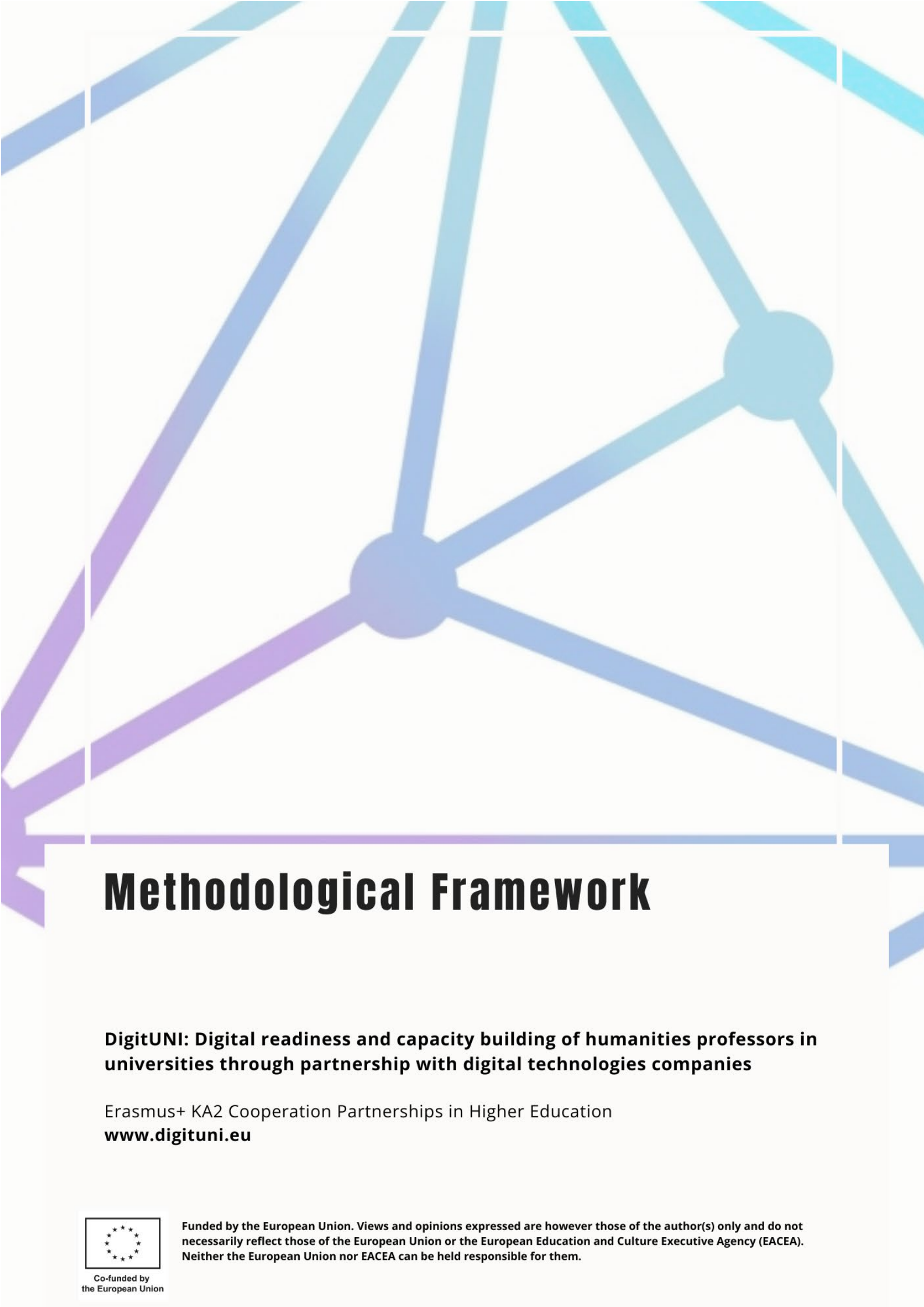




Methodological Framework

DigitUNI: Digital readiness and capacity building of humanities professors in universities through partnership with digital technologies companies

