

ENHANCING ICT SKILLS OF MANAGEMENT EDUCATORS WITH THE OLMEDU MOOC AND TOOLKIT

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Abstract

The OLMedu project aims to tackle the challenge of digital transformation in Higher Education, particularly during the Covid-19 pandemic. The project recognizes the importance of providing support and training to higher education staff to equip them with the necessary knowledge and skills in information and communication technology (ICT) to support e-learning effectively. This is especially crucial in Management Education, which involves problem-solving and decision-making. This paper presents the creation, advancement, and implementation of a Massive Open Online Course (MOOC) designed to enhance the skills of higher education staff in online Management Education. The MOOC consists of eight learning modules and incorporates various tools to develop interactive and virtual reality educational scenarios and simulations, aiming to replicate real-life experiences and provide an immersive learning environment.

Keywords: MOOC, HEs, competence development, professional development, virtual tool.

1 INTRODUCTION

In the digital era, many stakeholders (European and National educational bodies, policy-makers, educators, and researchers in management education) have emphasized the contribution of educational technologies and many digital tools to improving the educational procedure. As a result, many educators have been engaged with these learning activities and even more during Covid 19. However, the pandemic has created challenges in the teaching-learning procedure in Higher Education Institutions (HEIs) and has influenced the engagement of teachers and students. Furthermore, due to the pandemic, HEIs were constrained to conduct their educational process with students exclusively online. As a result, higher Educational Staff (HES) are confronted with the need to adopt the online teaching-learning approach and semester examinations. Therefore, it is time to rethink this matter, emphasizing online education to adjust HE management education and improve online educational strategies to meet the students' expectations.

The OLMedu project (Open Lab for the up-skilling of higher academic staff in online Management Education) addressed the challenge of digital transformation in Higher Education (HE), which has been imposed in recent years, especially during the Covid-19 pandemic. This transformation has stressed the need to offer support and training to higher education staff (HES) to acquire the appropriate ICT knowledge and skills to support e-learning successfully. In Management Education (ME), this process is even more demanding as a set of social and economic studies associated with solving problems and decision-making situations. This paper presents the design, development, and implementation of a MOOC to upskill higher education staff in online Management Education.

OLMedu encouraged incorporating, experimenting, and sharing new approaches and online training methods in ME. It contributed to improving digitalization processes, and promoting future and transferable skills, in line with the goals pursued by the EU Commission through the Skills Agenda, the Higher Education Modernization Agenda, and the essential competencies framework. To achieve this, the project aimed to:

- a) Provide HES with the proper knowledge, skills, and competencies required to use technologies and tools of online training;
- b) Cultivate their ability to embed the appropriate pedagogies into the online environment, form their teaching-learning process using online methodologies adjusted to the training context of ME;

- c) Create training activities and learning material to be studied and followed by HES for them to effectively create positive online learning environments for their students and enable training them to collaborate, make decisions, and solve problems;
- d) Create the capacity of HES to develop online simulations and integrate them into their training-offering practice;
- e) Create an open-access learning repository to develop online training delivery skills and competencies for HES.

The rest of the paper is organized as follows. First, section 2 analyzes the methodology followed and provides information about the intellectual outputs 3 and 4. Moreover, in Section 3, the acquired piloting test results are captured. Finally, conclusions are outlined in Section 4.

2 METHODOLOGY

E-learning is frequently thought of as a single uniform product. The e-learning value chain, however, illustrates the market's heterogeneity and wide range of products (Elloumi, 2004). E-learning software can include authorware, virtual classrooms, examinations, assessment tools, or simulators in support of the establishment of e-Education or virtual campuses. There is a sizable supply of open-source and closed-source educational software to provide a respectable level of freedom of choice and a variety of opportunities to balance supply and demand. Commercial learning management system vendors already number in the many numbers. However, the wide availability of solutions has yet to lead to broad adoption. For example, Hilding-Hamann and Massy (2004) concluded that concerning e-learning, "poor quality procurement practices (in all sectors but especially in the public sector) are a barrier to growth and adoption."

Several applications have been developed to help educational institutions with content development, organization, delivery, monitoring student performance, and analyzing learning outcomes. These software applications are usually referred to as learning management systems (LMS), according to Black et al. (2007). They could help with the logistical and administrative training processes and the previously mentioned communication and assessment processes (Ninoriya et al., 2011).

