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Training on effective entrepreneurship education programme preparation (WP2)
Vienna, Wednesday, September 21, 2022

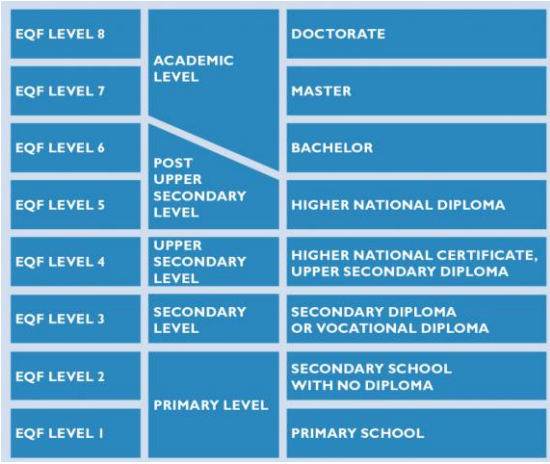
- European Qualification Framework (EQF) & Entrepreneurship Competence Framework (ECF)
- Curriculum Development
- Teaching methodologies

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European Qualification Framework (EQF)

European Qualifications Framework (EQF)

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- 8-level, learning outcomes-based framework for all types of qualifications
- serves as a translation tool between different national qualifications frameworks
- helps improve transparency, comparability and portability of people's qualifications
- makes it possible to compare qualifications from different countries and institutions.

EQF – Knowledge, skills, competences

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Each level of the EQF is described with 3 descriptors for

- knowledge,
- skills
- and competences

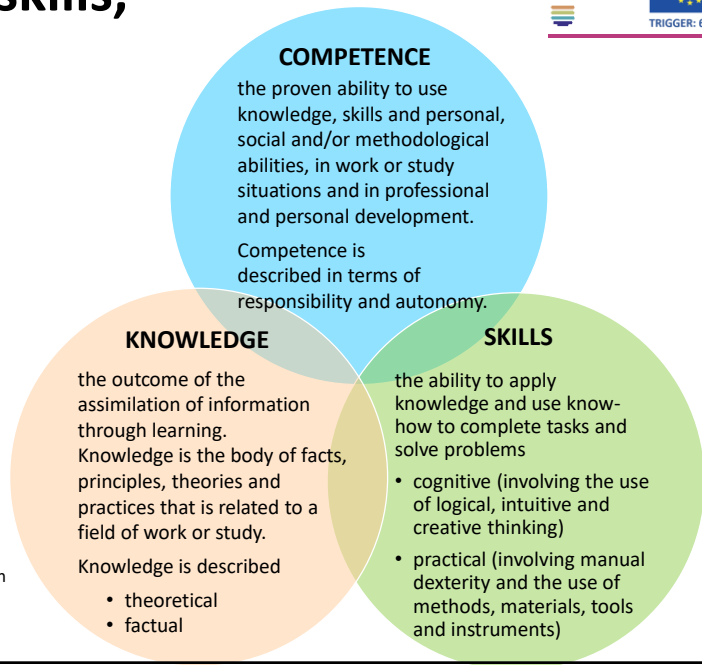
students/graduates should have attained after completing education and/or training at a specific level.

➔ Broad, generic definitions

➔ which provide a framework for systematic curriculum development and course design

Knowledge, skills, competence

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Source: Recommendation of the European Parliament and European Council. Online: http://www.eucen.eu/EQFpro/GeneralDocs/FilesFeb09/GLOSSARY.pdf

4 skills types:

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Domain or subject-related skills („professional skills“):

domain-specific vocational skills representing the state of the art “know-how” in distinct professions, cognitive and functional by nature.

Personal skills:

willingness and ability, as an individual personality, to understand, analyse and judge one’s own development chances, requirements and limitations in private life and job; including the ability to act self-critically, self-motivation, self-confidence, reliability, responsibility, awareness and self-development.

Methodical skills:

ability to implement transversal strategies, processes of invention and problem-solving.

Social skills:

ability to deal with others and willingness to cooperate and to interact with others responsibly and to behave in a group and relationally oriented way, including interpersonal communication, presentation and negotiation skills.

