedded in the programme and developed "reference points" for the learners. The applied competence spider, for instance was a tool which a) created a basic understanding for the SIO competences and b) delivered a balance of what the learners knew and were able to do and valued at an early point of time. This helped substantially to deliver good results in the final self-assessment. The quality of the justifications (indicator consistency) was significantly higher in these cases. A statement from a student from VU: "In contrast to the normal marks we received for exams I felt for the first time that I the ratings were fully justified"

- Openness of the learning environment

The learning environment has to fit to creativity and innovation. This does not only relate to open spaces, bit also intriguing questions and cases and prototypes created with a view on the demands and personal situation of the learners. The competence acquisition and validation runs best if the learners are convinced of what they do and if they have a motivation to find out what they have learnt. One statement from an intern was: "I want to continue to work in the field of validation because my project revealed to me the potential of a meaningful competence validation to cope with the urgent challenges in our society like climate change, Covid or Digitalisation"

- Interdisciplinarity

Like in the openness criterion the quality rises in the CIM workgroups with the level of interdisciplinarity. All workshops (over -5 days) in the follow-up projects and in the conferences

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were clearly enriched by multi-disciplinary members in the workgroups. These settings fostered lateral thinking and created innovative prototypes – even in short time events.

Statement from a professional/entrepreneur from BE: "Especially in the field of CSR and sustainable development, our interns contributed significantly to concrete innovation in regard to our core products. I would absolutely recommend these internships to my colleagues from other HRM departments"

- Internationality

Eventually the international context turned out to be very inspiring for students. Hence in future the partnership will care more to involve students in mobilities if possible in the post-covid times but also start virtual joint design and research projects with the developed CIM instruments, platform and approaches.

The CIM project inspired us to develop a new format which we call "Design Based Collaborative Research and first short term formats have been piloted in the fields of science communication (initiated in PT with students from LT and DE) and on Training Quality (initiated in DE with students from PT, IE, EL, PT, IT, SER, ALB).

4.8. Impact

In contrast to other learning offers the CIM approach turned out to be a very suitable way to bridge the threats of the pandemic:

As the list of projects and prototypes clearly demonstrates, the CIM programme creates innovation and promotes the creativity of the students – even within the formal walls of university programmes. Internships could be enriched by a more sustainable and profound way to plan, develop and evaluate an internship.

The feedback of most students was reported to be very good – some even reported that they were always looking forward to their weekly sessions to get out of what they described as social isolation over a period of three semesters. However, there were also critical comments in case of one Italian HE partner in the case of an isolated course which was not properly announced, too short (4 hrs) and not embedded in a larger context. Hence the integration into a larger context in the universities seems to be vital for the success.

The same applies in the business domain where the quality of the internship differ in relation to the possibilities and the investment of the entities in the internships. Due to Covid some entities experienced very limited resources and possibilities for a proper mentoring (1 partner from DE and AT) which led to good but less innovative results.

The strong linkage of university and business over the COL-driven internship was especially successful in the case of the German partners in which all 5 interns coming from UDE which made an internship with blinc eG have been further employed on part time, and in 2 cases even on full time basis. The

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same applied in Belgium in which the partners reported that also 2 persons found a job in one of the internship enterprises and also at Vilnius University where students received concrete job offers from the internship companies . Also the strong connection between HEI and business in case of the partner from BG has to be emphasised, especially because the HEI was not a fully fledged partner but "only" associated.

4.9. Perspective

Some of the partners already moved on and repeated the programme or simply continued with the same format in the 21 summer semester. For those colleagues it has become a kind of natural succession and the students even expect this methodology also for the next launch of the course (e.g. in VU, AUTh, IPL or UDE).

This is similar in some of the businesses: CATRO for instance liaised with the University of Sofia and conducted even 2 courses for 35 students online and blinc, Q21 and Trendhuis also continued to implement the design thinking approaches in several running projects on sustainable development, CSR, cultural heritage, regional capacity building and integration involving interns and other external personnel in these rather informal learning events.

4.10. Professional Development

The results of the professional development of the educational professionals turned out to be very positive.

The professional competences tackled relate to:

- Planning (incl. digitally supported learning)
- Delivery (especially in informal learning contexts)
- Evaluation and
- Validation

They were comprised to the Competence to Facilitate Design Based Collaborative Learning – a term for a competence coined in times of Corona. By that time F2F encounters were not possible and the educational staff require (and in case of the CIM team members) also acquired competences to plan, deliver and validate learning in open digital spaces.

The art of teaching (didactics) is to provide interesting and collaborative formats which are not just "poor" digital designs like study letters or recorded lectures or one-way MOOCs but collaborative formats which inspire the students and interns to interact and create together.

This core part of the CIM approach was not only perceived and understood theoretically (level3 of the LEVEL5 system) but applied and evaluated within own learning projects (level4) which were even transferred into new courses (level5) as the example of the European study event, organised by IPL demonstrates.

The more than 60 professionals, who participated in CIM all received the CIM certificate as "Facilitators of Design Based Collaborative Learning".

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5. Annexes – The Assessment Packs

5.1. The Facilitators' Assessment Pack

5.1.1. LEVEL5 validation Introduction and How to

This final assessment relates to your "*Facilitation Competences*".

We believe that you acquired and developed these competences during your CIM learning programme and now we want to validate them.

We would like you to reflect on your competence levels before the course (at the time you entered the learning programme and at the end of it.

Please use the following word-file and make yourself familiar with the reference system and the descriptors in this file.

It is the basis for a self-assessment and rating.

This is done in the following steps:

4. You first simply (and only) tick boxes on the levels of knowledge, skills and attitudes, where you would allocate yourself at the beginning and at the end of your CIM learning programme (only one rating possible per dimension)

5. Please give examples that illustrate and reason your ratings. Please, by all means, do not exceed the number of 230 characters.

6. Please discuss these ratings and the reasoning with your team mates. Maybe he/she can contribute with other examples?

7. After this step you please finalise the examples and justifications and write a short final conclusion on your competence development on page 9 (also not exceeding 250 characters). Please insert your name and add a photo.

8. There will be a consistency check from the coordinators and the LEVEL5 certificates will be produced as PDF and send to you

Note: The individual competence validation is reported in WP6. The results are not displayed due to data protection

5.1.2. Competence Description: Facilitation of Design Based Collaborative Learning (DBCL)

Competence Description

The AE professional can facilitate a design based collaborative learning environment using various methods and tools, concepts and approaches. He/she can adapt and develop concepts and designs for collaborative learning for different target groups and is flexible in re-planning and adapting to the

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needs of the situation. The facilitator can motivate others and inspire participants to develop their own competences in this context.

Design based collaborative learning is both constructive (oriented along a development process which aims at a concrete product or prototype) and teamwork driven.

In CIM design based collaborative learning is applied to facilitate joint learning and development processes related to Creativity and Innovation Management in a HE course or an internship.

Facilitators can be either educational professionals from HEI and from businesses (e.g. mentors).

The competence framework below comprises the most relevant learning objectives/outcomes in regard to planning and delivery of DBCL.

Knowledge: The trainer/facilitator knows…

- what collaborative learning is about, and which components and theories belong to the concept,
- what it takes to plan and implement collaborative learning concepts, for instance to consider multiple perspectives and concrete individual experiences,
- the role of a facilitator in this process,
- at which points he/she should intervene within the collaborative learning process in a supportive/facilitative manner
- relevant teamwork and creativity concepts

Skills: The trainer/facilitator is able to…
- create collaborative relationships,
- create and sustain a participatory environment,
- formulate and apply a strategy of enquiry to enable individuals to explore issues and develop insights,
- evoke the creativity of a group,
- plan appropriate group processes,
- guide groups to appropriate and useful outcomes and
- facilitate design based collaborative learning based on a repertoire/collection of methods, concepts and tools

Attitudes: The trainer/facilitator …
- understands the shortcomings of traditional educational formats
- appreciates the collaboration of learners
- is motivated to promote learning conditions that are constructive and output oriented
- is curious to continuously learn new approaches of participatory learning
- is open for unexpected learning outcomes
- also appreciated unambiguous results
- is ready to re-define the own teaching/training/counsellor role

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5.1.3. Reference System: Facilitating Design based Collaborative Learning (DBCL))

