HEAL-in-ONE
From digital technology to educational tools
Applied disciplines of agricultural sciences

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

Presentation of the Erasmus+ project in Education Forum

Topic title:
Improving the quality of active learning and teaching in the online and hybrid environment
Introduction: prof. Dr. Slavča Hristov
Home leader: prof. Dr. Ana Pešikan

Predstavljanje Erasmus+ projekta:
Naslov teme:
Unapređivanje kvaliteta aktivnog učenja i nastave u onlajn i hibridnom okruženju
Uvodničar: Prof. dr Slavča Hristov
Domaćin: Prof. dr Ana Pešikan

Datum: 25. januar 2023.

Project title

- Project title: From digital technology to educational tools: Improving the quality of active learning and teaching in the online and hybrid environment in applied disciplines of agricultural sciences
- Naslov projekta: Od digitalne tehnologije ka obrazovnom alatu: Unapređivanje kvaliteta aktivnog učenja/nastave u onlajn i hibridnom okruženju u primenjenim disciplinama poljoprivrednih nauka
- Project Acronym: HEAL-in-ONE
- Action Type: KA220-HED - Cooperation partnerships in higher education
- Call: 2021
- Erasmus + Project No 2021-1-RS01-KA220-HED-000032054

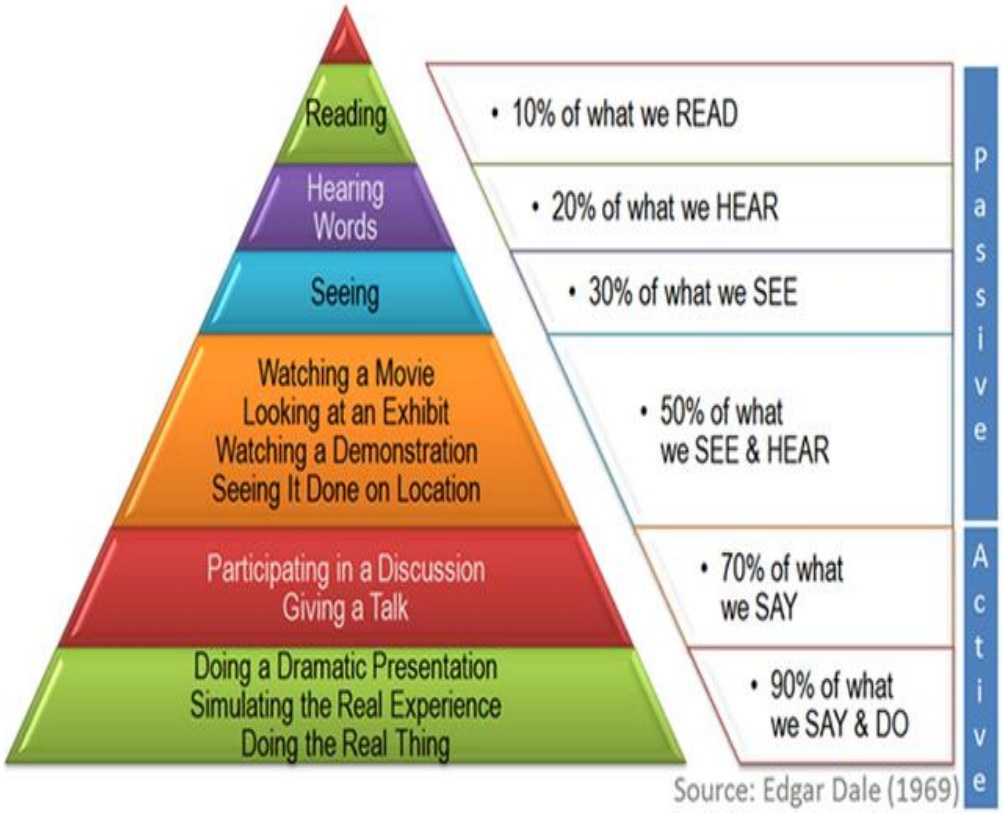
Applicant organisation/Partner organisation