Erasmus+ KA2 Cooperation Partnerships in Higher Education
www.digituni.eu



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About DigitUni	
Action type	Erasmus+ KA220-HED - Cooperation partnerships in higher education, 2021
Priority	Addressing digital transformation through development of digital readiness, resilience and capacity.
<i>In the complex context of the Covid-19 global pandemics, university education has been suddenly and heavily forced to adapt almost immediately to an online teaching environment and to transform lectures, classes and training process accordingly. The vast and long-term closure of the universities has pressured them for restructuring and reorientation, both in the teaching methods and in the form of training delivery. This has caused stress among the teaching staff and disruptions in the teaching process (present even now, 1 year later). The negative effects have been and still are especially strong and visible for humanities subjects and professors/assistants.</i> <i>Due to the pandemics and the persisting lockdowns, there is a real danger that the society will be deprived of humanitarian knowledge and its teaching for a long period of time, which is an extremely negative tendency. The notion that this type of knowledge (about history, philosophy, literature, etc.) could be considered as a “luxury” commodity that brings no added value (in terms of immediate material goods and benefits) and the society can be easily deprived of it, is extremely dangerous in terms of the normal development of any democratically organized and functioning society. That is why it is really important the university professors in humanities to quickly develop and enhance their skills and competences in the field of digital technologies and their application to create and apply digital resources in the learning process. Therefore, a project like DigitUni will be of great importance for maintaining this basic branch of human knowledge which the humanities undoubtedly represent. The implementation of the proposed activities and the achievement of the expected results will enable wider dissemination and broader application of the modern digital technologies in a way that is accessible and understandable for humanitarian specialists.</i> <i>At the same time, DigitUni will contribute to avoiding the danger of over-technologization and over-digitization of the humanitarian knowledge and teaching process. As it is especially important for university professors in the humanities community not to lose focus in such crisis moment and not to swing too much in the digital direction at the expense of the humanitarian one. A balanced approach, considering the specifics of the humanitarian fields, like the DigitUni proposes, will have a serious resonance and impact in university circles.</i>	

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Executive Summary

The framework will first present the background and scope of the theme, the project idea and objectives, the target groups, and an analysis of their specific needs.

Afterward, it will introduce the work plan: what is the general approach of the project, and what pedagogical approaches are used in structuring the intellectual outcomes of the projects.

It will then provide details about the structure of the training process through brief descriptions of the intellectual outputs of the project: DigitUni Toolkit, Manual on hybrid / online education, E-platform and interactive repository and their implementation process and Networking strategy for partnership between digital companies and humanities departments; as well as describing the subject matter of the materials and the main instructions for their development.

The framework will conclude with an overview of the testing and evaluation process of the outputs produced in the project.

With this structure, the Framework will provide an outline, a roadmap, and the main elements of the organization and training process that will lead to the achievement of the project objectives.

The framework development is based on the partners' best practices and their experience in developing teaching courses in HOE, plus the partnership with IT experts who will offer their perspectives and explore appropriate solutions to specific problems in the humanities field. The Framework will also reflect the requirements of target groups and key stakeholders and the most appropriate pedagogical models and practices in the field.

The consortium will try to make the training program as interactive and multidimensional as possible to cover as much as possible the wide range of challenges faced by university professors, assistants, and young researchers.

1 INTRODUCTION

The Methodological Framework aims to outline and describe the work vision, partners' approach, and methods in developing the project content and its delivery.

The project's main aim is to develop the digital competencies of humanities academics to deliver quality educational content adapted to the contemporary context in an online or hybrid educational environment (HOE).

The pandemic context of recent years has brought many challenges to the education system. There are many studies in this regard in the literature that have highlighted the challenges, methods of coping with these changes, and the benefits that these challenges have on the education system. In the article "Unprepared humanities: A pedagogy (forced) online", Harouni (2021) presents several experiences and challenges that humanities professors and students have faced, as well as identifies several solutions that aim to promote an artistic approach to online education.

Some related challenges are the unpreparedness of teachers and students, the lack of face-to-face interaction, each participant's relation with time, space, and the change of individual and group norms produced by the moving from the physical to the digital classroom.

Of course, these challenges can be overcome and even turned into opportunities if we take a proactive approach to work with IT experts and other teachers who face the same challenges to develop the teaching and learning experience and adapt it to current circumstances.

As some of the participants stated in the small-scale research undertaken as part of this output to identify the target group's needs, the pandemic was an opportunity for them to develop their digital skills and use methods adapted to HOE. Of course, many felt forced and unprepared to use technology, and some still feel like that.

1.1 Goals

This project aims to help teachers in the humanities, especially those who make little or no use of technology in their teaching process, to improve their digital skills and be able to integrate such technologies more easily into their teaching process on an ongoing basis in the future and not using technology because they are forced, but because of the benefits for the educational process.

The specific goals of the project are:

- to raise awareness among university professors and assistants about the need to expand their digital competencies and about the great benefit digital resources & tools can bring to the education process (mainly in HOE).
- to improve the competencies of the university professors and assistants regarding the teaching and learning process in HOE and to help them keep the students engaged and motivated to learn during their classes.
- to enhance the drive for self-development and lifelong learning to better adapt to a fast-moving and dynamic environment and be more competitive, but also to attract and be better understood by the students.
- to encourage cooperation between universities and companies specialized in leading digital technologies development and implementation so that universities become more digital and innovative in their educational process.
- to facilitate the networking between different EU universities and to allow them to share experiences, discuss common problems, and exchange cooperation ideas.