L	KNOWLEDGE		SKILLS		ATTITUDES	
	Level Titles	Level description	Level Titles	Level description	Level Titles	Level description
5	Knowing where else (strategic transfer)	Knowing how to transfer design based collaborative learning into new and different contexts and situations	Developing, constructing, transferring	Adapting and developing design based collaborative learning into a CI Management system in an organisation	Incorporation	Being determined to transfer the own teaching and counselling to the new approach. Inspiring others to apply concepts of DBCL
4	Knowing when (implicit understanding)	Knowing when and how to interact in design based collaborative learning process and to apply certain methods	Discovering, acting independently	Co-Facilitating a DBCL project to for CIM with appropriate tools in a teamwork on a given case	Commitment	Being determined to explore and improve the own competence regarding the facilitation of DBCL
3	Knowing how	Knowing the essential concepts on design based collaborative learning and the roles and required competences of a facilitator	Deciding/ selecting	Applying a set of DBCL-instruments in defined assignments	Motivation/ appreciation	Being motivated to implement CIM in organisations with a design based collaborative learning and facilitation concept
2	Knowing why (distant understanding)	Understanding why planning and delivering of design based collaborative learning has its benefits for implementing CIM	Using, Imitating	Exercising and trying out singular DBCL tools provided by others	Perspective taking	Being curious and interested about planning and delivering designed collaborative learning
1	Knowing what	Knowing that design based collaborative learning is different from traditional teaching	Perceiving	Recognising that the implementation of CIM require new training / facilitation approaches	Self-orientation	Perceiving new design based collaborative learning without relating it to the own context

5.1.4. Assessment Grid: Development of My Knowledge on Facilitating DBCL

How to fill this grid: 1. Read the level titles and descriptions. 2. How would you rate yourself at the beginning and at the end (tick 1 box at the beginning and 1 box at the end) 3. give concrete examples of what you knew at the beginning and at the end and write them in the 2 boxes behind your ticked ones (Max 230 characters per box)

1	2	3	4	4a	5	5b*
Le vel	Level Titles[16]	Level description Explanation	Time 1 (tick)	Give concrete examples of what you knew at the beginning to illustrate the chosen level	Time 2 (tick)	Give concrete examples of what you know at the end to illustrate the chosen level
5	Knowing where else (strategic transfer)	Knowing how to transfer design based collaborative learning into new and different contexts and situations	❑		❑	
4	Knowing when (implicit understanding)	Knowing when and how to interact in design based collaborative learning process and to apply certain methods	❑		❑	
3	Knowing how	Knowing the essential concepts on design based collaborative learning and the roles and required competences of a facilitator	❑		❑	
2	Knowing why (distant understanding)	Understanding why planning and delivering of design based collaborative learning has its benefits for implementing CIM	❑		❑	
1	Knowing what	Knowing that design based collaborative learning is different from traditional teaching	❑		❑	

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[16]   Hints for describing the levels:
Level 5: Evaluating/Creating (Transfer – Planning – Producing – Checking – Critiquing)
Level 4: Analysing (Differentiating – Organising – Attributing)
Level 3: Understanding (Explaining – Comparing)
Level 2: Interpreting (Exemplifying – Summarising – Classifying)
Level 1: Remembering (Recognising – Recalling)

5.1.5. Assessment Grid: Development of my Skills on Facilitating DBCL

How to fill this grid: 1. Read the level titles and descriptions. 2. How would you rate yourself at the beginning and at the end (tick 1 box at the beginning and 1 box at the end) 3. give concrete examples of what you were and are able to do and write them in the 2 boxes behind your ticked ones, (Max 230 characters per box)

1	2	3	4	4a	5	5b*
Grade	**Corresponding Level Titles**[17]	**Level description Explanation**	**Time 1 (tick)**	Give concrete examples of what you were able to do at the beginning to illustrate the chosen level	**Time 2 (tick)**	Give concrete examples of what you are able to do at the end to illustrate the chosen level
5	Developing, constructing, transferring	Adapting and developing design based collaborative learning into a CI Management system in an organisation	❑		❑	
4	Discovering acting independently	Co-Facilitating a DBCL project to for CIM with appropriate tools in a teamwork on a given case	❑		❑	
3	Deciding/ selecting	Applying a set of DBCL-instruments in defined assignments	❑		❑	
2	Using, imitating	Exercising and trying out singular DBCL tools provided by others	❑		❑	
1	Perceiving	Recognising that the implementation of CIM require new training / facilitation approaches	❑		❑	

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[17]　　　Hints for describing the levels:
Level 5: Constructing, transferring to different contexts, i.e. into private life, other fields/contexts
Level 4: Self-directed acting (researching, expanding options, i.e. related to learning content/topic, …)
Level 3: Acting partly independently, choosing between options, selecting
Level 2: Imitating, Acting without own impulse, acting when being instructed
Level 1: Listening only, participating only, reception without action…

5.1.6. Assessment Grid: Development of my Attitudes on Facilitating DBCL

How to fill this grid: 1. Read the level titles and descriptions. 2. How would you rate yourself at the beginning and at the end (tick 1 box at the beginning and 1 box at the end) 3. give concrete examples of how you felt and which attitude you had in regard to Spotting ideas and opportunities, (Max 230 characters per box)

1	2	3	4	4a	5	5b*
Grade	Corresponding Level Titles[18]	Level description Explanation	Time 1 (tick)	Give concrete examples that illustrate the selected attitude level the beginning	Time 2 (tick)	Give concrete examples that illustrate the selected attitude level the end
5	Incorporation Internalisation	Being determined to transfer the own teaching and counselling to the new approach. Inspiring others to apply concepts of DBCL	❑		❑	
4	Affective self-regulation	Being determined to explore and improve the own competence regarding the facilitation of DBCL	❑		❑	
3	Appreciation Empathy	Being motivated to implement CIM in organisations with a design based collaborative learning and facilitation concept	❑		❑	
2	Perspective taking	Being curious and interested about planning and delivering designed collaborative learning	❑		❑	
1	Self centred neutral	Perceiving new design based collaborative learning without relating it to the own context	❑		❑	

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[18]   Hints for filling the level:
Level 5: (group): influencing others (motivating/convincing others by own model,…)
Level 4: motivation to adapt/appreciation of … (in the sense of the topic, to reach a goal,…)
Level 3: emotional reference towards topic (feeling, that topic can influence own conditions, empathy,…)
Level 2: curiosity (interest in topic, being attracted, …)
Level 1: no emotional reference to topic (only interested in own situation,…)

5.1.7. Conclusion and Personal Data:

My Competence Development on Facilitating Design Based Collaborative Learning

Please describe your development on this competence in one sentence (max 250 characters)
####

Personal Data:

First Name: _____

Last Name: _____

Please add also a photo to the questionnaire

5.2. Sub Competences for Facilitators

The competences are described in the following reference systems:

5.2.1. Creating Competence-Oriented Learning offers

L	COGNITIVE/KNOWLEDGE		ACTIVITY		AFFECTIVE	
	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement
5	Know where else (knowledge for Transfer	Knows how to develop high quality flexible, adaptive learning environments for competence oriented learning	Developing/ Constructing Transfer	Can develop and plan optimal competence oriented learning processes	Incorporation Internalisation	feels highly motivated to continuously optimize competence oriented (adult) learning processes and conditions
4	Know when (Implicit understanding	Knows how to develop plans for learning that allow for self regulated, contextual learning in a mutually beneficial co-operative environment	Discovering/ acting independently	Can develop programmes that include competence oriented learning activities	Commitment Volition	feels motivated to create optimal conditions for optimal competence oriented learning
3	Know how	Knows how to develop a competence oriented environment for a given set of competences in a given situation	Deciding/ selecting	Can develop competence oriented learning tasks and assignments of particular kinds upon request	Appreciation Motivation	values the importance of distinguishing between various aspects and features of competence oriented learning in order to enhance efficiency, effectiveness and impact of learning processes.
2	Know why (Distant understanding	Knows that competence oriented learning brings specific additional requirements to the task of developing effective learning experiences	Using, Imitating	Can choose learning activities to be included in a competence oriented learning process	Curiosity Perspective taking	is aware that the competence oriented features of learning processes may be something to consider in order to allow for better planning of learning
1	Know-what/know that	Is aware of the fact that competence oriented learning an teaching is a way of approaching education that may affect his future educating/developing tasks	Perceiving	Can Identify key features of competence orientedness in given programmes	Self oriented, neutral	senses that some elements in learning processes and learning environments contribute more to the actual acquisition/development of competence than others.