A content management system (CMS) is a tool for managing and storing vast amounts of material, including text, photos, audio, and video. They also provide a range of content searches. On the other hand, LMS is an environment that manages learner activities, such as user access (login, etc.), course lists, user tasks, and appropriate information for support system management.

An environment for producing, maintaining, and retrieving material to promote learning is known as a learning content management system (LCMS).

- Because of its Learning object model foundation, its material may be reused in different courses.
- These systems may also publish information on a number of platforms or devices, such as the Web, Palm, etc., since they separate the content, which is frequently in XML format, from its presentation.

According to Cabero-Almenara et al. (2019), learning objects are independent content segments that are part of an educational object and may be combined with similar segments to construct lessons. This allows for the flexible creation and revision of teaching materials. The Sharable Content Object Reference approach (SCORM) is the most well-known approach for developing learning objects for the development of courses (Bohl et al., 2002).

A Virtual Learning Management System (VLE) was used for training and will act as a cooperation and support portal for the project's stakeholder community.

The VLE consisted of three different sections:

1. Academic Space: designed for trainers. It offered resources and teacher guides to facilitate the training processes.
2. Virtual OER Library: designed for the learners, an OER space freely accessible with material relevant within the project's scientific foci. It acted as a cooperation and support portal during the training delivery. The library was compatible with the Web Content Accessibility Guidelines (WCAG), Version 2.0, Level AA.
3. Community of Practice (CoP) online service supported the community of practice (CoP) of the project. This online service co-existed with the other services; all were accessible through the project

portal as complementary tools. The CoP service was open after registration and mainly supported community building and crowdsourcing. In addition, its services for registered users included virtual community development by supporting the synchronous and asynchronous collaboration of stakeholder teams among themselves and with external experts, the exchange.

In the scope of the Olmedu project, a platform was created to promote a blended learning approach. This e-learning platform is the outcome of tailoring the Moodle LMS to adhere to web accessibility protocols and incorporating the WordPress CMS to offer the necessary tools and forum spaces for a community of practice.

As seen in the following, the platform provides eight learning modules and a series of tools for developing interactive and/or virtual reality education-driven scenarios/simulations to replicate the experience in the best way possible, giving the feeling of real presence.

- Module 1: Distance Learning and Pedagogies in online management education
- Module 2: Design thinking approaches
- Module 3: Design and delivery of online training
- Module 4: Distance learning educational technologies, digital tools, and mobile applications
- Module 5: Web conferencing tools and online classroom management
- Module 6: Digital content creation and data protection issues
- Module 7: Online feedback, assessment, and monitoring
- Module 8: Digital Reality in management education

In addition, a toolbox was developed that supports the acquisition of skills needed for HES and provides them with the capability to define and develop simulation-based interactive ME scenarios. It provides them with the necessary ICT knowledge and skills to use such advanced digital tools to enhance their student's learning experience by applying experienced-based learning scenarios that enable them to cultivate problem-solving and analytical skills. The combination of the training and the toolbox enables HES in ME to shift from the traditional learning model to one that builds learning communities within the digital world, thus enhancing at the same time their students' learning experience.

2.1 IO3 Toolbox for developing on-line simulations in management education

The OLMedu Toolkit comprised at least one open-source tool identified in the desk research performed in this work and the web tool developed as part of the OLMedu technical development activities.

The developed tool provided the capability to simulate business management scenarios that enable educators to teach important principles to their students. The goal was to provide the developed online tool to simulate and replicate the experience as best as possible, giving the feeling of real presence, just like in the classroom.

These interactive and immersive simulations enabled teachers to turn students into the main actors in business management scenarios, represented as stories and allowed decision-making. This enabled the students to cultivate invaluable skills that prepare them to deal with more real-life complex management scenarios in the workforce. The idea in these simulation-based scenarios was to combine the power of digital storytelling, project-based learning, and immersive experiences offered by this tool to allow teachers to create business management scenarios that enable the students to make connections between the concepts taught in class and the real world.

The developed tool enabled the teacher to choose the type of media that they would like to use to create the business management scenario. The educator could assess his/her capability to create the scenario using the preferred media type. Therefore, the educator can choose between using the following types of media:

- Static Images - 2D Image-Based Interactive Story: These static images will form the background for each scene of the digital storytelling scenario.

The above allowed the educator to create 2D image-based interactive business management stories. Figure 1 shows an example scene of an interactive story created using such a media type for another learning domain as an Android application by Frederick University.