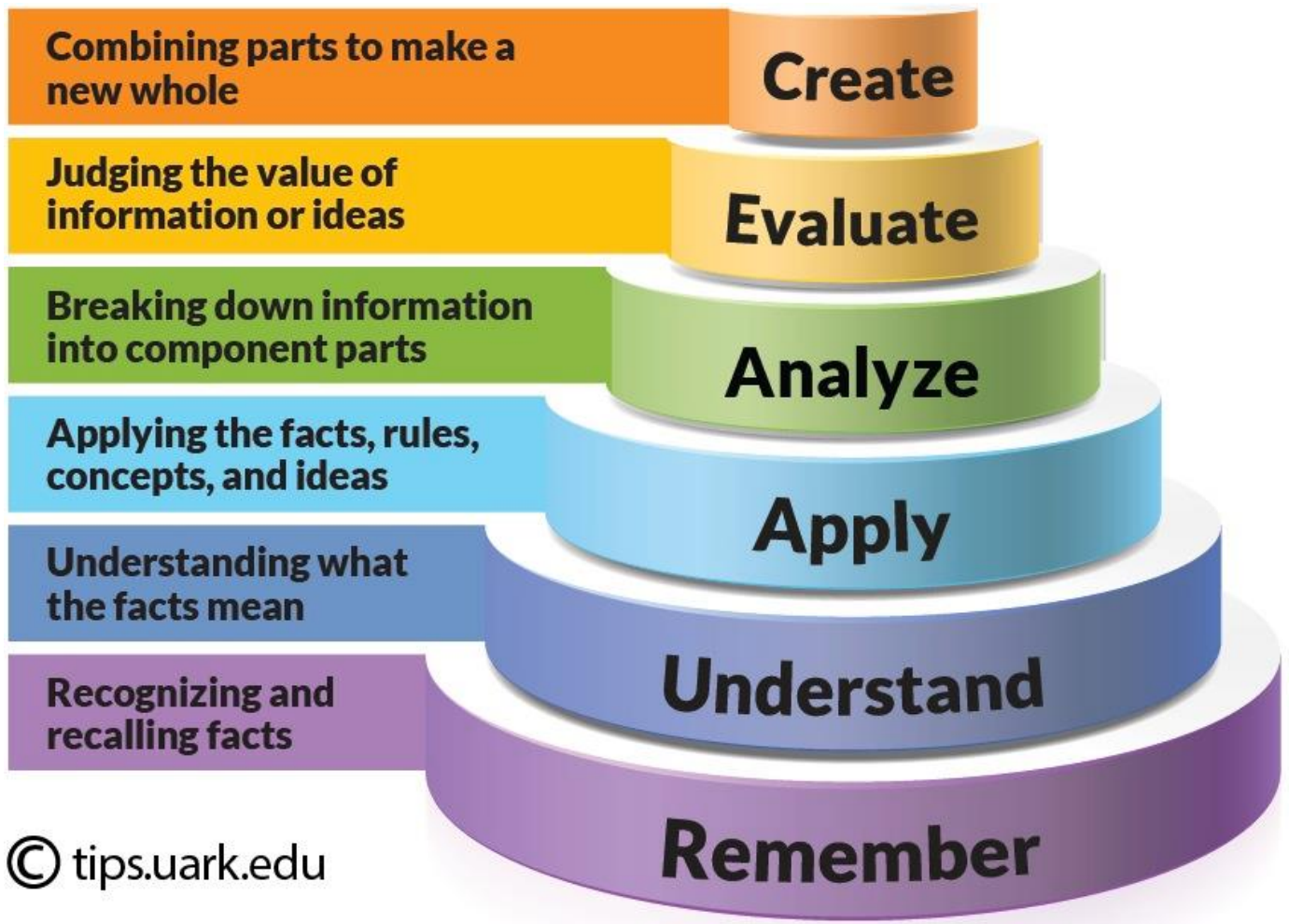
- Univerzitet u Beogradu, Belgrade, Serbia http://www.bg.ac.rs/en/index.php
- E10167599 Sveuciliste Josipa Jurja Strossmayera u Osijeku, Osijek, Croatia, www.unios.hr
- Ss. Cyril and Methodius University in Skopje, Skopje, The Republic of North Macedonia, www.ukim.edu.mk
- Trakiyski Universitet, Stara Zagora, Bulgaria, www.uni-sz.bg
- Obrazovni Forum, Belgrade, Serbia, http://www.eduforum.rs/

Background: Why did you apply for this project?