5.2.2. Creating an open learning environment

L	COGNITIVE/KNOWLEDGE		ACTIVITY		AFFECTIVE	
	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement
5	Know where else (knowledge for Transfer	To have the theoretical background to build appropriate open learning training conditions and help other people to do so as well.	Developing/ Constructing Transfer	To build knowledge and expertise, to construct related theory and practice. To help other trainers apply the right conditions.	Incorporation Internalisation	To have an incorporated reflex to arrange your training in an open learning environment. To find it important that a competence oriented training offer is based on open learning formats. To feel the need helping other trainers applying it.
4	Know when (Implicit understanding	To know when and how to create the appropriate open learning conditions to achieve the competences envisaged.	Discovering/ acting indepen-dently	To search for related theory. To create appropriate open learning environments with learning conditions related to the competence development as envisaged.	Commitment Volition	To feel the need to explore the theory and practice of open learning environments. To find it important to be creative in this respect.
3	Know how	To know how to create open learning training conditions offering e.g. multiple perspectives and concrete individual experiences involving authentic problems …	Deciding/ selecting	To systematically use existing open learning training formats for your courses or training offer. To select and try out appropriate formats.	Appreciation Motivation	To value open learning environments as the ideal format for learners to develop competences.
2	Know why (Distant understanding	To know that offering an open learning training involving e.g. multiple perspectives and concrete individual experiences, involving authentic problems … leads to competence development.	Using, Imitating	To occasionally adopt and adapt existing open learning formats for your own training offer.	Curiosity Perspective taking	To be interested in using open learning training formats for your own courses
1	Know-what/know that	To know what an open learning environment is. To know that open learning environments are a condition to help individuals develop all dimensions of a competence.	Perceiving	To recognise open learning environments and perceive their usefulness for competence development.	Self oriented, neutral	To feel that open learning environments challenge your own competence development.

5.2.3. Facilitating (open) learning processes

	COGNITIVE/KNOWLEDGE		ACTIVITY		AFFECTIVE	
	2	**3**	**2**	**3**	**2**	**3**
L	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement
5	Knowing where else (knowledge for transfer)	Having a broad theoretical background how to facilitate open learning processes under different conditions and with different target groups.	Developing/ construct-ing, transferring	Developing new approaches and expertise to facilitate open learning in different contexts and aimed at different target groups and competence developments. Supporting others.	Incorporation Internalisation	Having incorporated to facilitate learning in open learning environments. Motivating and supporting others to improve their competence to facilitate open learning.
4	Knowing when (implicit understand-ing)	Knowing when and how to implement the appropriate open learning conditions to achieve the competences envisaged.	Discovering acting indepen-dently	Researching for related theory, expanding own competence to facilitate appropriate open learning with learning conditions related to the competence development as envisaged.	Commitment Volition	Being determined to explore and improve theory and practice of facilitating open learning. Finding it important to be creative in this respect.
3	Knowing how	Knowing how to facilitate open learning involving multiple perspectives and addressing concrete individual experiences and authentic problems.	Deciding/ selecting	Facilitating open learning by selecting from a repertoire of known approaches. Selecting and trying out appropriate formats.	Appreciation Motivation	Valuing open learning as format for learners to develop competences and being motivated to improve own competence to facilitate them.
2	Knowing why (distant understand-ing)	Knowing that open learning environments address multiple perspectives and concrete individual experiences, involving authentic problems.	Using/ Imitating	Applying or adapting existing open learning formats for own training offers. Facilitating open learning as instructed or imitated by others.	Curiosity Perspective taking	Being interested in facilitating open learning environments in own work and to improve own competence to do so.
1	Knowing what/knowing that	Knowing what open learning is and which role a facilitator has in it.	Perceiving	Recognising open learning and perceiving the advantages for competence developments.	Self oriented, neutral	Feeling that own competence to facilitate open learning environments is sufficient.

5.2.4. Mentoring an intern/trainee/apprentice

L	COGNITIVE/KNOWLEDGE		ACTIVITY		AFFECTIVE	
	Level Titles	**Individual description/ explanatory statement**	**Level Titles**	**Individual description/ explanatory statement**	**Level Titles**	**Individual description/ explanatory statement**
5	Know where else (knowledge for transfer)	Strategic knowledge on how to transfer mentoring to other domains of life and work. To know how to create new and effective mentoring instruments/techniques.	Developing/ Constructing Transfer	To develop your own mentoring techniques/approaches/strategies.	Incorporation Internalisation	To have an incorporated attitude to mentorship. To internalise mentoring as a fundamental personal attitude. To feel the need to apply mentoring principles in other domains of life
4	Know when (Implicit understanding	To know in which situation to apply the right mentoring technique/approach.	Discovering/ acting independently	To choose the right mentoring technique for the right purpose and to act appropriately.	Commitment Volition	To feel the need to be pro-active in mentoring. To refrain from other tasks that do not include mentoring
3	Know how	To know the functionalities and how to use the main mentoring instruments/techniques To have complete theoretical knowledge on the concept of mentoring.	Deciding/ selecting	To apply known mentoring instruments/techniques in a correct way.	Appreciation Motivation	To value mentoring techniques in general. To like mentoring as a concept. To find it important that the business sector adopts mentoring as a tool for professional development.
2	Know why (Distant understanding	To know that mentoring can serve different purposes, (e.g. to support the intern, prepare intern/trainee for certain tasks,…).	Using, Imitating	To occasionally apply known action patterns related to mentoring (instruments/techniques).	Curiosity Perspective taking	To be interested in mentoring in the frame of your own work
1	Know-what	To have an idea of what mentoring means. To know that mentoring is expected by interns/tainees.	Perceiving	Still gathering information about mentoring without becoming active.	Self oriented, neutral	Feeling that mentoring may affect you and/or is expected from you

5.2.5. Assessing competences and competence developments

L	COGNITIVE/KNOWLEDGE		ACTIVITY		AFFECTIVE	
	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement
5	Know where else (knowledge for transfer)	Strategic knowledge on how to transfer assessment to other domains of life and work.	Developing/ Constructing Transfer	To develop your own assessment techniques/approaches/strategies	Incorporation Internalisation	To have an incorporated reflex to apply assessment techniques in different professional domains. To find it important that the sector adopts assessment of learning outcomes as a tool for professional development. To feel the need to help other people assess.
4	Know when (Implicit understanding	To know in which situation to apply the right assessment technique/approach. To know how to create the appropriate instrument.	Discovering/ acting independently	To search for the appropriate assessment techniques and opportunities for your own purpose. To choose the right assessment techniques for the right purpose and to act appropriately.	Commitment Volition	To feel the need to be pro-active in assessment. To value your curiosity for assessment and its opportunities. To find it important to be creative in this respect.
3	Know how	To know how to create and use assessment instruments like tests, interviews, observations …	Deciding/ selecting	To apply known assessment instruments in a correct way.	Appreciation Motivation	To value assessment techniques of learning outcomes in general. To find it important that assessment is valued by the (people in the) sector you are working in.
2	Know why (Distant understanding	To know that assessment can serve different purposes: for learning, for selecting or for profiling.	Using, Imitating	To occasionally use existing assessment instruments	Curiosity Perspective taking	To be interested in assessment in the frame of your own work
1	Know-what	To know what assessment is. To know that assessment is the measuring of individual progress.	Perceiving	To recognise assessment activities and processes.	Self oriented, neutral	To feel that assessment may affect you.

5.2.6. Evidencing competence developments

L	COGNITIVE/KNOWLEDGE		ACTIVITY		AFFECTIVE	
	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement
5	Know where else (knowledge for Transfer	Strategic knowledge on how to transfer the concept of *evidencing competences with learning outcomes* to other domains of work.	Developing/ Constructing Transfer	To develop your own strategies regarding the concept of *evidencing competences with learning outcomes.* *To create new leaning systems with an integrated* concept of *evidencing competences with learning outcomes.*	Incorporation Internalisation	To feel that the concept is an integral part of your work life. To find it important that the sector adopts the concept of *evidencing competences with learning outcomes* as a tool for professional development.
4	Know when (Implicit understanding	To know in which situation the concept of *evidencing competences with learning outcomes can be applied* To know how to create learning outcome descriptions in new situations.	Discovering/ acting indepen-dently	To create learning outcome descriptiors in new situations. To search for the appropriate techniques and opportunities to apply the concept of *evidencing competences with learning outcomes* for your own purpose. To choose the right system for the right purpose and to act appropriately. *(Ind: To apply the quality criteria in a new contex,)*	Commitment Volition	To feel the need to be pro-active in the concept of *evidencing competences with learning outcomes.* To value your curiosity for the concept of *evidencing competences with learning outcomes* and their opportunities. To find it important to be creative in this respect.
3	Know how	To know how to use the concept of *evidencing competences with learning outcomes. (Ind: To know the quality criteria)*	Deciding/ selecting	To apply the rating wtih *learning outcomes* in a correct way. *(Ind: To apply the quality criteria)*	Appreciation Motivation	To appreciate the concept of *evidencing competences with learning outcomes* in general. To find it important that the concept is valued by the (people in the) field you are working in.
2	Know why (Distant understanding	To know the purpose of the concept of *evidencing competences with learning outcomes*	Application, Imitation	To describe learners competences *by means of learning outcomes when being instructed or on examples*	Curiosity Perspective taking	To be interested in the concept of *evidencing competences with learning outcomes* in the frame of your own work
1	Know-what	To know what the *concept of evidencing competences with learning outcomes* is	Perceiving	Only gathering information on the *concept of evidencing competences with learning outcomes,*	Self oriented, neutral	Feeling that *evidencing competences with learning outcomes* is relevant and may affect you