Winterton, J., Delamare-Le Deist, F., Stringfellow, E. (2005) Typology of knowledge, skills and competences: clarification of the concept and prototype. Online: file:///C:/Users/Dietmar%20Paier/Downloads/Typology_of_Knowledge_Skills_and_Competences_Clari.pdf

Group work:

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- Take two of your cours descriptions
- Review your learning outcomes and define which skills types are covered
- If you gain the impression that some skills are not covered (sufficiently), add skills
- Produce a word file where you contrast the old and new version of the learnong outcomes
- Explain which skills types are covered in the new version of learning outcomes
- Upload the file onm Google Drive: **„TRIGGER Vienna Training Working Folder“**

Learning outcome	Old	New	Skills type
LO 1			

Time 30‘

EQF - Descriptors

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Level	Knowledge	Skills	Competences (Responsibility and autonomy)
Bachelor (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
Master (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
PhD (Level 8)	Knowledge at the most advanced frontier of a field of work or study and at the interface between fields	The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice	Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research

https://europa.eu/europass/en/description-eight-eqf-levels

EQF – Specifications

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Countries do specific generic descriptors according to national specifities

Example: Bachelor in Austria

Level	Knowledge	Skills	Competences
Bachelor (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
Spec	He/she has • in-depth theoretical knowledge in his/her work or study area (e.g. about facts, principles, materials, procedures, Methods, connections, regulations and standards etc.) for independent management of extensive tasks and challenges requirements • the theoretical foundations of his/her work or study area from different perspectives • the knowledge required to manage extensive projects, functional areas or companies is required	He/she is able, in his/her field of work or study • to carry out tasks at a very high professional level • to master extensive challenges independently and ultimately responsible and at the same time to develop innovative solutions • to develop independent concepts for carrying out various task taking into account technical, economic and legal • to research information from different media and disciplines, critically evaluate them and use them to develop more	He/she is able, in his/her field of work or study • to act entrepreneurially and to take on managerial tasks • to manage complex and extensive projects, functional areas and/or to manage companies independently and with ultimate responsibility • to deal with the actions of individual employees as well as the whole project and work teams critically and responsibly, to give feedback and to develop their potentials through targeted advancement

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Entrepreneurship Competence Framework (ECF)

Entrepreneurship Competence Framework – EntreComp (ECF)

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EntreComp offers a comprehensive description of the knowledge, skills and attitudes that people need to be entrepreneurial and create financial, cultural or social value for others.

EntreComp is a common reference framework that identifies

- 15 competences
- in three key areas

that describe what it means to be entrepreneurial.

https://ec.europa.eu/social/main.jsp?catId=1317&langId=en

EntreComp

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- The **EntreComp scheme** provides guidance for developing specific entrepreneurship skills and competences
- This scheme is very **detailed** regarding **personal** and **social skills**, but less so with professional and methodical skills as well as digital skills

European Commission (2018) EntreComp into Action.
https://publications.jrc.ec.europa.eu/repository/handle/JRC109128

European Commission (2017) DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use.
https://publications.jrc.ec.europa.eu/repository/bitstream/JRC106281/web-digcomp2.1pdf_(online).pdf

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Curriculum Development & Teaching Methodologies

Curriculum Development Principles

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- Make the entrepreneurship purpose and learning objectives of the programme/course clear for all students
- Create an engaging, collaborative learning environment and involve external stakeholders and partners
- Keep a balance between theoretical and practical parts
- Make use of interactive, creative and pragmatic methods in teaching; active self-learning; action-oriented pedagogy
- Facilitate group work; learning through projects; student-centred methods; learning by direct experience
- Integrate methods for self-development and self-assessment
- Maintain the motivation of students at a high level
- Organize activities and events to improve students' ability to work in a group
- Build team spirit, develop networks and spot opportunities

https://eismea.ec.europa.eu/system/files/2022-01/A%20guide%20for%20fostering%20entrepreneurship%20education.pdf

What about your way of teaching?

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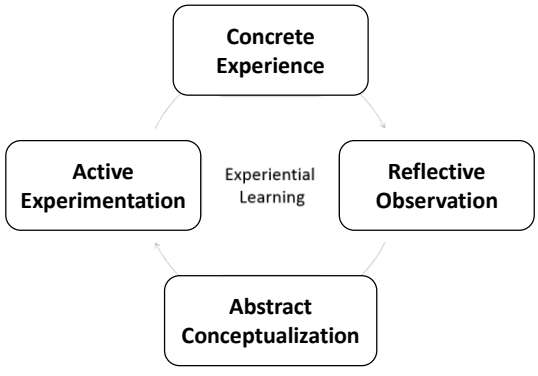
- Find two partners
- Be the interviewee, the partners will interview you about the way you are teaching and assessing students
- The interviewers seek for answers as precise and concrete as possible
- The interviewers describe your teaching practices on a flipchart