1.2 Target group and stakeholders

The project's target groups are university professors and assistants as well as scholars in humanities departments who face the challenge of working and teaching in HOE and need to improve their digital competencies and skills without delay.

Other stakeholders are representatives and experts from IT companies who have important expertise and resources to support the digitization of the educational process but who have not been contacted by humanities departments and are unaware of cooperation possibilities.

2 NEED ANALYSIS

Therefore, to determine the best and most optimal approach, two small-scale research studies were carried out to identify the needs and expectations of the stakeholders.

We first applied a questionnaire-based survey to identify the needs and expectations of humanities professors and assistants (48 entries) regarding their level of digital skills and then used in-depth interviews (15 interviews of humanities professors and assistants) to discover how these needs could be met and the most appropriate approach to developing digital competence. Each partner facilitated the implementation of the methodology by sending the online questionnaire and applying the interview to selected stakeholders.

Here, some results of these two studies are highlighted:

- the respondents largely acknowledged the important role and place that technology occupies in academic work.
- respondents' experience of online or hybrid teaching was mixed. For some, the experience opened new ways of teaching and engaging students; for other respondents, the experience of shifting to online teaching was not only challenging but also a negative one.
- the most prevalent issues encountered when carrying out hybrid/ online environment (HOE) academic activities were the lack of pedagogical support to make learning activities sufficiently effective and/or attractive for students, the limitations due to the specificity of the subject (learning activities in my subject(s) do not easily translate into distance activities), and then the lack of time to understand and properly use digital tools and resources, the lack of educational content (digital resources) in the subject area, and the technical difficulties (platforms to be installed, not working, accounts and browsers).
- most respondents use basic digital tools in the educational process, such as strategies for searching for information in different media or formats (text, video, etc.) to find and select information; Internet browsing strategies (e.g., searches, filters, using operators, specific commands, using search operators, etc.); online communication tools: forums, instant messaging, chats, video conferencing, etc.; tools for managing information (using tags, recovering information, classification, etc.); software available in their university (e.g., grades, attendance, content, evaluating tasks, etc.); tools to create presentations; tools for the development of evaluation tests; basic computer maintenance tasks to avoid possible operational problems (e.g., updates, cleaning cache or disc, etc.).
- some advantages of hybrid/ online environment (HOE) learning from students' perspective are self-management of learning activity, access from anywhere, and flexibility, the ability to use online resources.
- the most striking disadvantage of a hybrid/ online environment is the lack of direct interaction (No opportunity for interaction).
- the main challenges of the online teaching experience reported were:
 - the need to fast adapt the whole learning experience, such as some complex exercises or teamwork.
 - to motivate the students to participate in the discussion and maintain their interest

- technical problems, especially low internet speed or poor internet connection
- the alignment of student learning outcomes and to assess/ evaluate the student's learning
- to separate working hours and non-working hours
- to manage time: the online experience is more time-consuming in order to create and place material on the educational platform
- to prevent students from cheating
- to get the students to know all the new tools on the platform that they are going to need for online classes.
- student assessment and evaluation. I felt that I couldn't properly measure the student's learning and understanding of the materials.
- and the main solutions to the beforementioned challenges of the online teaching experience were:
 - maintaining feedback with students, encouraging them to connect and take an active part by using interactive apps and other programs that permit different forms of communication
 - video connection between all participants
 - using different resources
 - giving specific individual tasks and assessments throughout the semester,
 - using motivation techniques and creativity.
- The most interesting aspects of digital skills development in the educational process to train for are:
 - gamification tools
 - cooperation and communication tools
 - creativity
 - how to design and manage a webinar
 - how to create high-quality videos, motion graphics, 3D modelling, and the possibilities of 3D projection mapping
 - screencasting
 - methodology of teaching online
- most favored learning tools when undertaking digital educational skills training are e-learning platform/online learning (interactive course), workshops and seminar that combines theoretical and practical units on-site, discussions/networking with peers, case studies, the use of textbooks/reading material, webpage (also available as mobile version), and Self-tests / self-analysis/quizzes/gamification.
- the most favored learning structures when undertaking digital educational skills training are online short modular self-study lessons (30 min-1 hour duration) and task-specific, short-term training.
- the most important features that a virtual learning environment should have are an easy-to-use and intuitive interface – a one-stop-shop with a single click that has overall functionality.
- as for the most appropriate form of assessment for them, the respondents provided an array of answers. For some of them, the best assessment would be by self-evaluation tests, problem-solving situations, projects, classical exams, or even without any assessment.