5.2.7. Integrating validation concepts promoted by the EU

L	COGNITIVE/KNOWLEDGE		ACTIVITY		AFFECTIVE	
	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement	Level Titles	Individual description/ explanatory statement
5	Know where else (knowledge for transfer)	Strategic knowledge on how to transfer the EU validation approach and instruments to other domains of life and work and to blend them with other approaches. To know how to develop them further.	Developing/ Constructing Transfer	To develop own techniques /approaches / strategies regarding the EU validation approach and instruments	Incorporation Internalisation	To find it important that the sector adopts the EU validation approach and instruments as a tool for professional development. To feel the need to help other people use it To feel the need to apply the EU validation approach and instruments in other domains.
4	Know when (Implicit understanding	To know from practice in which situations and settings the EU validation approach and its instruments are appropriate Vice versa To know when to link assessments and evidences of competences to the EU validation approach and instruments	Discovering/ acting indepen-dently	To search for the appropriate techniques and opportunities to link the EU validation approach and instruments for the own purpose. To choose the right framework for the right purpose and to act appropriately.	Commitment Volition	To feel the need to be pro-active in the EU validation approach and instruments. To find it important to be creative and pro-active in this respect.
3	Know how	To know how to the EU validation approach and instruments function theoretically	Deciding/ selecting	To apply known validation elements and instruments in a correct way.	Appreciation Motivation	To value the EU validation approach and instruments in general. To find it important that NQF, EQF & other frameworks are valued by the (people in the) sector you are working in.
2	Know why (Distant understanding	To know the purpose of the EU validation approach and instruments	Using, Imitating	To occasionally use existing validation instruments	Curiosity Perspective taking	To be interested in the EU validation approach and instruments in the frame of your own work
1	Know-what	To know what EU validation approach and instruments are	Perceiving	Still gathering information on the EU validation approach and instruments	Self oriented, neutral	Feeling that the EU validation approach and instruments are relevant and may affect you

5.3. Assessment Pack to Spot Ideas and Opportunities

5.3.1. Introduction and How to

The final competence assessment relates to your:

9. Competences to spot ideas and opportunities

We believe that you acquired and developed these competences during your design workshops and now we want to validate them.

Please use the following word-file and make yourself familiar with the LEVEL5 reference system and the descriptors in this file.

It is the basis for a self-assessment and rating.

This is done in the following steps:

- You first simply (and only) tick boxes on the levels of knowledge, skills and attitudes, where you would allocate yourself at the beginning and at the end of your internship (only one rating possible per dimension)
- Please give examples from your internship that illustrate and reason your ratings. Please write them in the boxes behind your ratings (= 2 per dimension < 230 characters (in word))
- Please discuss these ratings and the reasoning with your team mates (you can form tandems). Maybe he/she can contribute with other examples?
- After this step you please finalise the word-file and insert the ratings in the LEVEL5 system. Please send the file to Tim
- There will be a consistency check and the LEVEL5 certificates will be produced as PDF and send to you.
- Please upload them to your profile if you like.

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5.3.2. Competence to Spot Ideas and Opportunities

This Competence requires knowledge on different ideation and prototyping instruments and strategies, e.g. Spotting opportunities, Creating ideas, Working towards a Vision, Valuing ideas, Checking for Sustainability, etc. and how to apply them in different situations

A competent person should be able to Identify and seize opportunities to create value by exploring the social, cultural and economic landscape, Identify needs and challenges that need to be met and establish new connections and bring together scattered elements of the landscape to create opportunities to create value. He/she should be able to create and value Ideas and act responsibly.

A competent person is pro-active and motivated to take the initiative and has a positive attitude towards innovation, collaboration and is conscious and committed to ethical and sustainable development.

Knowledge: The person knows

- different ideation and prototyping instruments and strategies, e.g. Spotting opportunities, Creating ideas, Working towards a Vision, Valuing ideas, Checking for Sustainability, etc. and how to apply them in different situations

Skills: The person is able to

Spot Opportunities
- Identify and seize opportunities to create value by exploring the social, cultural and economic land-scape
- Identify needs and challenges that need to be met
- Establish new connections and bring together scattered elements of the landscape to create opportunities to create value

Create and value Ideas
Creating
- Develop several ideas and opportunities to create value, including better solutions to existing and new challenges
- Explore and experiment with innovative approaches
- Combine knowledge and resources to achieve valuable effects

Valuing
- Judge what value is in social, cultural and economic terms
- Recognise the potential an idea has for creating value and identify suitable ways of making the most out of it
- Assess the consequences of ideas that bring value and the effect of entrepreneurial action on the target community, the market, society and the environment

Considering Sustainability and Ethics
- Reflect on how sustainable long-term social, cultural and economic goals are, and the course of action chosen

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- Act responsibly
- Imagine the future
- Develop a vision to turn ideas into action
- Visualise future scenarios to help guide effort and action

Attitudes: The person …

- is pro-active and motivated to take the initiative in order to reach a goal
- is willing to undertake risks to achieve his/her vision
- values autonomy and accepts the risk to fail
- has a positive attitude towards innovation and development
- appreciates collaboration and respects others
- has an ethical consciousness

In the following, a reference system was picked filled by a German student from the Master of Adult Education (after course 1, WS 20/21).

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5.3.3. REFERENCE SYSTEM – Competence to spot ideas and opportunities

L	KNOWLEDGE		SKILLS//CAPABILITIES		ATTITUDES/VALUES	
	Level Titles	Level description	Level Titles	Level description	Level Titles	Level description
5	Knowing where else (strategic transfer)	Knowing how to transfer idea creation skills and concepts into other contexts. Knowing how to help other people act successfully in different entrepreneurial structures in this respect.	Developing, constructing, transferring	Being able to transfer ideation and prototyping strategies into new business contexts. Actively planning and creating new entrepreneurial activities based on ideating and prototyping.	Incorpora-tion	Having internalised ideation and prototyping as a fundamental personal entrepreneurship mindset. Being an inspiration for others in their ideation and prototyping activities.
4	Knowing when (implicit understanding)	Knowing when to apply right instruments from the portfolio of different ideation and prototyping approaches and tools. Knowing when to use certain ideation and prototyping strategies.	Discovering acting independently	Deliberately searching for and selecting appropriate ideation and prototyping techniques and instruments for the own business. Creating and executing an ideation and prototyping strategy for the own context and professional domain.	Self-regulation, Commit-ment	Being determined and pro-active in using and improving ideation and prototyping in the own environment. Finding it important to be creative in this respect.
3	Knowing how	Knowing different ideation and prototyping approaches, techniques related to: - Spotting opportunities - Creating ideas - Working towards a Vision - Valuing ideas - Checking for Sustainability. Theoretically knowing how to act along an ideation and prototyping concept.	Deciding/ selecting	Taking part in ideation and prototyping activities as they are offered by others in safe (undisturbed) contexts. Choosing singular ideation and prototyping tools from a given (known) portfolio	Motivation/ appreciation	Valuing ideation and prototyping in general. Being motivated to develop own ideation and prototyping competences and visions.
2	Knowing why (distant understanding)	Having basic knowledge on creativity and innovation. Knowing that idea creation, a multiperspective view on the ideas and the check of ideas is an essential part of the product/service and business development.	Using, imitating	Occasionally taking part in non structured activities related to the creating of ideas. Carrying out ideating actions when being instructed to.	Perspective taking	Being curious and interested in ideating and prototyping and spotting of opportunities.
1	Knowing what	Knowing that entrepreneurship is based on innovation and the creation of ideas.	Perceiving	Perceiving and recognising the concept of creating ideas and opportunities without taking further steps.	Self-orientation	Perceiving the concept of creating ideas and opportunities without relating it to oneself.