What are the needs you plan to address?

- **Student engagement** is not only a challenge in traditional face-to-face (F2F) classrooms but also, and debatably more so, in online courses.
- Online course delivery faces additional barriers to engaging students not typically present in F2F courses including the fact that **course design and development must occur before** the actual delivery of the teaching and learning materials.
- While the importance of active learning methodologies **to improve student engagement** has been thoroughly examined, the additional challenges faced by online course delivery changes **how active learning practices are put into practice.**
- Thereby, because of **the unique nature and challenges** of online courses, an understanding of the distinctive approaches to active learning is needed.


Reading
Hearing Words
Seeing
Watching a Movie
Looking at an Exhibit
Watching a Demonstration
Seeing It Done on Location
Participating in a Discussion
Giving a Talk
Doing a Dramatic Presentation
Simulating the Real Experience
Doing the Real Thing
• 10% of what we READ
• 20% of what we HEAR
• 30% of what we SEE
• 50% of what we SEE & HEAR
• 70% of what we SAY
• 90% of what we SAY & DO
Passive
Active
Source: Edgar Dale (1969)


Combining parts to make a new whole
Create
Judging the value of information or ideas
Evaluate
Breaking down information into component parts
Analyze
Applying the facts, rules, concepts, and ideas
Apply
Understanding what the facts mean
Understand
Recognizing and recalling facts
Remember
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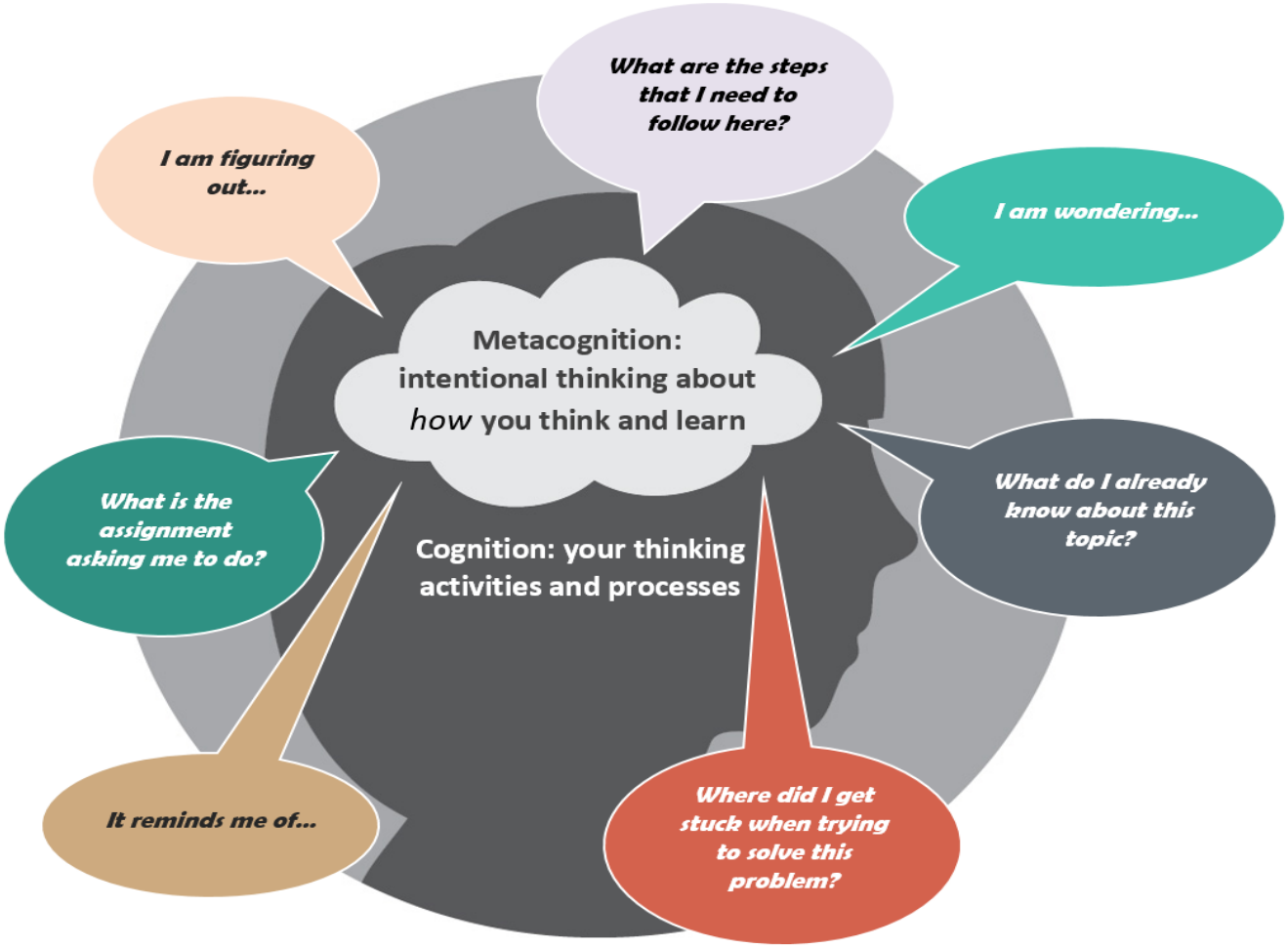
1: **SOLO taxonomy (Structure of observed learning outcome)**				
text	Define Identify Follow simple procedure	Define Describe List Combine Do algorithm	Compare Explain causes Sequence Classify Analyse Relate Make analogies Apply Formulate questions	Evaluate Theorise Generalise Predict Create Hypothesise Reflect Apply in new contexts
text				
text				
				