Figure 1. Example - 2D Image-Based Interactive Story

- Videos - 2D Interactive Videos: Each video provides part of the flow of the digital story in terms of the business management scenario and will be created by the teachers.

The above allowed the educator to create 2D interactive video stories resembling business management scenarios.

- Interactive Images – 360 degrees Interactive Panorama: Instead of static images, the educators will create/take 360 degrees interactive panorama images that form the background for each scene of the digital storytelling scenario.

The above provided a higher degree of immersion and experience to the students, who could execute the business scenario using a browser-based player or inexpensive Cardboard - Google VR to increase immersion, thus enabling the students to connect the concepts taught in class and the real world.

- Interactive Videos - 360 degrees Videos: The interactive 360 degrees videos were created by educators and will be uploaded and edited using the tool.

The above enabled the simulation of complex training business management scenarios. At the same time, the educators offered the capability for the students to have a more immersive experience since they can execute the business scenario using a browser-based player or using inexpensive Cardboard - Google VR to increase immersion and provide a comparable real-world experience.

Finally, the tool allowed the teacher to use different media types from the above for different scenes.

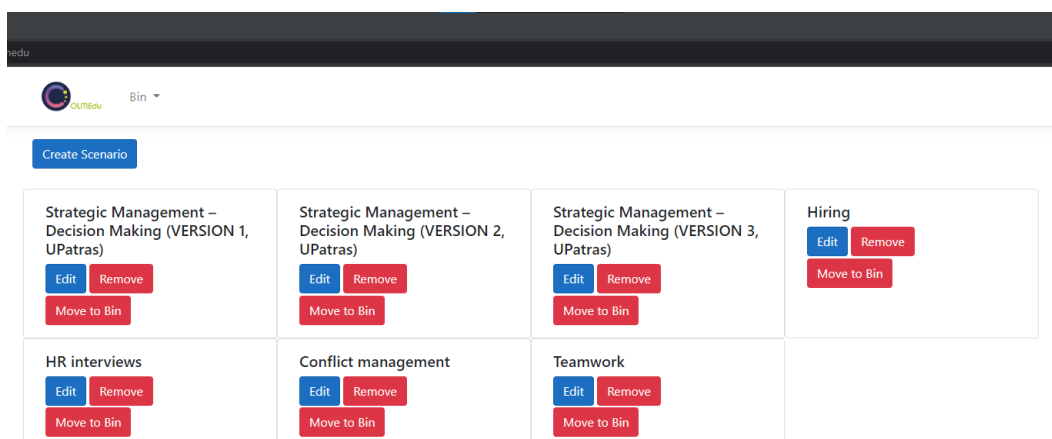


Figure 2. Olmedu tool

2.2 IO4 Online learning repository for HEI educational staff Overview

The platform which has been developed supports the online modules that are being used as core material in pilots of IO4, supporting the blended learning approach. This e-learning platform is the result of customizing the Moodle LMS in compliance with the web accessibility protocols and the WordPress CMS to provide the needed tools and forum spaces for a community of practice.

Also, it has been developed to support the training developed in Greek, English, and Italian as per the localization of the countries that will be involved in the piloting phase. Last but not least, the platform was customized to serve the needs of different user groups embedding curricula learning patterns, lessons, and translations of the materials in the piloting country languages.

The Olmedu e-learning platform was implemented using free/open-source solutions consolidated on the market based on well-known technologies. The selected solutions (Moodle and WordPress) were supported by a broad community of users and developers where one can find extras and plugins that add extra functionality. The platform combines four main elements in a seamless environment, offering a great user experience. The parts that the platform consists of are:

- H5p tool
- Olmedu tool
- Training material
- Community of Practice

The H5p tool is the directory where the user can create his/her content according to the training material they study. It can be accessed under the "Olmedu toolkit" menu on the main platform (figure 3).



Figure 3. H5P tool in the menu bar.

The user can access the Olmedu tool through the menu under the "Toolkit" option by selecting "Olmedu tool" (figure 4).



Figure 4. Olmedu tool option.

The core part of the platform is the training part, and the user can access it similarly to the Olmedu and H5p tools. The training material can be accessed via the "Training material" option on the main menu in the platform. Upon selection, the user is redirected to a page where he/she should select "Take this course" if it is the first time they navigate in the Olmedu platform in order to manually enrol and be able to select "Access this course" in the language they prefer. Below is a screenshot of how the training material has been displayed in the three languages (figure 5).