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Knowledge Dimension: My knowledge concerning < Spotting ideas and opportunities >

How to fill this grid: 1. Read the level titles and descriptions. 2. How would you rate yourself at the beginning and at the end (tick 1 box at the beginning and 1 box at the end) 3. give concrete examples of what you knew at the beginning and at the end and write them in the 2 boxes behind your ticked ones

1	2	3	4	4a	5	5b*
Level	Level Titles[19]	Level description Explanation	Time 1 (tick)	Give concrete examples of what you knew at the beginning to illustrate the chosen level	Time 2 (tick)	Give concrete examples of what you know at the end regarding entrepreneurship to illustrate the chosen level
5	Knowing where else (strategic transfer)	Knowing how to transfer idea creation skills and concepts into other contexts. Knowing how to help other people act successfully in different entrepreneurial structures in this respect.	❑		❑	
4	Knowing when (implicit understanding)	Knowing when to apply right instruments from the portfolio of different ideation and prototyping approaches and tools. Knowing when to use certain ideation and prototyping strategies.	❑		☒	Durch die Beantwortung und Bearbeitung der Aufgaben konnte ich in der Anwendung die unterschiedlichen Ideenfindungs- und Prototypisierungstools nutzen (Miro-Board, Brainwriting, Clustern etc.)
3	Knowing how	Knowing different ideation and prototyping approaches, techniques related to: • Spotting opportunities, Creating ideas, Working towards a Vision, Valuing ideas; Checking for Sustainability.	❑		❑	
2	Knowing why (distant understanding)	Having basic knowledge on creativity and innovation. Knowing that idea creation, a multi-perspective view on the ideas and the check of ideas is an essential part of the product/service and business development. Understanding basic aspects of the ideation and prototyping.	☒	Ich hatte Grundwissen über Kreativität, Multiperspektivität und Innovation	❑	
1	Knowing what	Knowing that entrepreneurship is based on innovation and creativity.	❑	Ich hatte Wissen über agile Methoden, wie die DT Methode	❑	

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[19]   Hints for describing the levels:
Level 5: Evaluating/Creating (Transfer – Planning – Producing – Checking – Critiquing)
Level 4: Analysing (Differentiating – Organising – Attributing)
Level 3: Understanding (Explaining – Comparing)
Level 2: Interpreting (Exemplifying – Summarising – Classifying)
Level 1: Remembering (Recognising – Recalling)

Skills dimension: My skills regarding < Spotting ideas and opportunities >

How to fill this grid: 1. Read the level titles and descriptions. 2. How would you rate yourself at the beginning and at the end (tick 1 box at the beginning and 1 box at the end) 3. give concrete examples of what you were and are able to do and write them in the 2 boxes behind your ticked ones

1	2	3	4	4a	5	5b*
Grade	Corresponding Level Titles[20]	Level description Explanation	Time 1 (tick)	Give concrete examples of what you were able to do at the beginning to illustrate the chosen level	Time 2 (tick)	Give concrete examples of what you are able to do at the end to illustrate the chosen level
5	Developing, constructing, transferring	Being able to transfer ideation and prototyping strategies into new business contexts. Actively planning and creating new entrepreneurial activities based on ideating and prototyping.	❑		❑	
4	Discovering acting independently	Deliberately searching for and selecting appropriate ideation and prototyping techniques and instruments for the own business. Creating and executing an ideation and prototyping strategy for the own context and professional domain.	❑		❑	
3	Deciding/ selecting	Taking part in ideation and prototyping activities as they are offered by others in safe (undisturbed) contexts. Choosing singular ideation and prototyping tools from a given (known) portfolio	❑		☒	Durch die Gruppenarbeit und Zusammenarbeit im sicheren Seminarkontext traute ich mich meine Ideen und Probleme anzusprechen
2	Using, imitating	Occasionally taking part in non structured activities related to the creating of ideas. Carrying out ideating actions when being instructed to.	❑		❑	
1	Perceiving	Perceiving and recognising the concept of creating ideas and opportunities without taking further steps.	☒	Um Ideen und Möglichkeiten zu entwickeln, habe ich ein klares Ziel und bestimmte Vorgaben benötigt	❑	

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[20]   Hints for describing the levels:
Level 5: Constructing, transferring to different contexts, i.e. into private life, other fields/contexts
Level 4: Self-directed acting (researching, expanding options, i.e. related to learning content/topic, …)
Level 3: Acting partly independently, choosing between options, selecting
Level 2: Imitating, Acting without own impulse, acting when being instructed
Level 1: Listening only, participating only, reception without action…

Affective Dimension: My attitudes and emotions concerning < Spotting ideas and opportunities >

How to fill this grid: 1. Read the level titles and descriptions. 2. How would you rate yourself at the beginning and at the end (tick 1 box at the beginning and 1 box at the end) 3. give concrete examples of how you felt and which attitude you had in regard to **Spotting ideas and opportunities**

1	2	3	4	4a	5	5b*
Grade	Corresponding Level Titles[21]	Level description Explanation	Time 1 (tick)	Give concrete examples that illustrate the selected attitude level the beginning	Time 2 (tick)	Give concrete examples that illustrate the selected attitude level the end
5	Incorporation Internalisation	Having internalised ideation and prototyping as a fundamental personal entrepreneurship mindset. Being an inspiration for others in their ideation and prototyping activities.	❑		❑	
4	Affective self-regulation	Being determined and pro-active in using and improving ideation and prototyping in the own environment. Finding it important to be creative in this respect.	❑		❑	
3	Appreciation Empathy	Valuing ideation and prototyping in general. Being motivated to develop own ideation and prototyping competences and visions.	❑		☒	Durch das Erfolgserlebnis und das aufgebaute Wissen bin ich weiterhin motiviert und möchte die Kompetenzen weiterhin anwenden
2	Perspective taking	Being curious and interested in ideating and prototyping and spotting of opportunities.	☒	Ich war sehr neugierig und interessiert, allerdings hatte ich Respekt vor der Überforderung	❑	
1	Self centred neutral	Perceiving the concept of creating ideas and opportunities without relating it to oneself.	❑		❑	

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[21]   Hints for filling the level:
    Level 5: (group): influencing others (motivating/convincing others by own model,…)
    Level 4: motivation to adapt/appreciation of … (in the sense of the topic, to reach a goal,…)
    Level 3: emotional reference towards topic (feeling, that topic can influence own conditions, empathy,…)
    Level 2: curiosity (interest in topic, being attracted, …)
    Level 1: no emotional reference to topic (only interested in own situation,…)

Finally (< 250 characters, each):

1. Please describe your knowledge development related to working in this team in one sentence

Die multiperspektivische Herangehensweise und der respektvolle Umgang haben mich dabei unterstützt mein Wissen im Seminar und innerhalb der Gruppenarbeit weiterzuentwickeln.

2. Please describe what you are more capable to do in this team after the development experience in one sentence

Ich traue mich meine Ideen, Bedenken und ähnliches anzusprechen und problembasiert anzuwenden.

3. Please describe your change in attitude related to working in the team in one sentence

Ich bin offener für neue, außergewöhnliche Ideen und Konzepte und selbstbewusster.

4. How would you describe your competence development related to collaborating in this team?

Die Teamarbeit hat mich in allen Kompetenzbereichen unterstützt und ein höheres Level zu erreichen.

P

5.4. ECTS Templates applied in HEI

The following templates were designed and used to interconnect the CIM modules into the existing courses and to embed them in the ECTS framework:

5.4.1. AUTh

Course Information					
Title	Creativity and Innovation in Adult and Continuing Education Programmes: Design, Implementation and Assessment				
Cycle / Level	2nd / Postgraduate				
Teaching Period	Spring				
Coordinator	Prof. George K. Zarifis				
Orientation	**Attendance Type**		**Semester**	**Year**	**ECTS**
Continuing Education	Elective course with 3 modules		3	2	10
Class Information					
Academic Year	2019 – 2020				
Class Period	Spring				
Instructor/s	Prof. George K. Zarifis				
Weekly Hours	3				
Registered students	9				

Type of the Course

☐ Background

☐ General Knowledge

☐ Scientific Area

☑ Skills Development

Course Category

○ General Foundation

○ Specific Foundation / Core

◉ Knowledge Deepening / Consolidation

Mode of Delivery

☑ Face to face

☑ Distance learning

Learning Outcomes

Describe the intended learning outcomes of the course. The learning outcomes are usually expressed according to the template:*Upon successful completion of the course, the student will:* **DO** **WHAT** (**how**).
The learning outcomes usually are not more than five or six per course.

- *An understanding of why some people are naturally creative, but also how everyone can develop their creative skills.*
- *Knowledge of how to use a range of creative thinking methods, tools and techniques to generate ideas and solve problems.*
- *The opportunity to apply the methods and tools to generate ideas for improving areas of their own work.*

General Competences

Taking into account the generic competences that must be acquired by the graduates which ones are intended by the course?

☑ Apply knowledge in practice

☐ Retrieve, analyse and synthesise data and information, with the use of necessary technologies

☑ Adapt to new situations

☑ Make decisions

☐ Work autonomously

☑ Work in teams

☐ Work in an international context

☑ Work in an interdisciplinary team

☐ Generate new research ideas

☑ Design and manage projects

☑ Appreciate diversity and multiculturality

☐ Respect natural environment

☐ Demonstrate social, professional and ethical commitment and sensitivity to gender issues

☑ Be critical and self-critical

☑ Advance free, creative and causative thinking

Learning Outcomes Categorization

Select for every domain the levels covered by the learning outcomes of the course.