Incompetence	Single aspect	Several aspects	Integration	Generalization and application
Prestructural	**Unistructural**	**Multistructural**	**Relational**	**Extended**


What are the steps that I need to follow here?
I am figuring out...
I am wondering...
Metacognition: intentional thinking about how you think and learn
What is the assignment asking me to do?
What do I already know about this topic?
Cognition: your thinking activities and processes
It reminds me of...
Where did I get stuck when trying to solve this problem?

Background: Why did you apply for this project?

What are the needs you plan to address?

- Next to that, **effective time and resources management** is necessary on the part of both the students as well as faculty when online.
- Further, **methods of encouraging student communication and interactions** amongst themselves and faculty differ greatly from F2F delivery methods.
- Consequently, the efficient **implementation of teaching tools** used to deliver the online course is a challenge for many faculties especially who deal with applied sciences.
- **However, many of these concerns can be addressed through the implementation of active learning strategies that encourage students to actively participate in the online course content.**
- On the basis of current research can be claimed that typically active learning is not associated with online or hybrid learning environment.
- However, there are several strategies for effectively incorporating and practicing active learning in non-F2F settings including the use of **well-conceived discussions**, **group work and creating a collaborative environment that encourages and fosters a community of learning.**

Background: Why did you apply for this project?
What are the needs you plan to address?

It is critical to weave active learning through the major components of an online or hybrid course, including discussions, assignments and assessments to promote a high level of student engagement.

The quality of an online course in comparison to its traditional F2F counterpart is the most critical issue that impacts the design and development of an online course.

Some of the key components in online courses are the design of instructional material for the content delivery, student assessment of material, discussion management, time management and frustration handling.

In the project it will be applied the multidisciplinary approaches of design and development of the key components ALTONE, the best practices of ALT in online course design and delivery and various mechanisms of student engagement they employed in online and hybrid courses.

These student engagement mechanisms are founded in classic pedagogies but will be adapted to suit the online and hybrid course environment. In doing so, the idea of applying traditional active learning methodologies to the online and hybrid setting while retaining the function of actively engaging students in their learning will be central throughout the project realization.

Objectives:

What do you want to achieve by implementing the project?

- Quality of learning in online circumstances requires students' higher independence in learning and work, skill of self regulated learning, and better developed metacognitive abilities to manage one's own learning process.
- In order to take all this into account when designing the teaching situation, knowledge and skills of creating a quality educational experience for students are needed.
- Applied disciplines in agricultural sciences have faced challenge in how to develop the necessary practical professional knowledge, skills and values in the online environment.
- Their curricular content is more practical and requires the acquisition of skills parallel with theoretical knowledge.
- Two main problems are the problem of creating adequate activities for students in relation to the goals set; and the problem of the poorer quality of teacher-student interaction.