Time: 20‘

Teaching methodologies I

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Experiential learning



Problem-based Learning

- Problem solving
- Critical thinking
- Self-organisation
- Collaboration

Teaching methodologies II

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Make students develop ideas through …

- brainstorming
- assumption busting
- exaggeration
- fishbone
- storyboarding
- concept mapping
- and many more …

Support students in creating plans how to work ideas out through …

- spotting and exploring opportunities
- build innovation tasks
- connect students with partners, customers, experts in the field
- involve all in processes using creativity techniques
- support critical assessment of outcomes
- …

Support implementation of plans through …

- development of business plans
- simulations, role plays
- expert assessment of business plans
- students' negotiations with investors and other relevant agents
- demanding self-reflection units
- …

https://www.celt.iastate.edu/instructional-strategies/teaching-format/14-creative-ways-to-engage-students/

Some approaches towards teaching and learning entrepreneurship I

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Learning outcomes: Students will be able to …	Examples of teaching and learning		
IDEAS & OPPORTUNITIES	**Environments**	**Methods**	**Processes**
• develop novel ways of looking at problems	Create intelligent problems, where application of existing/ known concepts is suboptimal	Idea competition	• Assign students to write a submission for an idea competition, • student group work and presentations • student peer assessment • reflection what has changed in tackling difficulties
• spotting new opportunities	Connect the learning prozess with different environments, e.g. company visits, excursions, expert interviews …	12 Rs of opportunity spotting (from Relevance to Risks)	• Assignment for individual / group work • Rate and weight (each R) • Compare scores • Seek explanations for results
• …	…	…	…

Some approaches towards teaching and learning entrepreneurship II

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Learning outcomes: Students will be able to …	Examples of teaching and learning		
INTO ACTION	**Environments**	**Methods**	**Processes**
• Coping with ambiguity, uncertainty & risk	Replace traditional teacher-student role-sets and make students take the role of managers (owners, experts, invstors …) who have to decide on the future strategy of companies	Trends and Dilemma resolution (e.g. opennes vs. isolation towards globalisation, reason vs. emotion, nature vs. artifice …)	• define trends and countertrends • roup discussions: what are the pros and cons, what are threats and opportunities associated with trend / countertrend? • what are the main tensions? • group work: how can trend and countertrend enter into symbiosis? • discussion: what should change in the company to make use of symbiosis?
• combining knowledge and resources in a new way to achieve valuable effects	Create real-world challenges, where solutions are valuable for particular groups Involve external groups and external actors as participants in the learning process	Design thinking	Empathize, define, ideate, prototype, test

Some approaches towards teaching and learning entrepreneurship II

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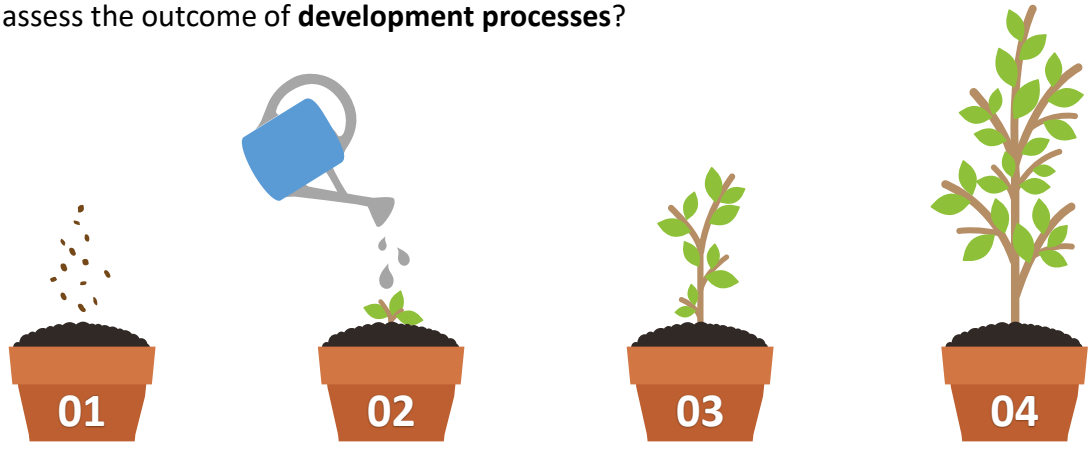
Learning outcomes: Students will be able to …	Examples of teaching and learning		
RESOURCES	**Environments**	**Methods**	**Processes**
• Mobilise resources	Create environment where specific tasks must be achieved, e.g. students have to develop and/or practice teamwork	Marshmallow challenge	Students' task is to build a structure by using spaghetti, masking tap, some string and with marshmallow on the top*
• Mobilise others	Create an environment where students have to persuade others from their business plans/concepts	Rhetorical triangle (ethos, pathos, logos)	• assign students to prepare a speech where they persuade pre-defined target groups • other students take the role of a target group • and give feedback to the speaker • plenary: identify the most imporant things in convincing others
• …	…	…	…