An extended report of the two micro-scale researches can be found on Gdrive in the file PR1_Needs analysis_DigitUni(UNITBV).

3 PLAN OF WORK

3.1 Definition and general approach

Based on the survey and interview respondents' choices, we chose to use in the project the following definition of digital competencies: “the ability to confident and critical use of information and communication technologies for information, communication, and problem-solving to improve teaching, learning, productivity, and performance in higher education.”

This definition, therefore, is well suited to the context of the project, the aim being not only to teach a range of tools that can be used in the HOE educational process but to develop digital skills that will enable humanities higher education professors and assistants to improve their teaching and their ability to use digital tools critically so that the learning experience is appropriate to their context. Also, by partnering with IT companies that produce digital learning tools, teachers can generate and adapt optimal educational solutions for the specific needs of their fields and provide high-quality, inclusive digital education in the hybrid process.

This project aims to strengthen the capacity of humanities teachers to provide high-quality, inclusive digital education by developing their digital skills and strengthening cooperation with experts in digital technologies.

To achieve this aim, the project will, specifically, strengthen and develop pedagogical skills and digital competencies by providing training materials to develop these skills and competencies in line with the specific needs of the teacher's field, also by adapting existing tools and creating new digital resources to develop innovative digital content.

In addition, the project will facilitate the networking between humanities departments and professors, and digital technology experts across the EU to exchange resources and expertise in the hybrid/online education process. By supporting collaboration between digital technology companies and university humanities departments, the project supports the development of customized digital solutions tailored to local challenges.

A project ambition is to encourage a more reflexive approach to teaching and learning in HOE through this collaboration between IT experts and humanities professors and assistants. This can become a source of inspiration for those interested in changing the perception of the educational process in HOE and improving the academic experience of participants in this process.

3.2 Pedagogical approach

Since the early days of online education, the versatility of this medium has been discussed. Kreber and Kanuka (2006) noted that online educational environments have the potential to allow the exploration and discovery of new pedagogical approaches, such as encouraging **participatory, inquiry-based, and social learning practices**.

The specialized literature appears to concur that online instruction differs from on-site instruction and, as a result, necessitates the creation of its own pedagogies (Baran et al., 2011). While the standard duties of educators can be adapted to the online setting, the opportunities and constraints of the new learning environment demand that teachers adjust their roles to provide students with successful and meaningful educational experiences (Coppola et al., 2002).

The use of technology is now interwoven into daily life. Technology plays an essential role in online learning since it facilitates, improves, and depends on it (see Hammond et al., 2018). So, online learning and the use of technology in the educational process have become a fixture in the educational process. The COVID-19 pandemic has demonstrated to many educators and educational institutions the opportunities that online teaching and learning have in a context where face-to-face interaction can no longer take place. However, even under normal conditions,

digital tools and interaction in HOE can enhance the learning experience and provide practical solutions to motivate participants in the educational process, especially digital natives.

Baran et al. (2011) argue that in order to help researchers and practitioners develop special programs and support mechanisms for online teachers in higher education, an alternative perspective is needed that views **teachers as adult learners who are continually transforming their sense of structures related to online teaching through an ongoing process of critical reflection and action**. This perspective is in line with the idea of the project, which aims to develop digital competencies that enable teachers in the humanities to critically and constructively use specific and modern educational tools to enhance the educational experience in their fields.

In HOE, one of the most important aspects of a successful learning experience is the students' autonomy (see Lee et al., 2015); the teacher is no longer the main actor in the educational process, which poses new challenges for teachers. Online teachers need to be guided in finding ways to support and facilitate their learners' independence and autonomy in the online environment. By encouraging students to acquire more independent levels of motivation, teachers can increase students' flexible involvement. Thus, one of the main approaches of this project is the **learner-centered approach**: focusing on the student.

Also, teachers should promote the creation of communities around their online teaching. Through the Digituni training program, teachers are immersed in the online learners' experience, enabling them to find solutions to support their own students' participation and autonomy. A proposed method to foster the learning process is to **integrate participants in collaborative working groups, building communities and supporting group discussions**; teachers will thus have the chance to participate in communities of practice and transform their teaching through the social construction of their knowledge and practices.

Following the **constructivist approach**, which encompasses the above-mentioned features, education is strengthened by social interaction, students develop their own meaning, new learning builds on existing information, and learning grows through "authentic tasks" (Cooperstein and Kocovar-Weidinger, 2004; Loyens and Gijbels, 2008). Education is built through active and constructive learning; each student must find, develop, practice, and validate knowledge in their field. The constructivist approach is appropriate for achieving the proposed aims given the three major principles: learners construct knowledge in relation to their prior knowledge, learning is an active process, and knowledge is socially constructed (Neutzling et al., 2019). Given the intended target audience, we can be sure that there is a solid prior pedagogical experience that enables them to recognize the **significance of previous experiences** and to apply new knowledge reflectively and critically, being able to accept or reject old information and beliefs according to the needs of their teaching field. Also, regulating their learning does not present a risk for this audience category. So, the DigitUni training program will be developed based on **peer and expert interaction, interactivity, and active learning** activities.