Objectives:
What do you want to achieve by implementing the project?

Having in mind the above, the goals of the project are:

- The general goal is to provide students with quality education. It means using high academic standards based on modern scientific knowledge in order to build dynamic combination of knowledge, skills, and values, and the 21st century competences in study programs of applied agriculture disciplines in undergraduate studies in online and hybrid environment;
- Development of the principles of ALTONE in HE so as to make the most of the advantages of ICT in teaching and learning;
- Raising the competencies of academics for creating prototypes of teaching situations for effective learning of content of different epistemological nature that are found in applied disciplines;
- Curriculum redesign and implementation of curricular alignment between goals, teaching/learning methods, student activities, assessment of students and learning outcomes in pilot courses;
- Development of a bank of scenario for teaching in an online environment according to the types of knowledge those students should master (declarative, procedural, practical)

Objectives:

What do you want to achieve by implementing the project?

Having in mind the above, the goals of the project are:

• Creating continuous support for improvement of ALT in HE (formation of a center for learning/teaching at the faculty). The partner organizations in the project want to integrate active learning into online and hybrid teaching on professionally applied subjects of applied agricultural sciences. Exchanges of good practices and experiences in ALT in online and hybrid environment among partner institutions at every level (teachers, ICT staff, and students) will contribute to this. All experiences from solving problems caused by the transition to full online education in the pandemic will benefit the future organization of education in "normal" circumstances.

Implementation:

What activities are you going to implement?

The following activities are planned to implement during the realization of the project:

1. The joint analysis of realization of teaching and learning in different HEI contexts and introducing ALTONE methodology;

2. Writing the training material: handbook on transforming ALT from a classroom to an online and hybrid education, guideline for teachers redesigning subject curricula, guideline for teachers related to creating scenarios for online and hybrid education and guidance for evaluation of the scenarios and analysis of the results of teacher satisfaction classes)

3. Training on ALT and ALTONE methodology: active Learning Teaching (ALT) joint staff training course (active learning in online and hybrid environment, exchanges of good practices and experiences in ALT in online and hybrid environment among partner institutions and development of the concept of active learning in the online and hybrid environment;

Implementation:

What activities are you going to implement?

4. ALT joint staff training course with focus on building teacher competences on evaluation of quality of teaching/learning process (redesigning existing teaching curricula, creating and evaluation scenarios for online and hybrid active learning and teaching, formative assessment, assessment for learning and assessment as learning)

5. Reviewing the project's intellectual outputs and designing framework for the project sustainability (development of the concept and formation of a centre for continuous improvement of the quality of teaching/learning in a higher education institution, dissemination of principles ALT in online and hybrid environment with other universities).

Results: What project results and other outcomes do you expect your project to have?

During the implementation of the project, teachers of pilot subjects are expected to

- adopt principles of good practice of active learning/teaching (ALT),
- improve planning of subject objectives for online environment,
- acquire relevant competencies for applying ALT methodology in online environment,
- contribute to improving interactivity between them and students also students to each other,

✓ fostering creativity in students as well as in themselves,

✓ fostering critical thinking in students as well as in themselves,

✓ improving students' self-reflection on learning, as well as self-reflection on teaching methods in themselves,

✓ improving shared inquiry between learners and teachers to answer questions and solve problems that will facilitate modeling,

✓ foster creativity, and

✓ enhance active and collaborative learning.

Results: What project results and other outcomes do you expect your project to have?

In addition, because learners will continue to come from a variety of generations, it is important for teachers to facilitate their learning needs to plan and implement effective programs using ALT. Formative and summative assessment will conduct to measure student abilities and knowledge before, during, and after participation in courses.

Finally, the implementation of ALT is expected, the improvement of feedback on student learning success (feedback to learners about the course content and outcomes from technology can be used in such things as interactive exercises with feedback loops in online tests), evaluation of ALT and assessment implications for future use of online and blended active learning strategies.

Results: What project results and other outcomes do you expect your project to have?