* https://www.marshmallowchallenge.com/

Assessment of entrepreneurship skills and competencies

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Which assessment methodologies should be used to assess the outcome of **development processes**?



Brainstorming

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- Which teaching methodologies are new to us?
- What are the teachers' roles in EE?

What does all this mean for teaching entrepreneurship?

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- Conventional teaching methods will hardly suffice to develop entrepreneurship skills and competencies (no classroom teaching)
- EE is very much action-based
- Hence, teachers should
  - create favorable, action-oriented environments inside or outside of the university / settings where the learning takes place
  - where all resources available are deployed, e.g. business networks, incubators, TTOs and many others more
  - design development processes based on learning outcomes
  - support students' actions and observe the behaviour of students
  - act as facilitators of learning

Entrepreneurship in the digital age

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"It's free, but they sell your information"

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Thank you for your attention

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Learning outcomes

Why learning outcomes?

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- Knowing objectives enables learners to act on these objectives
- Goal orientation fosters self-organisation
  - What can I do/what do I have to do to achieve my learning objectives?
  - What is the best way to goal achievement?
- Starting point for planning of all didactic activities as well as module and course contents
- Basis for designing teaching and learning processes and selecting teaching methods
- Allow for derivation of standards and methods for assessing knowledge and skills

EU policies

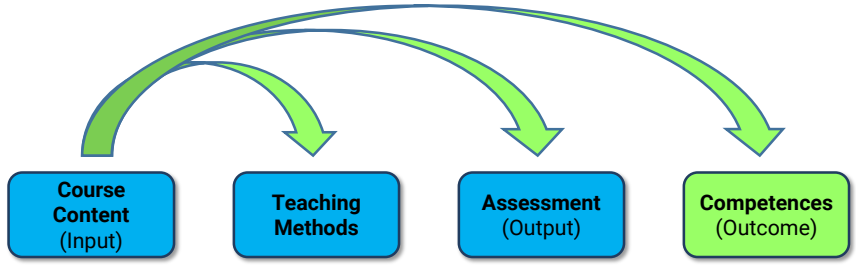
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- EU expediates orientation on learning outcomes to improve transfer and accumulation of learning results across countries and higher education institutions
- Strengthening student centeredness
- Strenghtening competence orientation
- Quality management
- Accreditation system

"Learning outcomes are statements of what the individual knows, understands and is able to do on completion of a learning process."
(ECTS Users' Guide 2015, p. 10)

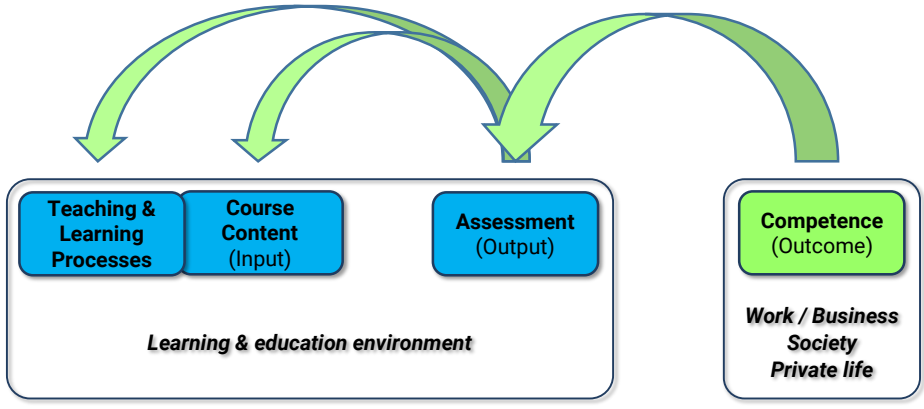
Traditional course design

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Backward course design

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Backward course design

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"What and how students learn depends to a major extent on how they think they will be assessed.