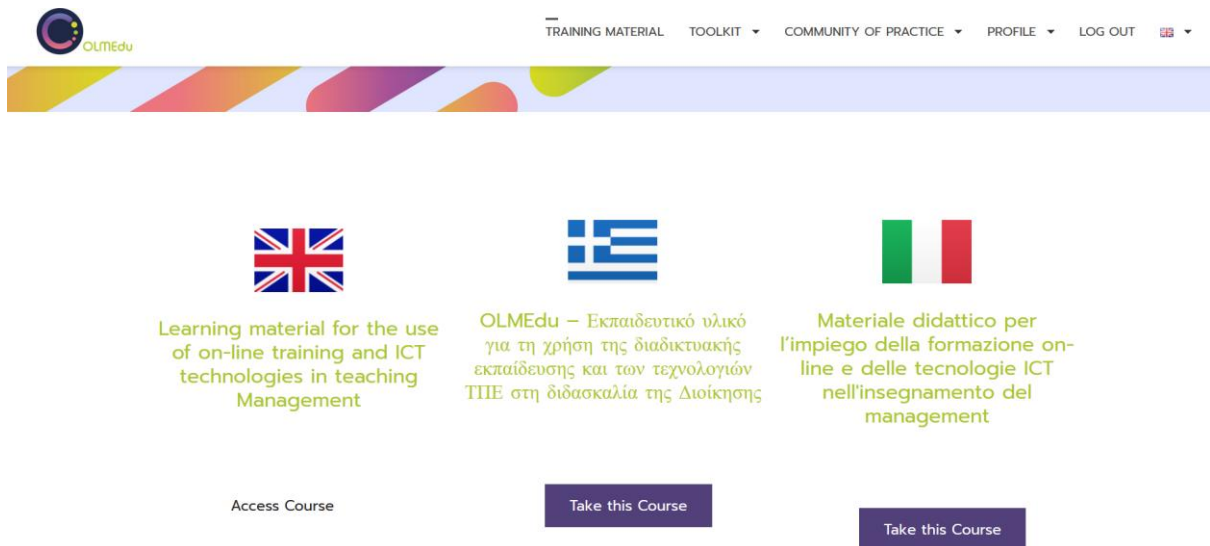


Figure 5. Training material selection screen.

Upon access to any course, users can navigate the material by selecting the topic they want to study (figure 6).