During the implementation of the project, the following results are planned:

1. Report on the analysis of needs for improving the quality of ALTONE based on the findings of research in partners country and in the world;
2. Desk analysis about reduce quality (decline in the volume and quality of knowledge; learning loss);
3. Development of the concept of ALT in the online and hybrid environment;
4. Writing a handbook on transforming active learning from a classroom to an online environment;
5. Training of teachers for the application of active learning methodology in online environment;
6. Training for raising the competencies of teachers for adequate use of ICT for more effective engagement of students and better learning and monitoring of teaching specifically in applied disciplines in higher education;
7. Selection of pilot subjects from different agricultural applied disciplines;
8. Training report for revision and evaluation of the pilot subjects book in accordance with the analysis of necessary changes;

Results: What project results and other outcomes do you expect your project to have?

During the implementation of the project, the following results are planned:

9. Redesigning pilot course books so as to achieve curricular coherence between objectives, active learning/teaching methods, student activities, evaluation of student achievement and learning outcomes;
10. Evaluation of revised pilot subject books;
11. Teacher-tailored training, personalized, with each teacher working ICT expert and teaching/learning quality expert on improving the competencies of pilot teachers in the preparation of scenarios, how to choose digital tools in relation to the objectives of the subject and solving specific pedagogical problems;
12. Creating scenarios for prototype classes in applied disciplines in the online environment;
13. Evaluation of completed scenarios for ALTONE;
14. Creating a scenario for prototype classes in applied disciplines for hybrid learning, with a clear explanation of the activities that are realized live and those that are realized in the online environment;
15. Evaluation of completed scenarios for hybrid active learning/teaching;
16. Peer reviews of teacher satisfaction classes;
17. Development of the concept and formation of a center for continuous improvement of the quality of teaching/learning in a higher education institution.

Definition of Active learning and Teaching in Online education

Overviews of the HEAL-in-ONE
Project Activities

- Active learning refers to a broad range of teaching strategies which engage students as active participants in their learning during class time with their instructor. Typically, these strategies involve some amount of students working together during class, but may also involve individual work and/or reflection.
- Active Learning is one in which interactive methods are used which improves learning by **allowing the learners to participate in the process.** On the contrary, passive learning is one in which the students are held accountable for grasping all that is presented to them.
- Active learning and teaching (interactive approach) is an approach to instruction that involves **actively engaging students with the course material through discussions, problem solving, case studies, role plays and other methods.**
- ALTONE is an abbreviation of Active Learning and Teaching and the Online Environment (ALTONE ALT in ONline environment, ALTONE)

The project activities that will carry out with the support of the grant requested under the item "Project Management and Implementation" involve activities connected with **the workshops (C1-C4)** and intellectual output (O1-04):

O1 and C1: Development of the principles of ALTONE in HEIs so as to make the most of the advantages of ICT in teaching and learning:

- **defining a methodology for analyzing the quality of teaching/learning** during a pandemic and creating templates for reports
- **analysis of the quality of teaching/learning** during the pandemic and writing a report
- **development of ALTONE concept and principles**
- **writing a manual** on the transformation of ALT to ALTONE
- **creation of training program and materials**

- **A learning strategy is an individual's way of organizing and using a particular set of skills in order to learn content or accomplish other tasks more effectively and efficiently in school as well as in non-academic settings**

Result Production Start Date: 01-04-2022
Result Production End Date: 31-08-2022

Result Type: Methodologies/guidelines – Pedagogical strategy

- Methodology is the study of research methods, or, more formally, "'a contextual framework' for research, a coherent and logical scheme based on views, beliefs, and values, that guides the choices researchers (or other users) make".
- Project management methodologies are a set of guiding principles and processes used plan, manage, and execute projects. The project management methodology you choose determines how work is prioritized and completed.
- Pedagogic strategies refer to a general abstract teaching method. They can influence instructional design models. Instructional design models refer to more precise instructional designs (based on some more explicit teaching and learning goals).
- A guideline is something that can be used to help you plan your actions or to form an opinion about something. If an institution issues guidelines on something, it issues official advice about how to do it.

Result Media:

1. Paper Brochures (a small book or magazine containing pictures and information about a product or service),
2. Text File (a text file, sometimes spelt text-file, an old alternative name is flat-file, is a kind of computer file that is structured as a sequence of lines of electronic text. A text-file exists stored as data within a computer file system),
3. Text (the original words and form of a written or printed work an edited or emended copy of an original work)
4. Interactive Resource (A resource requiring interaction from the user to be understood, executed, or experienced. Comment: examples include forms on Web pages, applets, multimedia learning objects, chat services, or virtual reality environments.)