Assessment practices must send the right signals to students about what they should be learning and how they should be learning it."

John Biggs & Catherine Tang 2011: 163

Constructive Alignment

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Learning Outcomes

What should learners know, understand and **be able to do** on completion of a learning process?

Assessment

Which criteria and methods are need to assess goal achievement?

Teaching & Learning

Which methods of teaching support learning and goal achievement best?

Learning taxonomy

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- Learning outcomes are classified in learning outcome levels, in increasing order of difficulty.
- Thus, the classification of learning outcomes by levels is a tool for planning content and teaching methods for courses.
- Basic concept: Bloom 1956, revised by Anderson & Krathwohl 2001

Learning outcome level	*Anderson & Krathwohl (2001)*
1	Remembering
2	Understanding
3	Applying
4	Analysing
5	Evaluating
6	Creating

Golden rules at the UAS BFI Vienna

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… for developing learning outcomes:

1. Use the standard formulation: “After completing this course/module, students are able to” plus active verb plus content (i.e. subject matter)
1. Use active verbs for the action-based definition of learning outcomes
2. Express learning outcomes in the form of short, concise sentences
3. Set realistic learning outcomes and remember that one ECTS credit is equivalent to a workload of 25 hours
4. Outline between five and eight learning outcomes per module or course
5. Order the specified learning outcomes according to learning outcome level
6. Ensure that the assessment content and methods for a course or module correspond to the learning outcome levels

Example: Module “Bookkeeping”

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LO level	*After completing this module, students are able to:*
1 Remembering	• describe the systematic approach used in double-entry bookkeeping
2 Understanding	• identify the various effects of entries on inventory and profit and loss accounts on the statement of financial position
3 Applying	• perform regular bookkeeping (e.g. wages and salaries, taxes, various expenses) • independently account for basic procurement and sales transactions • carry out basic closing entries • prepare the balance sheet and income statement
4 Analysing	• analyse balance sheets and income statements at a superficial level
5 Evaluating	• compare and evaluate the effects of accounting options on the presentation of the balance sheet and income statement
6 Creating	• prepare comparisons of periods and companies based on selected financial indicators • and express conclusions on a company’s assets, finances and earnings based on these comparisons

Important!

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When developing learning outcomes:

- **Avoid** vague and general formulations such as “Students acquire general knowledge of...”, “develop an understanding of...” or “obtain detailed insights”.
- Formulations like these do not express learning outcomes and therefore do not provide a basis for developing and applying skills-based assessment methods.

- **Effectively** formulated learning outcomes express the intended learning objectives using **active, action-based** language.
- The following overview provides a list of active verbs – ordered according to learning outcome levels – that are suited to the effective formulation of learning outcomes.

Active verbs

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LO level	Active verbs
Remembering	arrange, define, describe, duplicate, identify, label, list, match, memorize, name, order, outline, recognize, relate, recall, repeat, reproduce, select, state
Understanding	describe, illustrate, classify, convert, defend, describe, discuss, distinguish, estimate, explain, express, extend, generalize, give example(s), identify, indicate, infer, locate, paraphrase, predict, recognize, rewrite, review, summarize, select, translate
Applying	apply, carry out, select, justify, calculate, determine, demonstrate, give examples of, perform, find, formulate, use, develop, solve, modify, explain, verify, prepare, incorporate
Analysing	derive, analyse, resolve, diagnose, collect, recognise, draw conclusions on, contrast, break down, identify, isolate, classify, prove, conclude, distinguish, examine, make generalisations, compare, dissect, categorise
Evaluating	present arguments, select, assess, evaluate, classify, estimate, test, recommend, decide, check, reformulate, differentiate, adjust, compare, suggest, disprove
Creating	develop, devise, prepare, generate, design, produce, combine, integrate, optimise, plan, manage, reorganise, structure, transfer, redesign, implement, make generalisations, write, compile, value

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Assessment of entrepreneurial skills

Skills-based assessment

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3 basic elements of competence-oriented assessments

Behavior	Conditions	Standards
What? Determine which practical behavior students have to demonstrate proving achievement of learning goals.	**How?** Which means or methods must students use / are students allowed to use when demonstrating their competences?	**How much?** Which standards or criteria ensure precise measurement of scope and quality of skills demonstration?

What it is all about

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"What and how students learn depends to a major extent on how they think they will be assessed. Assessment practices must send the right signals to students about what they should be learning and how they should be learning it."