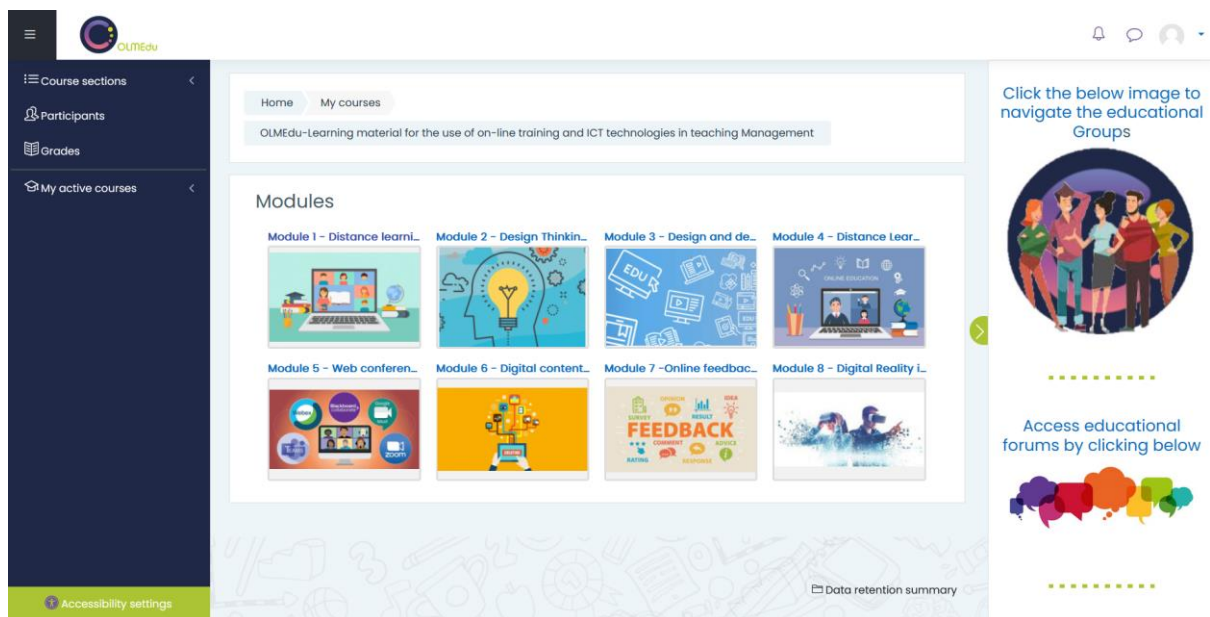


Figure 6. Training material in Moodle

2.2.1 Community of Practice

The Community of Practice area can be found under the “Community of Practice” selection in the main menu. The user can view the most recent activity on the platform and upload content such as images/text/hyperlinks, and attachments (figure 7).

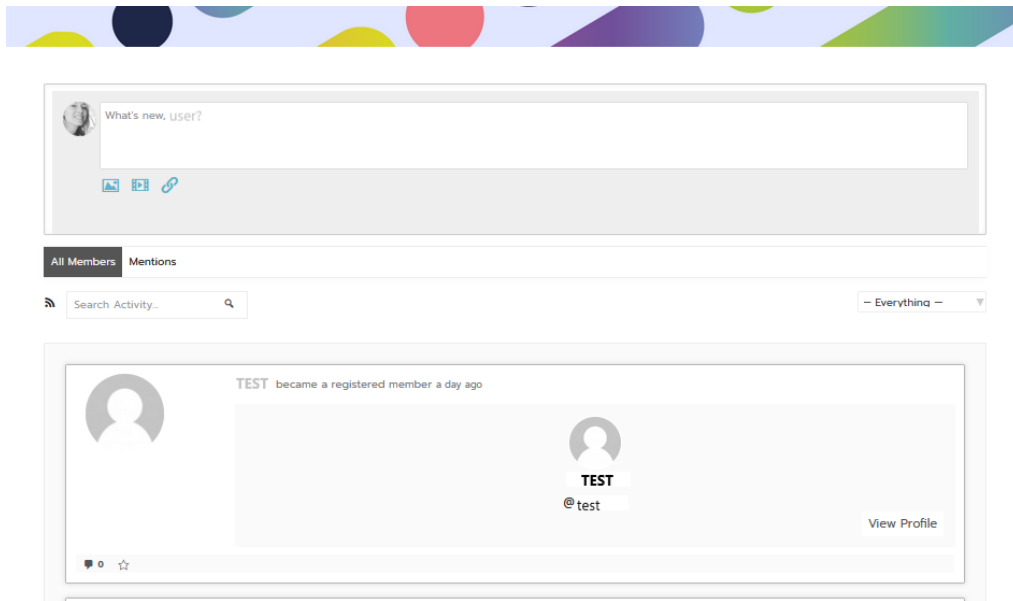


Figure 7. User main activity stream

Users can also navigate the educational Forums containing topics/discussions regarding the training material by selecting “Educational Forums” (figure 8).