If we consider Cronje's (2020, p. 120) definition of **blended learning** as "the appropriate use of a combination of theories, methods and technologies to optimise learning in a given context," which refers to more than a combination of face-to-face teaching with computer-mediated means, but a combination of direct instruction and learning-by-doing, by mixing several educational methods (i.e., constructivism, cognitivism, and behaviorism) to get the best learning results than this approach will be suitable especially in a hybrid environment.

The materials will be structured so that they can be structured into both individual and collective learning scenarios, using and enhancing web 2.x applications and tools to facilitate collaboration and the development of communities of practice.

Another important aspect of developing the project is to **understand the challenges and opportunities of hybrid and online learning environments**. Bülow's (2022) structuring of the literature on designing synchronous hybrid learning spaces is relevant in this sense. By understanding the opportunities better, we can better face the challenges. Also, the study of Raes et al. (2020) compiles the strongest relevant studies from all around the world to give a comprehensive assessment of the state-of-the-art in research on the advantages, difficulties, and ongoing design concepts for synchronous hybrid learning. Based on these two studies, partners can develop materials that consider the constraints teachers face when teaching in HOE and highlight the advantages of this environment to provide viable arguments and motivate the target group.

As we observed from the needs analysis and as it stated above, participants in the two small-scale inquiries leaned towards online training, being **less constrained in terms of time and space**. They were also more interested in **short, interactive courses on online platforms with self-management of learning activities**. Thus, the project will focus on providing training materials on the project training platform with **few tasks and the possibility of self-assessment of knowledge**. Each participant on the training platform will be able to **choose which training materials they will use and how much time they will spend on the activity**.

3.3 The structure of the Training process

3.3.1 Project outputs

The consortium involved in this project is committed to delivering four high-quality outputs to achieve the proposed objectives. Of course, this Methodological Framework is the fifth output, but it is an internal working document that supports the project development and implementation process. The other four outputs that will be publicly available are presented below.

3.3.1.1 DigitUni Toolbox

The Toolbox is the core of the project, the cornerstone of the training process. Within the Toolbox, partners will develop a toolkit of digital resources and guidelines for their application in the HOE educational process. The Toolbox will also provide digital resources to support university humanities teachers in their teaching work. The aim of these resources is to develop their digital competencies so as to enhance the teaching-learning experience in the educational process.

This toolkit will be developed based on the needs of the target group and the hybrid and/or online educational environment, as well as current technological, economic, and social trends. Thus, several modules will be created according to the most important issues that the target audience is aiming at. All of these are based on the needs analysis carried out before the project and within the Methodological Framework.

The resources in the Toolbox will be up-to-date, relevant, and multidimensional; their presentation will be based on interactive and visual training methods. Thus, tools will be described through interactive presentations (using presentation software, e.g., PowerPoint) and, where possible, short videos. Partners will consult with local IT experts

with whom they have partnered to develop these materials. For each module, there will be a training file providing theoretical background and guidelines for using the tools, case studies, and quiz questions.

These materials aim to support the complex issues that teachers and teaching assistants face in the HOE educational process, supporting high-quality and inclusive digital education in the hybrid/online process.

The DigitUni Toolbox will undergo an internal review process and, upon completion, will be translated into all national languages of the project partners.

As a leading partner of this output, VIKO will provide the activity guidelines and schedule.

3.3.1.2 *Manual on hybrid/online education*

The DigitUni Toolkit is complemented by a training manual. This manual has been developed to explain to university professors and assistants in the humanities how to use the Toolbox and how to adapt their teaching style to fit the needs of HOE education.

In collaboration with IT partners, the Manual will provide customized solutions tailored to local challenges to extend the digital competencies of both teachers and students. The project partners and their IT partners will identify all the main principles and approaches for enhancing these digital competencies. The Manual will provide guidance on how these can be acquired, developed, extended, and put into practice during a teaching in the HOE.

It will contain descriptions of the pedagogical framework as specialized terminology and of the educational environments, as well as an overview of the status quo of European and national frameworks and approaches to this matter. It will also describe the competencies required to perform in HOE and how these can be developed to suit the needs of learners.

The Manual will guide how interactive tools can be used in relation to the methods used according to the specific needs and learning resources. It will also describe the difficulties that can arise when conducting academic teaching in HOE and how these can be resolved.