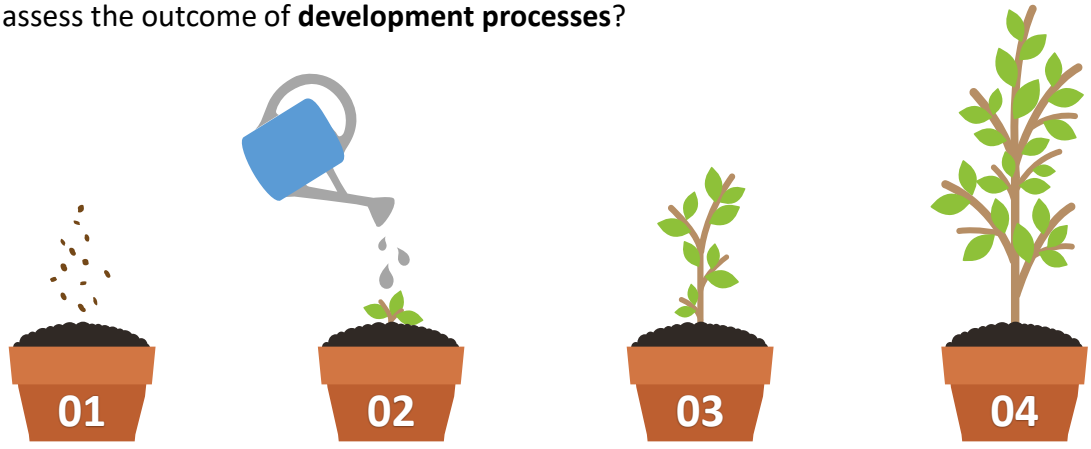
John Biggs & Catherine Tang 2011: 163

Biggs, J. & Tang, C. (2011) Teaching for Quality Learning at University. 4th ed., Open University Press, New York

Assessment of entrepreneurship skills and competencies

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Which assessment methodologies should be used to assess the outcome of **development processes**?



What about your way of teaching?

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- Choose one of your course descriptions
- All members of the team read the course description
- Rephrase and improve your learning outcomes
- Define the **entrepreneurial** skills your students should have achieved end of the course as precise as possible
- Produce a flip chart

Time: 30‘

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Curriculum Development & Teaching Methodologies

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Curriculum Development Principles

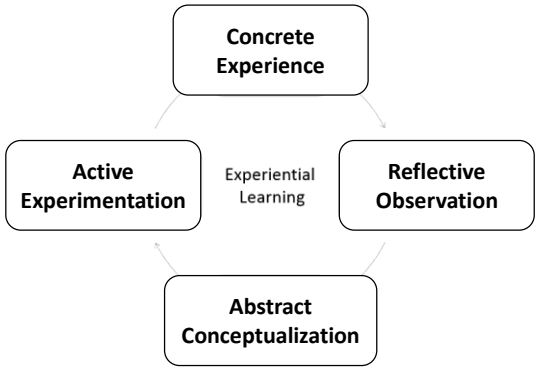
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https://eismea.ec.europa.eu/system/files/2022-01/A%20guide%20for%20fostering%20entrepreneurship%20education.pdf

Teaching methodologies I

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Experiential learning



Problem-based Learning

- Problem solving
- Critical thinking
- Self-organisation
- Collaboration

Teaching methodologies II

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Make students develop ideas through …

- brainstorming
- assumption busting
- exaggeration
- fishbone
- storyboarding
- concept mapping
- and many more …

Support students in creating plans how to work ideas out through …

- spotting and exploring opportunities
- build innovation tasks
- connect students with partners, customers, experts in the field
- involve all in processes using creativity techniques
- support critical assessment of outcomes
- …

Support implementation of plans through …

- development of business plans
- simulations, role plays
- expert assessment of business plans
- students‘ negotiations with investors and other relevant agents
- demanding self-reflection units
- …

https://www.celt.iastate.edu/instructional-strategies/teaching-format/14-creative-ways-to-engage-students/

Some approaches towards teaching and learning entrepreneurship I

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Learning outcomes: Students will be able to …	Examples of teaching and learning		
IDEAS & OPPORTUNITIES	**Environments**	**Methods**	**Processes**
• develop novel ways of looking at problems	Create intelligent problems, where application of existing/ known concepts is suboptimal	Idea competition	• Assign students to write a submission for an idea competition, • student group work and presentations • student peer assessment • reflection what has changed in tackling difficulties
• spotting new opportunities	Connect the learning prozess with different environments, e.g. company visits, excursions, expert interviews …	12 Rs of opportunity spotting (from Relevance to Risks)	• Assignment for individual / group work • Rate and weight (each R) • Compare scores • Seek explanations for results
• …	…	…	…