Cognitive Domain:	Affective Domain:	Psychomotor Domain:
☑ Creating:	☐ Characterization:	☑ Naturalization:
☐ Evaluating:	☑ Organization:	☑ Articulation:
☑ Analysing:	☑ Valuing:	☐ Precision:
☑ Applying:	☐ Response:	☐ Manipulation:
☐ Understanding	☐ Reception	☐ Imitation:
☐ Remembering		

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5.4.2. UDE

Levels of Anticipated Learning Outcomes

Select the highest levels of learning outcomes intended with this course. You should select the levels that correspond to the learning outcomes of the course, irrespective of the level of studies (undergraduate / postgraduate). The learning outcome level definitions provide an estimate of the demands of the course for the benefit of students and curriculum designers alike.

Knowledge means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study.

○ Level 8
◉ Level 7
○ Level 6
○ Level 5
○ Level 4
○ Level 3
○ Level 2
○ Level 1
○ No choice

Skills means the ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).

○ Level 8
◉ Level 7
○ Level 6
○ Level 5
○ Level 4
○ Level 3
○ Level 2
○ Level 1
○ No choice

Competence means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development.

○ Level 8
◉ Level 7
○ Level 6
○ Level 5
○ Level 4
○ Level 3
○ Level 2
○ Level 1
○ No choice

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Educational Material Types

☐ Book

☑ Notes

☑ Slide presentations

☐ Video lectures

☐ Podcast

☐ Audio

☐ Multimedia

☑ Interactive excersises

☐ Other

Use of Information and Communication Technologies

☑ Use of ICT in Course Teaching

☐ Use of ICT in Laboratory Teaching

☑ Use of ICT in Communication with Students

☐ Use of ICT in Student Assessment

Course Organization

Please fill in the 'Workload' for each course activity.

Workload: Total hours of student effort for a respective activity for the semester. Includes class hours, lab hours, field work etc.

The total workload for the course, according to its ECTS units, should be **250** hours.

* One ECTS unit corresponds to 25 hours of workload.

Activities	Workload	ECTS*	Individual Teamwork Erasmus
☑ Lectures	10		☑ Individual ☐ Teamwork ☐ Erasmus
☑ Seminars	20		☐ Individual ☑ Teamwork ☐ Erasmus
☐ Laboratory Work			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Fieldwork			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Reading Assigment			☐ Individual ☐ Teamwork ☐ Erasmus

☐ Tutorial			☐ Individual ☐ Teamwork ☐ Erasmus
☑ Internship	120		☑ Individual ☐ Teamwork ☐ Erasmus
☐ Clinical Practice			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Artistic Workshop			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Interactive Teaching in Information Center			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Field trips and participation in conferences / seminars / activities			☐ Individual ☐ Teamwork ☐ Erasmus
☑ Project	100		☐ Individual ☑ Teamwork ☐ Erasmus
☐ Written assigments			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Artistic creation			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Exams			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Other / Others			☐ Individual ☐ Teamwork ☐ Erasmus
Total	**250**	**10**	

Assessment methods	Formative Summative
Written Exam with Multiple Choice Questions	☐ Formative

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	☐	Summative
Written Exam with Short Answer Questions	☐	Formative
	☐	Summative
Written Exam with Extended Answer Questions	☐	Formative
	☐	Summative
Written Exam with Problem Solving	☐	Formative
	☐	Summative
Written Assignment	☑	Formative
	☐	Summative
Report	☐	Formative
	☑	Summative
Oral Exams	☐	Formative
	☐	Summative
Performance / Staging	☐	Formative
	☐	Summative
Labortatory Assignment	☐	Formative
	☐	Summative
Clinical Examination of Patient	☐	Formative
	☐	Summative
Artistic Performance	☐	Formative
	☐	Summative
Other / Others Portfolio	☐	Formative
	☑	Summative

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5.4.3. DCU

Course Information				
Title	BSc Education and Training: Teaching Placement module			
Cycle / Level	3rd year undergraduate			
Teaching Period	Semester 2			
Coordinator	John Lalor			
Orientation	**Attendance Type**	**Semester**	**Year**	**ECTS**
Further Education & Training	Compulsory Course	2	3	30
Class Information				
Academic Year	2020 – 2021			
Class Period	Semester 2			
Instructor/s	John Lalor/Jane O'Kelly			
Weekly Hours	24			
Registered students	9			

Type of the Course
☐ Background
☐ General Knowledge
☐ √Scientific Area
☐ √Skills Development

Course Category
○ General Foundation
○ √Specific Foundation / Core
○ √Knowledge Deepening / Consolidation

Mode of Delivery
☐ √Face to face
☐ Distance learning

Learning Outcomes

Describe the intended learning outcomes of the course. The learning outcomes are usually expressed according to the template: *Upon successful completion of the course, the student will:* **DO WHAT** (**how**).
The learning outcomes usually are not more than five or six per course.

This module is designed to give students an opportunity to engage in an extended period of supervised placement in an educational setting, school, or college of adult, further and continuing education. Building on the integrated teacher practicum modules and scaffolding on the first semester teacher placement module, students will be encouraged to use this as an opportunity to integrate the different elements of the programme of study being undertaken in order to enhance the quality of their teaching and facilitation. Particular attention will be paid to : i)facilitating of the application of the concepts of reflective practice, developed in a laboratory situation, to an authentic educational situation ii)allowing students to plan, teach and assess lessons in a further education environment iii)facilitating students in their practising of the various roles and duties of a teacher iv)allowing students become part of a community of learning v)providing a group setting for the students to reflect constructively on his/her placement vi)helping students identify and articulate areas of needed personal and professional growth which emerge out of their teaching placement vii) enabling students to reflect on his/her role as a teacher in an online environment viii) enabling students develop the ability to utilize an online environment as a method for creating the peer group for support, confrontation and clarification that will assist the integration of personal attributes and teaching style. ix)Examining the relevance and applicability of the Codes of Professional Practice for Teachers

LO1 Research and design a range of practical pedagogical interventions to address the requirements of those students with literacy, numeracy and special needs within further, adult and continuing education contexts

LO2 Where appropriate, implement a series of interventions which address the learning requirements of students in the areas of literacy, numeracy and special needs education and which promote inclusionary practices in the learning environment and within a range of educational settings. Show how these interventions can apply in group and individual scenarios.

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LO3 Draw on the literature in the area, the course material from across a range of modules in these disciplines and their own practical experiences in the classroom to reflect on and evaluate the effectiveness and suitability of these interventions in a range of settings

LO4 Reflect on the impact of individual difference and diversity on educational practices in a range of settings

LO5 Show evidence of how the content of modules they have studied which are related to the areas of literacy, numeracy, special needs, classroom management, teaching strategies and curriculum apply in practical settings.√

LO6 Reflect on how established codes of good practice for educators/ trainers apply in practical settings

LO7 Critically reflect on their own role as educators or trainers and on those qualities needed to be a good educator/ trainer in a range of teaching and learning environments

LO8 Understand and analyse ongoing interpersonal relationships among students and take responsiblity for improving inter and intra personal relationships in the classroom and the wider further, adult and continuing education settings environment.

LO9 Identify and articulate areas of needed personal and professional growth which emerge out of their teaching placement and to plan for his/her own continuing academic and professional development

LO10 Exercise in an advanced way the extended role and duties of a FE teacher including as tutor, year head, and pastoral career

General Competences

Taking into account the generic competences that must be acquired by the graduates which ones are intended by the course?

- ☐ √**Apply knowledge in practice**
- ☐ √**Retrieve, analyse and synthesise data and information, with the use of necessary technologies**
- ☐ √**Adapt to new situations**
- ☐ √**Make decisions**
- ☐ √**Work autonomously**
- ☐ √**Work in teams**
- ☐ Work in an international context
- ☐ √**Work in an interdisciplinary team**
- ☐ Generate new research ideas
- ☐ √**Design and manage projects**
- ☐ √**Appreciate diversity and multiculturality**
- ☐ Respect natural environment
- ☐ √**Demonstrate social, professional and ethical commitment and sensitivity to gender issues**
- ☐ √**Be critical and self-critical**
- ☐ √**Advance free, creative and causative thinking**

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Learning Outcomes Categorization

Select for every domain the levels covered by the learning outcomes of the course.

Cognitive Domain:

☐ √Creating:

☐ √Evaluating:

☐ √Analysing:

☐ √Applying:

☐ √Understanding

☐ √Remembering

Affective Domain:

☐ Characterization:

☐ √Organization:

☐ √Valuing:

☐ Response:

☐ Reception

Psychomotor Domain:

☐ Naturalization:

☐ √Articulation:

☐ √Precision:

☐ √Manipulation:

☐ Imitation:

Levels of Anticipated Learning Outcomes

Select the highest levels of learning outcomes intended with this course. You should select the levels that correspond to the learning outcomes of the course, irrespective of the level of studies (undergraduate / postgraduate). The learning outcome level definitions provide an estimate of the demands of the course for the benefit of students and curriculum designers alike.