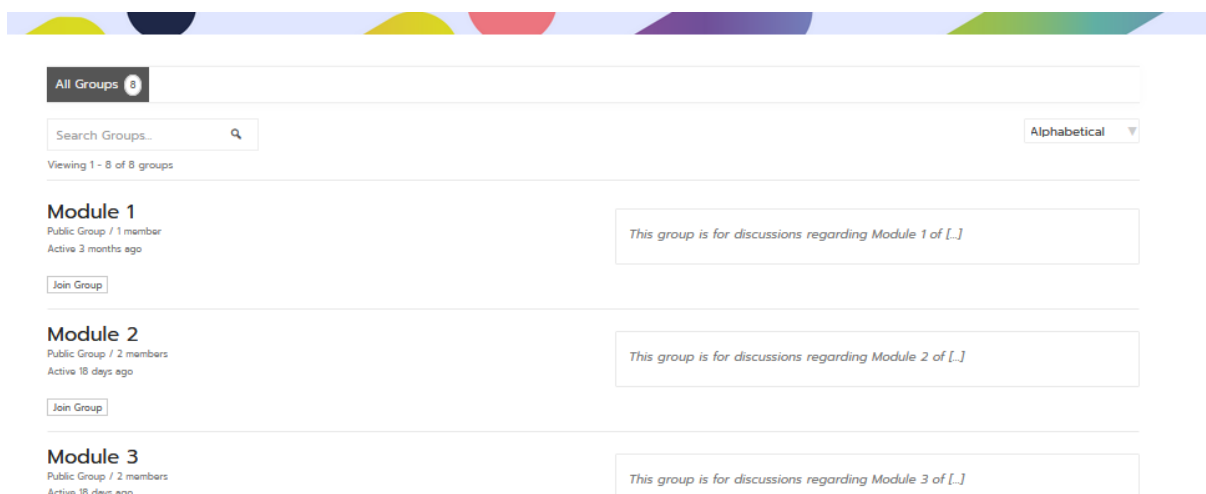
About the project > Forums gr

Search

Forum	Topics	Posts	Last Post
General forum	13	13	3 months, 1 week ago admin
Module 1 (3, 0), Module 2 (2, 0), Module 3 (2, 0), Module 4 (0, 0), Module 5 (0, 0), Module 6 (1, 0), Module 7 (5, 0), Module 8 (0, 0)			
News and Announcements	0	0	No Topics

Figure 8. Educational forums

Another option is the educational groups, which can be accessed by selecting the “Educational Groups” option for the user to view specific content regarding a Module of the training material (figure 9).



3 RESULTS

Regarding the platform evaluation, 8 HES from each country participated in the piloting phases, testing the operations and the online learning material, and provided their feedback during the execution of ten different scenarios.

The target groups mentioned were involved through:

- Project dissemination activities (website, social networks, etc.)
- Invitation and participation in multiplier events organized by partners in their countries
- Access to the online tools of the project
- Information provided via the website of the project and the project partner's websites

The test participants were generally satisfied with the platform and its capabilities. The innovative aspect of this project is that, with the platform's help, participants may receive clear guidance and direction on the tools that will assist in teaching the most effectively based on their tastes, thoughts, and areas of expertise. Most of the pilot participants would recommend using the platform to their colleagues.

Regarding the Olmedu Toolbox, the evaluation process has provided the framework of evaluation and aimed to identify and record the issues and difficulties faced by HES in the preparation of the simulations. The piloting activity defined two education management scenarios/simulations using the toolbox.

The participants exchanged ideas and experiences on the topics of the project and its results. The pilot was attended by Higher Education Staff in Management Education with an interest and professional link with remote teaching, wishing to understand and potentially benefit from the OLMedu toolkit for tackling the existing problems regarding their teaching experience. The questionnaires given following the pilot testing evaluated the OLMedu tool and the results of the piloting, and the evaluation of the open-source tool H5P. The suggested methodology and practices used in the pilot testing proved highly efficient. The applied methodology followed the guidelines of the Protocol Plan. The participants were satisfied with the presentations before the pilot testing, which gave them a brief overview of the project. Most of them showed an overall appreciation for the H5P tool, mostly rating a high number of all the questions. All the responders were highly satisfied with the H5P tool for the OLMedu project and other activities.

4 CONCLUSIONS

The Covid-19 pandemic has impacted education unprecedentedly, affecting learners and educators worldwide. UNESCO reported that in April 2020, over 1.5 billion students and young adults were affected by school and university closures. As a result, HEIs experienced a rapid shift to digital learning, hastening their digital transformation. However, this transition has been challenging, particularly for HEIs. While some institutions have successfully adapted to online teaching, others need help delivering courses designed for physical classrooms. The pandemic has also highlighted the shortage of digital skills among educators. To address this gap, digitalization is crucial, encompassing acquiring digital skills, exploring innovative teaching methods through technology, and using Open Educational Resources (OERs). Nevertheless, the availability of individuals with the necessary capacities and skills remains essential for successfully implementing this digital shift.

This work presents a MOOC for developing skills in management education, along with its design and methodology. The MOOC development was based on the e- Education framework, which aims to enhance professional skills in education. This paper describes the process and toolset used in the training program while its first evaluation, which took place in 2022, was presented.

Pilot testing for the evaluation of MOOC results was held in all countries participating in the OLMedu project. The participants of the pilots got excited with the idea that a personalized scenario could be created for everyone going through the OLMedu project. The innovation of this project lies in the idea that the participants can have clear guidance and direction on the most valuable tools that support teaching based on their personal preferences, ideas, and expertise.

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