O2 and C2: Raising the competencies of academics for creating prototypes of teaching situations for effective learning of content of different epistemological nature that are found in applied disciplines:

- selection of pilot subjects from applied disciplines (scientific-professional and professional-applied), and different fields (technical-technological and social-humanistic sciences)
- analysis of the epistemological nature of subjects' knowledge from the angle of effective teaching/learning in an online context
- training of academics for the application of ALTONE and adequate use of ICT in applied disciplines in HE

Results: developed academic competencies for implementation of ALT in online environment and the most beneficial use of ICT in teaching/learning

Result Production Start Date (dd-mm-yyyy) 01-11-2022
Result Production End Date (dd-mm-yyyy) 28-02-2023
Result Type: Learning/teaching/training material – Manual/handbook /guidance material
Result Media: **Network,** Text, **Publications**, Text File, Interactive Resource
Results: 1. developed academic competencies for implementation of ALT in online environment and 2. the most beneficial use of ICT in teaching/learning

- **A computer network** is a set of computers sharing resources located on or provided by network nodes. The computers use common communication protocols over digital interconnections to communicate with each other. These interconnections are made up of telecommunication network technologies, based on physically wired, optical, and wireless radio-frequency methods that may be arranged in a variety of network topologies.
- **Publication** is the act of making information or stories available to people in a printed or electronic form (a book, magazine, newspaper, or document in which information or stories are published)

Competency and Competence

Competency: an important skill that is needed to do a job.
Competence: the ability to do something well

- Pedagogical competence refers to educational and teaching qualifications. When assessing pedagogical competence, the quality of teaching should be the primary consideration.
- Pedagogical competence is the ability of teachers in managing learning that includes the ability to plan a learning program, the ability to interact or manage the learning process and the ability to perform an assessment.
- Scope, breadth and depth are also important, as should the ability to plan, initiate, lead and develop education and teaching, as well as the ability to provide research-based teaching on the basis of research in the relevant subject, subject didactics and teaching and learning in higher education.
- The ability to interact on issues related to teaching and learning in higher education with individuals active both within and outside the university is also included in the concept of pedagogical competence

Pedagogical competence

- Pedagogical competence is based on sound, broad and current knowledge within the subject area, as well as knowledge of student learning and subject-based teaching and learning issues.
- It also presupposes a reflective and critical approach to teaching, learning and pedagogical development over time, as it is tied to one's own professional role.
- Pedagogical competence is demonstrated by successful teaching and development of teaching as well as by evaluations and student learning. Both general and subject-specific knowledge of how students learn is a prerequisite as well as for continued development of pedagogical competence to be possible.
- Pedagogical competence also comprises the ability and willingness to take part in discussions on pedagogy to achieve personal development and contribute to the development of others.

Pedagogical qualifications must be presented in a pedagogical portfolio.

Assessment areas for pedagogical competence

The following assessment areas are used **to assess pedagogical competence**:

- Teaching skills,
- Theoretical knowledge, and
- Approach characterised by willingness and the ability to develop.

Teaching skills

- Practical experience from and the ability to contribute to student learning by leading, organising, planning, implementing, examining, developing and evaluating different types of teaching and education levels and producing teaching materials

Theoretical knowledge

- Pedagogical knowledge with a focus on teaching and learning in higher education theory and student learning, while maintaining a connection to one's own subject area
- Broad and current subject knowledge and scientific base within the subject, which is applied to teaching

Attitude characterised by willingness and the ability to develop

- Works under the set rules and regulations with the aim of achieving targets and improving results
- Has an overall view that integrates theory and practice, as well as an approach that continuously promotes teaching and student learning
- Has a reflective and critical approach (observes, gives feedback, evaluates and develops) to teaching, learning and pedagogical development work
- Contributes to and takes part in the pedagogical discourse