> **Knowledge** means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study.

○ Level 8

○ Level 7

○ √Level 6 (EQF)

○ Level 5

○ Level 4

○ Level 3

○ Level 2

○ Level 1

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Skills means the ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).

○ Level 8

○ Level 7

○ √ **Level 6 (EQF)**

○ Level 5

○ Level 4

○ Level 3

○ Level 2

○ Level 1

Competence means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development.

○ Level 8

○ Level 7

○ √ **Level 6 (EQF)**

○ Level 5

○ Level 4

○ Level 3

○ Level 2

○ Level 1

Educational Material Types

√ **Book**
√ **Notes**
√ **Slide presentations**
√ **Video lectures**
√ **Audio**
√ **Multimedia**

Use of Information and Communication Technologies

√ **Use of ICT in Course Teaching**
√ **Use of ICT in Communication with Students**
√ **Use of ICT in Student Assessment**

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Course Organization

Please fill in the 'Workload' for each course activity.

Workload: Total hours of student effort for a respective activity for the semester. Includes class hours, lab hours, field work etc.

The total workload for the course, according to its ECTS units, should be **250** hours.

* One ECTS unit corresponds to 25 hours of workload.

Activities	Workload	ECTS *	Individual Teamwork
Lecture: Preparation and Debriefing Lectures	20		Individual
Directed learning: Observation and Participation with Other Teachers	120		Individual Teamwork
Professional Practice: Preparation of Placement Portfolio and Reflective Practice	100		Individual
Professional Practice: Personal & Professional Development	30		Individual Teamwork
Professional Practice: School Based Practice (Teaching Activities)	50		Individual Teamwork
Independent Study: online, portfolio and review support & development	200		Individual
Professional Practice: School Based Practice (Non-Teaching Activities: Consultation with Mentor Teacher)	50		Individual Teamwork
Online activity: Participation in online weekly reflections (Developing Communities of Practice)	100		Individual Teamwork
Independent Study: Focussed reading related to Final year project specialist area and curriculum	80		Individual
Total	750	30	

Assessment methods	Formative Summative
Written Exam with Multiple Choice Questions	
Written Exam with Short Answer Questions	
Written Exam with Extended Answer Questions	
Written Exam with Problem Solving	
Written Assignment	Summative
Report	
Oral Exams	
Portfolio with multiple elements related to the teaching practice experience	Summative
Performance (teaching practice demonstration)	Formative
Labortatory Assignment	
Clinical Examination of Patient	
Artistic Performance	
Other / Others	

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5.4.4. UDE

Course Information	
Title	Creativity and Innovation in Adult and Continuing Education Programmes: Design, Implementation and Assessment within Module 8 AE in Europe; Weiterbildung im Kontext wuropäischer und globaler Entwicklungen
Cycle / Level	2nd / Postgraduate
Teaching Period	SS/WS
Coordinator	Prof. Dr. Esther Winther/Dr Tim Scholze

Orientation	Attendance Type	Semester	Year	ECTS
Continuing Education	Elective course with 2 modules	3/4	2	12

Class Information	
Academic Year	2019/2020/2021
Class Period	Spring
Instructor/s	Prof. Dr. Esther Winther/Dr Tim Scholze
Weekly Hours	3
Registered students	11 (WS20/21) /9 (SS20),

Type of the Course

☑ Background

☐ General Knowledge

☐ Scientific Area

☑ Skills Development

Course Category

◯ General Foundation

◉ Specific Foundation / Core

◯ Knowledge Deepening / Consolidation

Mode of Delivery

☑ Face to face

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☑ Distance learning

Learning Outcomes

Describe the intended learning outcomes of the course. The learning outcomes are usually expressed according to the template:*Upon successful completion of the course, the student will:* **DO** **WHAT** (**how**).
The learning outcomes usually are not more than five or six per course.

- *Domain specific knowledge on validation and professionalisation and organisations/institutions of adult education and CPD in Europe*
- *Knowledge of how to use a range of creative thinking methods, tools and techniques to generate ideas and solve problems as innovative teaching and learning approch*
- *The opportunity to apply the methods and tools to generate ideas for improving areas of their own work.*
- *To work in teams to create prototypes*
- *to spot ideas and create opportunities*

General Competences

Taking into account the generic competences that must be acquired by the graduates which ones are intended by the course?

☑ Apply knowledge in practice

☐ Retrieve, analyse and synthesise data and information, with the use of necessary technologies

☑ Adapt to new situations

☑ Make decisions

☑ Work autonomously

☑ Work in teams

☑ Work in an international context

☑ Work in an interdisciplinary team

☑ Generate new research ideas

☑ Design and manage projects

☐ Appreciate diversity and multiculturality

☐ Respect natural environment

☐ Demonstrate social, professional and ethical commitment and sensitivity to gender issues

☑ Be critical and self-critical

☑ Advance free, creative and causative thinking

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Learning Outcomes Categorization

Select for every domain the levels covered by the learning outcomes of the course.

Cognitive Domain:

☑ Creating:

☑ Evaluating:

☑ Analysing:

☑ Applying:

☐ Understanding

☐ Remembering

Affective Domain:

☐ Characterization:

☑ Organization:

☑ Valuing:

☐ Response:

☐ Reception

Psychomotor Domain:

☐ Naturalization:

☑ Articulation:

☐ Precision:

☐ Manipulation:

☐ Imitation:

Levels of Anticipated Learning Outcomes

Select the highest levels of learning outcomes intended with this course. You should select the levels that correspond to the learning outcomes of the course, irrespective of the level of studies (undergraduate / postgraduate). The learning outcome level definitions provide an estimate of the demands of the course for the benefit of students and curriculum designers alike.

> **Knowledge** means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study.

○ Level 8

◉ Level 7

○ Level 6

○ Level 5

○ Level 4

○ Level 3

○ Level 2

○ Level 1

○ No choice

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Skills means the ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).

○ Level 8

◉ Level 7

○ Level 6

○ Level 5

○ Level 4

○ Level 3

○ Level 2

○ Level 1

○ No choice

Competence means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development.

○ Level 8

◉ Level 7

○ Level 6

○ Level 5

○ Level 4

○ Level 3

○ Level 2

○ Level 1

○ No choice

Educational Material Types

☐ Book

☑ Notes

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☑ Slide presentations

☑ Video lectures

☐ Podcast

☐ Audio

☐ Multimedia

☑ Interactive excersises

☐ Other

[   ]

Use of Information and Communication Technologies

☑ Use of ICT in Course Teaching

☐ Use of ICT in Laboratory Teaching

☑ Use of ICT in Communication with Students

☑ Use of ICT in Student Assessment

Course Organization

Please fill in the 'Workload' for each course activity.
Workload: Total hours of student effort for a respective activity for the semester. Includes class hours, lab hours, field work etc.
The total workload for the course, according to its ECTS units, should be **250** hours.

* One ECTS unit corresponds to 25 hours of workload.

Activities	Workload	ECTS*	Individual Teamwork Erasmus
☑ Lectures	10		☑ Individual ☑ Teamwork ☐ Erasmus
☑ Seminars	20		☐ Individual

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			☑ Teamwork ☐ Erasmus
☐ Laboratory Work	☐		☐ Individual ☐ Teamwork ☐ Erasmus
☐ Fieldwork	☐		☐ Individual ☐ Teamwork ☐ Erasmus
☐ Reading Assigment	☐		☐ Individual ☐ Teamwork ☐ Erasmus
☐ Tutorial	☐		☐ Individual ☐ Teamwork ☐ Erasmus
☑ Internship	120		☑ Individual ☐ Teamwork ☐ Erasmus
☐ Clinical Practice	☐		☐ Individual ☐ Teamwork ☐ Erasmus
☐ Artistic Workshop	☐		☐ Individual ☐ Teamwork ☐ Erasmus

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☐ Interactive Teaching in Information Center			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Field trips and participation in conferences / seminars / activities			☐ Individual ☐ Teamwork ☐ Erasmus
☑ Project	100		☐ Individual ☑ Teamwork ☐ Erasmus
☐ Written assigments			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Artistic creation			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Exams			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Other / Others			☐ Individual ☐ Teamwork ☐ Erasmus
Total	**250**	**10**	