However, in addition to all this, the idea of the Manual is also to give the trainee enough freedom to customize the content, tools, and method and apply his or her approaches according to the specific dynamics of their teaching experience.

The Manual could also be used by the IT partners to better understand the process of university training in HOE so that they will be better prepared to work with higher education universities and form mutually beneficial cooperation.

As leading this output, FRAME will propose the initial structure and methodology of the Manual.

3.3.1.3 *E-platform and interactive repository*

The DigitUni E-learning Platform will be specifically tailored and developed for the needs of the project. It will be developed by UniPatras in parallel with the development of all outputs. It will thus be available for use together with the Toolbox and the Manual.

Through the DigitUni Platform the project outputs (Toolbox, Manual and Networking Strategy), various relevant training resources for both learners and teachers, self-evaluation tests of the training and a chat room where learners can discuss/connect with the trainer or IT partner experts will be available.

The main idea of the platform is to bring together in one virtual place all the project outcomes and to form an interactive project repository, which will be a good and useful pool of interactive resources, materials, and tools that

academic staff can use to improve their digital and professional competences for working in HOE. Thus, the target group will be able to use the repository to consolidate their knowledge and acquire new ones at their own pace and according to their own interest. The repository will also be a good database for further in-depth research on the topic, with a lot of relevant documents and tools gathered in one space.

The Platform allows for the possibility to follow interactive learning scenarios at the pace and time imposed by the learner, encouraging self-instruction by giving autonomy to the trainee while at the same time supporting the tutoring requirement by providing a link to experts.

3.3.1.4 Networking strategy for partnership between digital companies & humanities departments

The Networking Strategy presents the vision and objectives of the collaboration between humanities departments/humanities university professors and assistants, the context and environmental factors, the actors involved in the partnership and their implications for the collaboration process, the advantages and disadvantages of such a partnership as well as the main barriers and challenges to its development, the types of knowledge and skills developed as a result of the partnership, the strategy itself and priorities, and the implementation plan for the strategy.

The strategy will be based on all the outputs developed in the project.

It will be developed in the second year to make use of all the project outcomes. It will transform the theoretical model into a regional or national concept on how different humanities departments can cooperate and partner with advanced technology companies. The strategy for the creation of the network will be developed in close cooperation between the partners, the national IT partners, and the professors and academic assistants involved in the piloting.

3.3.2 Implementation

Based on this Methodological Framework, which is mainly based on the needs analysis of the target group, the consortium will develop training materials: DigitUni Toolbox, the Manual on hybrid/online education, and the E-platform and interactive repository of the project. Afterward, each partner will pilot the materials together with some exponents of the target group and IT experts. Based on their feedback and on the three materials produced, the partners will develop the networking strategy for partnership between digital companies & humanities departments which will then be piloted by each partner.

This strategy will aim at facilitating partnerships between humanities educational providers (universities) and technology solution developers for the education sector. The main strengths of such a partnership will be assessed, as well as the main barriers and issues that stand in the way of its development.

The figure below (Figure 1) illustrates the implementation process and its main features.

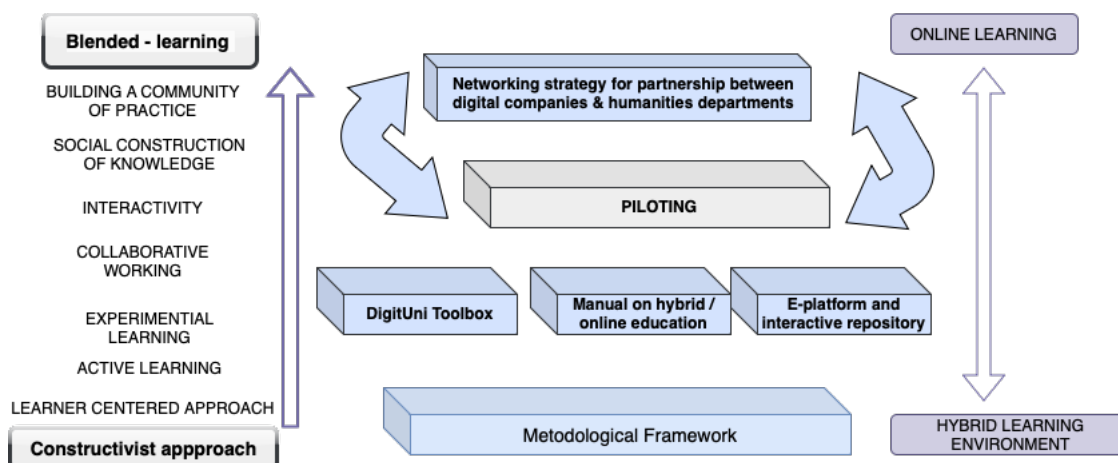


Figure 1. Operational outline of the DigitUni project

The formative dimension of the project determines the addresses. While our aim is to create a comprehensive educational framework for teachers in the humanities, we must not forget that without developing easily accessible material, adapted to the needs of the target audience and in an accessible language (for those who do not have a solid technological knowledge) we cannot achieve our goal of motivating them to use digital tools and demonstrating that its use can substantially improve the educational process.