Some approaches towards teaching and learning entrepreneurship II

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Learning outcomes: Students will be able to …	Examples of teaching and learning		
INTO ACTION	**Environments**	**Methods**	**Processes**
• Coping with ambiguity, uncertainty & risk	Replace traditional teacher-student role-sets and make students take the role of managers (owners, experts, invstors …) who have to decide on the future strategy of companies	Trends and Dilemma resolution (e.g. opennes vs. isolation towards globalisation, reason vs. emotion, nature vs. artifice …)	• define trends and countertrends • group discussions: what are the pros and cons, what are threats and opportunities associated with trend / countertrend? • what are the main tensions? • group work: how can trend and countertrend enter into symbiosis? • discussion: what should change in the company to make use of symbiosis?
• combining knowledge and resources in a new way to achieve valuable effects	Create real-world challenges, where solutions are valuable for particular groups Involve external groups and external actors as participants in the learning process	Design thinking	Empathize, define, ideate, prototype, test

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Learning outcomes: Students will be able to …	Examples of teaching and learning		
RESOURCES	**Environments**	**Methods**	**Processes**
• Mobilise resources	Create environment where specific tasks must be achieved, e.g. students have to develop and/or practice teamwork	Marshmallow challenge	Students' task is to build a structure by using spaghetti, masking tap, some string and with marshmallow on the top*
• Mobilise others	Create an environment where students have to persuade others from their business plans/concepts	Rhetorical triangle (ethos, pathos, logos)	• assign students to prepare a speech where they persuade pre-defined target groups • other students take the role of a target group • and give feedback to the speaker • plenary: identify the most imporant things in convincing others
• …	…	…	…

* https://www.marshmallowchallenge.com/

Group work: Learning journey

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- Take one of the course descriptions you have submitted
- Design a learning journey
- Include as much interactive phases with external experts/partners/stakeholders/customers as possible
- Teacher's role: describe what the teacher will do in each phase

Group work: Learning journey II

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- Put your results in a table like this:

Learning Outcome	Teaching method	Teachers role(s)
• …	…	…

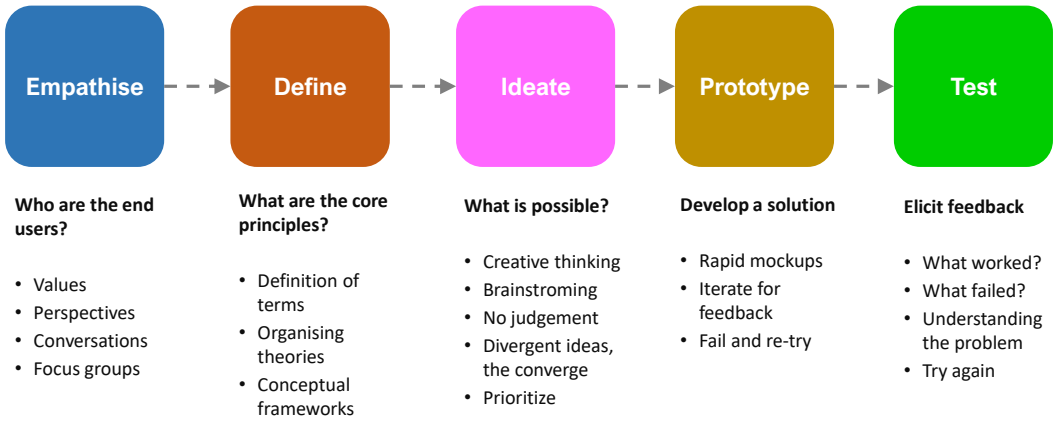
What does all this mean for teaching entrepreneurship?