- **Epistemology** is the theory of knowledge, especially with regard to its methods, validity, and scope, and the distinction between justified belief and opinion. Epistemology is the theory of knowledge. It is concerned with the mind's relation to reality. ... It requires considering the different psychological routes to knowledge, including different processes of reasoning – logical and scientific – introspection, perception, memory, testimony and intuition

O3 and C3: Curriculum redesign and implementation of curricular alignment between goals, teaching/learning methods, student activities, assessment of students and learning outcomes in pilot courses:

- analysis of the epistemological nature of subjects' knowledge from the angle of effective teaching/learning in an online context
- evaluation of the pilot subjects book
- revision of the book of pilot subjects based on previously performed analysis in order to achieve the curriculum alignment between objectives, teaching/learning methods, student activities, assessment methods and learning outcomes
- training of academics for the application of ALTONE and adequate use of ICT in applied disciplines in HE

Results: developed curriculum development methodology, competencies of academics for curriculum design and implementation of ALT in online environment

Result Production Start Date: 01-05-2023
Result Production End Date: 31-08-2023
Result Type: Course/curriculum – Pilot course/module
Result Media: Interactive Resource, Paper Brochures, Internet, Network, Text File

Results:

1. developed curriculum development methodology,
2. competencies of academics for curriculum design and implementation of ALT in online environment

Curriculum

the subjects studied in a school, college, university, etc. and what each subject includes

Curriculum is a standards-based sequence of planned experiences where students practice and achieve proficiency in content and applied learning skills. Curriculum is the central guide for all educators as to what is essential for teaching and learning, so that every student has access to rigorous academic experiences. The structure, organization, and considerations in a curriculum are created in order to enhance student learning and facilitate instruction. Curriculum must include the necessary goals, learning outcomes, methods, materials and assessments to effectively support instruction and learning.

Course unit

A self-contained, formally structured learning experience. It should have a coherent and explicit set of learning outcomes, defined learning activities consistent with the time allocated within the curriculum, and appropriate assessment criteria.

Learning outcome

Statements of what a learner knows, understands and is able to do on completion of a learning process. The achievement of learning out comes has to be assessed through procedures based on clear and transparent criteria. Learning outcomes are attributed t o individual educational components and t o programmes at a whole . They are also used in European and national qualifications frameworks t o de scribe the level of the individual qualification.

Module

A course unit in a system in which each course unit carries the same number of credits or a multiple of it.

O4 and C4: Development of a bank of scenario for teaching in an online environment according to the types of knowledge those students should master (declarative, procedural, practical):

- training of academics for the application of ALTONE and adequate use of ICT in applied disciplines in HE
- creating scenarios for prototype classes in applied disciplines in the online and hybrid environment
- writing a bank of scenario
- bank of scenario analysis for online and hybrid ALT

O4 and C4:

Result Production Start Date: 01-11-2023
Result Production End Date: 31-03-2024

Result Type: Course/curriculum – Design and development
Result Media: Network, Paper Brochures, Internet, Text, Collection, Interactive Resource, **Website**, Publications

Results: 1. developed competencies of academics for implementation of ALT in online environment, and creation of teaching/learning scenarios;
2. bank of scenarios for prototype classes in online and hybrid environment in applied disciplines
Website is a set of pages of information on the internet about a particular subject, published by a single person or organization.
Collection is the act or process of collecting of data (something collected especially: an accumulation of objects gathered for study, comparison, etc.

Creating continuous support for improvement of ALT in HEIs through development of the concept and formation of a center for quality teaching/learning at the partner institution:

Results:
1. networked project partner institutions,
2. developed '**community of learners**' working to improvement HE teaching/learning;
3. established **centres** for quality teaching/learning in partner HE institutions.

Creating continuous support for improvement of ALT in HEIs through development of the concept and formation of a center for quality teaching/learning at the partner institution:

Networking is the action or process of interacting with others to exchange information and develop professional or social contacts.
A community of learners is a group of people who support each other in their collective and individual learning. They are cooperative and can work productively together. Individually, they are motivated and strive to do quality work.
Centre is the point from which an activity or process is directed, or on which it is focused.

The aims of the four Multiplier events (E1, E2, E,3, E4) will be to: spread the results of the project, share the project intellectual output, explore new cooperation fields among the participant organizations, and introduce and promote the ALT aims and principles.

Thank you for your attention!