The materials must be well documented according to the target group's needs, and the content should be laid out explicitly with practical relevance.

Training can take many forms: it can be both online and hybrid. What is important is a blended-learning approach, where participants can learn actively, applying the tools in specific contexts and where participants can interact with peers and IT experts. Participants will be prepared to deal with learning in HOE, developing digital teaching competencies, and the ability to communicate and interact with students online.

An important aspect of the project is to initiate and create a setting for interaction between educational providers in the humanities (academics) and software developers in order to facilitate the educational processes. Thus, the aim is to create partnerships between them, especially at the local level, to exchange ideas and adapt digital tools to the teaching-learning-specific requirements in the humanities.

Both parties need to be aware of each other and be able to have discussions about improving the teaching process in HOE. To facilitate these partnerships, the project consortium will bring IT experts to interact with the teachers in the piloting process and prepare a detailed strategy for university professors and humanities departments in universities to promote these partnerships with IT companies.

3.4 Training materials

The processes and learning experiences in Digituni training are shaped according to the needs analysis of the target group. Based on the results of the two small-scale studies, the partners structured the Toolbox training materials into 12 modules. Each of these modules is described below.

3.4.1 Modules

Module 1	Introduction to the concept of "e-learning process" This training material focuses on the generic introduction of the concept of the e-learning process in higher education. The adoption of e-learning has become a requirement at universities as it is enhancing the teaching and learning environment. E-learning incorporates numerous tools that provide academic institutions with efficient and effective ways to store, manage, share their academic resources and knowledge, and supplement their traditional way of teaching. To facilitate an effective e-learning process, the concept will be initially explained within this module with references to the current practices, tools, cases, barriers, and opportunities. The content of the Module will be composed of the main units – lessons where each one will include case studies and assessments. External resources and native material will also include videos and graphics.
Module 2	How to create digital resources This module includes description of tools that can be used for different kinds of digital resources: from the reading materials as PDF documents through infographics to videos. Apart from technical issues and instructions of using most popular programs, there is also part devoted to methodological issues: how to plan according to the aims, who to take care of different learning styles and how decide what kind of resources use according to the type of classes.
Module 3	Web 2.0 tools for online education This topic presents an up-to-date selection of collaborative educational online instruments that can facilitate the interactions between the participants of online classes and that can be used as part of the pedagogical methodology. These tools are developed under the Web 2.0 paradigm as the platform that represents the second version of the Internet and consists of all online tools, applications, and approaches, such as blogs, social networking sites, online communities, and customer review sites. The emphasis will be on the following subjects: (1) Learning platforms (such as Google Classroom, Microsoft Teams, Easyclass, Moodle, BigBlueButton etc); (2) Social-media platforms (such as Facebook) and telecommunication application (Zoom, MS Teams, Skype, Google Meet etc.), which can improve communication; (3) Applications for collaborative presentations (Padlet, Mentimeter, draw.io, miro); (4) Other tools and their

	utilizations: EyeJot, Kikutext, Disqus, Kahoot, ClassPager, DotSub, Vialouge, Paltalk, OoVoo, etc.
Module 4	Approaches for hybrid/online education process This training material focuses on the existing approaches for hybrid/online education process in higher education. Hybrid learning combines conventional classroom experiences, experimental and observational learning objectives, and online courses to deliver the best teaching method. In short, hybrid knowledge allows students to take classes both online and in person. Hybrid learning is an educational approach where students choose between participating online or in person. To facilitate an effective e-learning process, existing approaches of hybrid/online education process will be extensively discussed within this module with references on the current approaches, practices, benefits, tips for effective learning, cases, barriers and opportunities. The content of the Module will be composed of the main units – lessons where each one will include case studies and assessments. External resources and native material will also include videos, presentations and graphics.
Module 5	Communication strategies This training module focuses on communication strategies in e-learning process for higher education. Online communication a virtual modality to offer or receive information regarding a certain topic. Student's online educational needs are represented by activities developed by humanities professors that can keep their attention constantly, interactive learning strategies and digital resources for learning. This module also focuses on tools for presentation and public speaking in online classes.
Module 6	Tools for online communication Technology is to be credited for improving communication and teamwork in our institutions. Since we are no longer confined to the four walls of the classroom, we are no longer constrained by physical space for learning. Professors today have a wide variety of communication tools to select from because of the changes in communication methods brought about by technological improvements. In this module, we describe a list of the best communication tools for professors. To make it easier for you, we will divide them into categories: • communication tools for professors working together • communication tools for professors and students
Module 7	Collaboration in virtual environment