Assessment methods	Formative

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	Summative
Written Exam with Multiple Choice Questions	☐ Formative ☐ Summative
Written Exam with Short Answer Questions	☐ Formative ☐ Summative
Written Exam with Extended Answer Questions	☐ Formative ☐ Summative
Written Exam with Problem Solving	☐ Formative ☐ Summative
Written Assignment	☑ Formative ☐ Summative
Report	☑ Formative ☑ Summative
Oral Exams	☐ Formative ☐ Summative
Performance / Staging	☑ Formative ☑ Summative
Labortatory Assignment	☐ Formative ☐ Summative
Clinical Examination of Patient	☐ Formative ☐ Summative
Artistic Performance	☐ Formative ☐ Summative

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Other / Others		☐ Formative
Portfolio		☑ Summative

5.4.5. IPdL

Course Information				
Title	Biomaterials and biosensors			
Cycle / Level	2nd / Master			
Teaching Period	2nd semester			
Coordinator	Roberto Gamboa			
Orientation	**Attendance Type**	**Semester**	**Year**	**ECTS**
Continuing Education	Elective course	2	1	5
Class Information				
Academic Year	2019 – 2020			
Class Period	2nd semester			
Instructor/s	Roberto Gamboa			
Weekly Hours	3			
Registered students	5			

Type of the Course
☐ Background
☐ General Knowledge
☐ Scientific Area
☑ Skills Development
Course Category
○ General Foundation
○ Specific Foundation / Core
○ Knowledge Deepening / Consolidation
Mode of Delivery
☐ Face to face
☑ Distance learning

Learning Outcomes

Describe the intended learning outcomes of the course. The learning outcomes are usually expressed according to the template: Upon successful completion of the course, the student will: DO WHAT (how).
The learning outcomes usually are not more than five or six per course.

Upon successful completion of the course the student will know about the technology of biomaterials and biosensors, about the processes to obtain biomaterials, about different types of biosensors, how they are built and how they work and their applications. Student also develops analytical scientific and communication skills working on a science communication project.

General Competences

Taking into account the generic competences that must be acquired by the graduates which ones are intended by the course?

☑ Apply knowledge in practice

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☐ Retrieve, analyse and synthesise data and information, with the use of necessary technologies

☐ Adapt to new situations

☐ Make decisions

☑ Work autonomously

☑ Work in teams

☑ Work in an international context

☑ Work in an interdisciplinary team

☐ Generate new research ideas

☐ Design and manage projects

☑ Appreciate diversity and multiculturality

☑ Respect natural environment

☐ Demonstrate social, professional and ethical commitment and sensitivity to gender issues

☐ Be critical and self-critical

☐ Advance free, creative and causative thinking

Learning Outcomes Categorization

Select for every domain the levels covered by the learning outcomes of the course.

Cognitive Domain: The cognitive domain involves knowledge and the development of intellectual skills.

☑ Creating: Generating new ideas, products, or ways of viewing things.

☐ Evaluating: Justifying a decision or course of action. Key Words: Compares, criticizes, defends, evaluates.

☑ Analyzing: Breaking information into parts to explore understanding and relationships. Key Words: Analyzes, compares, deconstructs, differentiates, discriminates, relates.

☐ Applying: Using information in another familiar situation. Key Words: Applies, manipulates, prepares, produces, solves, uses.

☐ UnderstandingUnderstand the meaning of instructions and problems. Key Words: comprehends, defends, distinguishes, explains, generalizes, gives an example, interprets, predicts, summarizes, translates.

☐ RememberingRecalling data or information. Key Words: defines, describes, identifies, knows, recalls, recognizes, reproduces, selects.

Affective Domain: The affective domain includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasm, motivation, and attitude.

☐ Characterization: The student holds a particular value or belief that now exerts influence on his/her behaviour so that it becomes a characteristic / attitude. Key Words: Influences, qualifies, verifies.

☐ Organization: The student can put together different values, information, and ideas and accommodate them within his/her own schema by comparing, relating and elaborating what has been learned. Key Words: Generalizes, orders, organizes, relates, synthesizes.

☑ Valuing: The student attaches a value to an object, phenomenon, or piece of information. Key Words: Differentiates, joins, justifies, proposes.

☐ Response: The student actively participates in the learning process, not only attends to a stimulus but reacts in some way. Key Words: Answers, discusses, practises, presents.

☐ ReceptionThe student passively pays attention. Without this level no learning can occur. Key Words: Asks, follows, replies.

Psychomotor Domain: Skills in the psychomotor domain describe the ability to physically manipulate a tool or instrument.

☑ Naturalization: Have a high level performance, become natural without needing to think much about it. Key Words: Design, invent, mange.

☑ Articulation: Coordinating a series of actions, achieving harmony and internal consistency. Key Words: Adapt, combine, develop, modify.

☐ Precision: Refining, becoming more exact. Few errors are apparent. Key Words: Complete, calibrate, control, perfect.

☐ Manipulation: Being able to perform certain actions by following instructions and practicing. Key Words: Execute, implement, perform.

☐ Imitation: Observing and patterning behavior after someone else. Performance may

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	be of low quality. Key Words: Copy, follow, replicate, repeat.

Levels of Anticipated Learning Outcomes

Select the highest levels of learning outcomes intended with this course. You should select the levels that correspond to the learning outcomes of the course, irrespective of the level of studies (undergraduate / postgraduate). The learning outcome level definitions provide an estimate of the demands of the course for the benefit of students and curriculum designers alike.

Knowledge means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study.

○ Level 8

○ Level 7

○ Level 6

○ Level 5

○ Level 4

○ Level 3

○ Level 2

○ Level 1

○ No choice

Skills means the ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).

○ Level 8

○ Level 7

○ Level 6

○ Level 5

○ Level 4

○ Level 3

○ Level 2

○ Level 1

○ No choice

Competence means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development.

○ Level 8

◉ Level 7

○ Level 6

○ Level 5

○ Level 4

○ Level 3

○ Level 2

○ Level 1

○ No choice

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Educational Material Types

- ☐ Book
- ☐ Notes
- ☐ Slide presentations
- ☑ Video lectures
- ☐ Podcast
- ☐ Audio
- ☑ Multimedia
- ☑ Interactive exercises
- ☐ Other

Use of Information and Communication Technologies

- ☐ Use of ICT in Course Teaching
- ☑ Use of ICT in Laboratory Teaching
- ☑ Use of ICT in Communication with Students
- ☑ Use of ICT in Student Assessment

Course Organization

Please fill in the 'Workload' for each course activity.

Workload: Total hours of student effort for a respective activity for the semester. Includes class hours, lab hours, field work etc.

The total workload for the course, according to its ECTS units, should be **250** hours.

* One ECTS unit corresponds to 25 hours of workload.

Activities	Workload	ECTS *	Individual Teamwork Erasmus
☐ Lectures			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Seminars			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Laboratory Work			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Fieldwork			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Reading Assigment			☐ Individual ☐ Teamwork ☐ Erasmus
☐ Tutorial			☐ Individual

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			☐ Teamwork
			☐ Erasmus
☐ Internship			☐ Individual
			☐ Teamwork
			☐ Erasmus
☐ Clinical Practice	135		☐ Individual
			☑ Teamwork
			☐ Erasmus
☐ Artistic Workshop			☐ Individual
			☐ Teamwork
			☐ Erasmus
☐ Interactive Teaching in Information Center			☐ Individual
			☐ Teamwork
			☐ Erasmus
☐ Field trips and participation in conferences / seminars / activities			☐ Individual
			☐ Teamwork
			☐ Erasmus
☐ Project			☐ Individual
			☐ Teamwork
			☐ Erasmus
☐ Written assigments			☐ Individual
			☐ Teamwork
			☐ Erasmus
☐ Artistic creation			☐ Individual
			☐ Teamwork
			☐ Erasmus
☐ Exams			☐ Individual
			☐ Teamwork
			☐ Erasmus
☐ Other / Others			☐ Individual
			☐ Teamwork
			☐ Erasmus
Total	**135**	**5**	

Assessment methods	Formative assessment is a range of formal and informal assessment procedures employed by teachers during the learning process in order to modify teaching and learning activities to improve student attainment. Summative assessment refers to the assessment of the learning and summarizes the development of learners at a particular time.

Written Exam with Multiple Choice Questions	☐ Formative ☐ Summative
Written Exam with Short Answer Questions	☐ Formative ☐ Summative
Written Exam with Extended Answer Questions	☐ Formative ☐ Summative
Written Exam with Problem Solving	☐ Formative ☐ Summative
Written Assignment	☐ Formative ☐ Summative
Report	☐ Formative ☐ Summative
Oral Exams	☐ Formative ☐ Summative
Performance / Staging	☑ Formative ☐ Summative
Laboratory Assignment	☐ Formative ☐ Summative
Clinical Examination of Patient	☐ Formative ☐ Summative
Artistic Performance	☑ Formative ☐ Summative
Other / Others	☐ Formative ☐ Summative

Bottom of Form