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- Conventional teaching methods will hardly suffice to develop entrepreneurship skills and competencies (no classroom teaching)
- EE is very much action-based
- Hence, teachers should
  - create favorable, action-oriented environments inside or outside of the university / settings where the learning takes place
  - where all resources available are deployed, e.g. business networks, incubators, TTOs and many others more
  - design development processes based on learning outcomes
  - support students' actions and observe the behaviour of students
  - act as facilitators of learning

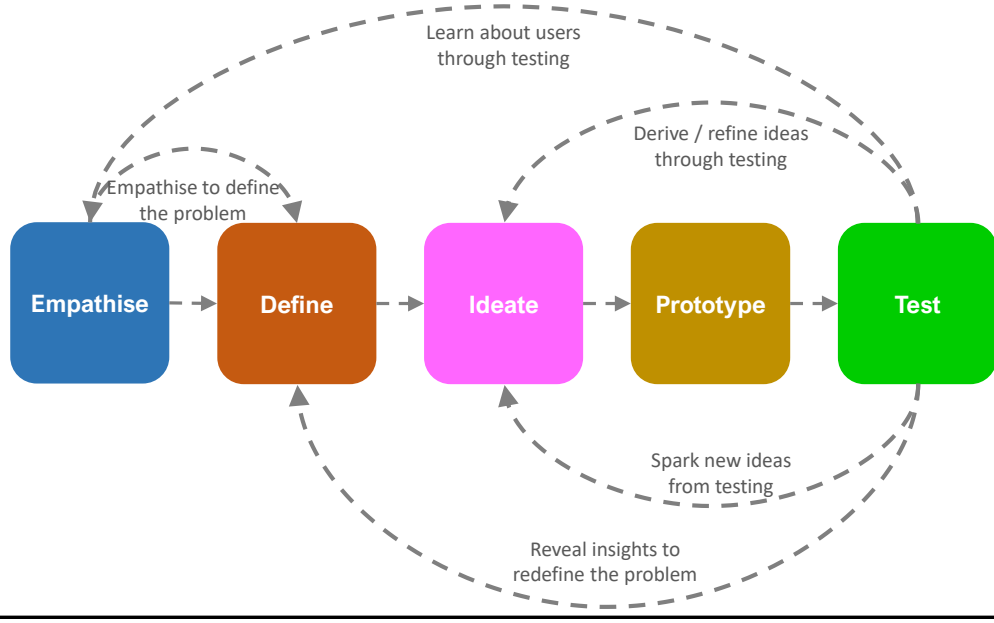
Design Thinking

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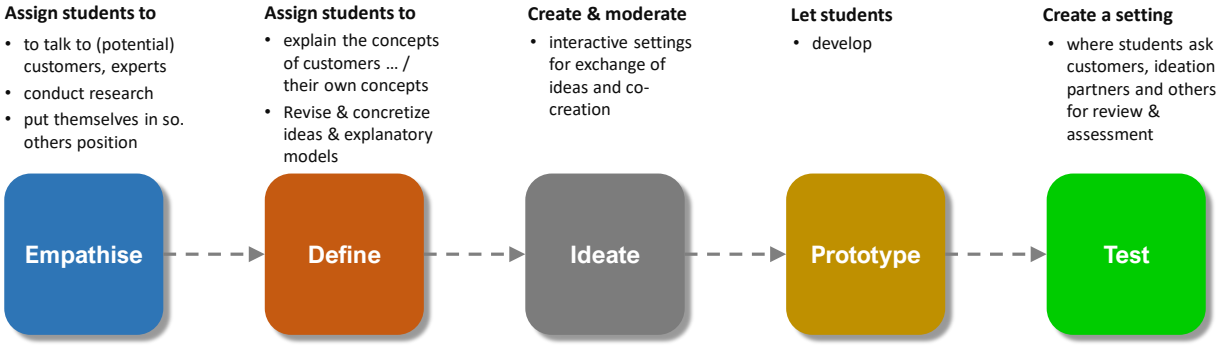
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Interactive, process-based and results-oriented learning journeys

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Implement appropriate assessment methodologies at each stage of the learning journeys

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Assessments

- Which knowledge, skills and competences have been defined in the learning outcomes?
- Choose a well-selected variety of assessment methodologies
- Make use of customers', external experts' and ideation partners' feedback for assessment
- Communicate to your students well in advance how assessments will be done

Assessments

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Traditional style (very much knowledge-centered)

- Research reports
- Written home-work
- Presentations
- Written exams: open/closed book, multiple choice-tests

Observation techniques

- Intensity of participation / activity level
- Role-taking
- Content-related student contributions
- Individual/group learning progress
- Individual / group performance
- Document observations with appropriate means, e.g. rubrics

External feedback

- Intensity of participation / activity level
- Role-taking
- Content-related student contributions
- Individual/group learning progress
- Document observations with appropriate means, e.g. rubrics

Assessment of outcomes

- Characteristics of results (products, processes, services)
- Rating of level / degree of task fulfillment
- Target groups' acceptance/adoption of results

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Thank you for your attention!