	Virtual environment limits communication possibilities because full non-verbal communication is not possible. Therefore, there is a need to strengthen cooperation by other means, which is possible by planning various activities that require collaboration. The module describes the possibilities of individual work with a student in a virtual environment, but also many possibilities of group cooperation: from the one based on the project method, to communication between the lecturer and the group. In addition, it contains tips on how to motivate to collaborate.
Module 8	Screencasting In education, the use of screencasting has grown significantly, primarily in secondary schools but also in higher education. Nowadays, screencasts are frequently used in tutorials, training videos, recorded presentations, video lessons, recorded procedures and answers to common questions and more. In this module, we describe diverse perspectives of this digital opportunity. Specifically, benefits of screencasting for professors and students, such as creating versatility, scaling your learning resources, support in staff training, and so forth; tips for high-quality screencasts; screencast software to start with.
Module 9	Creativity techniques The module will provide a short overview of some of the main creativity techniques & how they can be applied in a hybrid environment. The main techniques that will be described include: 5Whys; Attribute listing; Brainstorming; Circle of opportunities; Fresh view; Mind mapping; Plan-Do-Check-Act Cycle; SCAMPER approach; Six thinking hats; What If Analysis. The module will provide a short presentation of the creativity technique. It will also provide instructions on how this technique can be used in a hybrid environment.
Module 10	Tools for creativity encouragement The module will provide a short overview of some of the most commonly used tools for creativity encouragement. The module will focus on the following tools: Brainstormer; Brainsparker; SimpleMind; Get Unstuck; Autodesk SketchBook; Filmora; Evernote; Thinglink; WeVideo; Pinterest. The module will give a short presentation of each app as well as instructions on how it could be used in a creative thinking process.
Module 11	LMS MODULE

	This training material focuses on LMS use to develop, deliver, and track training for higher education. LMS usually have main functions: delivering/creating learning material, testing, checking student's work and grading their performance with in-depth comments, observing students' progress.
Module 12	Gamification module This training material focuses on gamification inclusion in the e-learning process for higher education. Gamified applications usually have one main function: testing and/or polling (may include game elements), Additional functionality may include: concepts and ideas (collaborative or individual), whiteboarding, creating visual content/infographics, presenting/sharing information, video recording, etc. In gamified applications, it is difficult to identify the participants who are online, as students usually log in without registering, by entering their name, and can log in unlimited number of times. The free version of the apps limits their functionality; additional or extended services can be purchased. Apps that are available without registration may be unavailable at some point without warning (e.g. due to system maintenance) or may be removed altogether.

3.4.2 Guidelines on the elaboration of content

For each output, the coordinating partner will be the one to set and discuss the structure and type of content accepted.

But in general, in developing the content for training materials, it is considered the following principles:

- Learning objectives, student expectations, and a clear vision regarding the training material must be presented from the beginning
- Emphasis should be on pedagogy rather than technology
- Employ accessibility practices to reach a wide variety of learners (*i.e.*, select accessible resources)
- Keep it simple, up-to-the-point, short, and flexible
- Build a content structure that is easy to navigate
- Employ collaboration and interactive activities to involve the participants and create communities of learning and support
- Respect the template and guidelines of the project

4 Testing and evaluation

The testing and evaluation of the project outputs aim to improve the educational framework and training materials to develop the digital competencies of the target group, but also to strengthen cooperation between universities

and companies specialized in developing and implementing advanced digital technologies for the development of an innovative education system.

Primarily, all materials will be peer-reviewed internally by the project partners. Then, an instrumental procedure in the evaluation is piloting.

Prism will develop the methodology for piloting and collecting feedback. The other partners will each organize a pilot course with at least five university professors and assistants, led by qualified trainers and a partner IT expert.

During the pilot course, each partner will introduce the partner's national IT experts to the trainees participating in the pilot courses. This will establish a relationship between the two groups. In addition, the IT partner will be able to share more of its experience beyond what is included in the course. University staff will be able to share their concerns and questions and receive concrete answers. Afterward, feedback will be collected. All participants (learners and trainers) will fill in an evaluation form before and after the end of the pilot. Prism will aggregate all reports and prepare a feedback report with all requirements and suggestions for revising the outputs.

At the target group's level, there will be quizzes and self-assessment activities for each module and the Manual. These are intended to test the level of knowledge at the end of each module, giving learners the opportunity to relate only to certain topics/modules of interest.

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