Design of MOOC "Innovative Teaching: Essentials of Digital Creativity and Hybrid Learning" for providing micro-credential for educators

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Abstract

The article presents the preliminary results of the research conducted as part of the Erasmus+ project 101082858 CRED4TEACH "MOOC-based micro-credentials for teacher professional development". Some contradictions of professional training of future educators are given. To overcome them it is advisable to implement micro-credentials. The design of the MOOC "Innovative Teaching: Essentials of Digital Creativity and Hybrid Learning" for teachers, tutors, lecturers, instructors, and students of pedagogical specialities is presented. The course is designed for 90 academic hours so students will receive 3 ECTS. It includes self-study of theoretical material, completion of practical tasks, and a final project. The aim, target auditory, lists of competencies and learning outcomes, structure of MOOC are presented in the article.

Keywords

higher education, online, MOOC platform, teacher, digital transformation, digital learning environments

1. Introduction

Higher education in modern conditions faces many challenges that require urgent solutions. In our opinion, they all fall under such important tasks as ensuring the quality of professional training and contributing to developing the personality of future specialists. This also applies to teacher education. It should be remembered that educators will play one of the leading roles in the post-war recovery of Ukraine. In particular, they will work on restoring education in the de-occupied territories and overcoming educational losses.

The professional training of future educators in higher education institutions is characterized by several problems that are difficult to address within a single publication. In the framework of our study, we highlight the following contradictions:

- between the need to provide students with in-depth knowledge of psychology, pedagogy, and subject specialization and the intensive updating of scientific content;
- between the clearly defined list of competencies and learning outcomes and the need of stakeholders (students and employers) to expand professional capabilities and skills;

- between the clearly defined study period for obtaining an academic degree and the need to acquire specific additional skills for a short time.

One way to overcome these contradictions is implementing a micro-credentials system at the national and institutional levels, which is one of the trends in the development of higher education in Europe [1, 2, 3, 4].

For this purpose, it is advisable to use various digital education tools that allow educational content to be delivered to many learners in a convenient form, organize interactive learning, and reach a wide range of individuals interested in quickly acquiring additional qualifications.

The purpose of the article is to present the preliminary results of designing the MOOC "Innovative Teaching: Essentials of Digital Creativity and Hybrid Learning" which is aimed to provide micro-credential in innovative digital pedagogy for educators.

2. Literature review

For purposes of our research, we need to examine two main objects: micro-credentials and Massive Open Online Courses (MOOCs).

According to Rory McGreal and Don Olcott Jr., "Micro-credentials are certified documents that provide recognised proofs of the achievement of learning outcomes from shorter, less duration, educational or training activities" [2]. The the essence and destiny of micro-credentials are presented on figure 1.
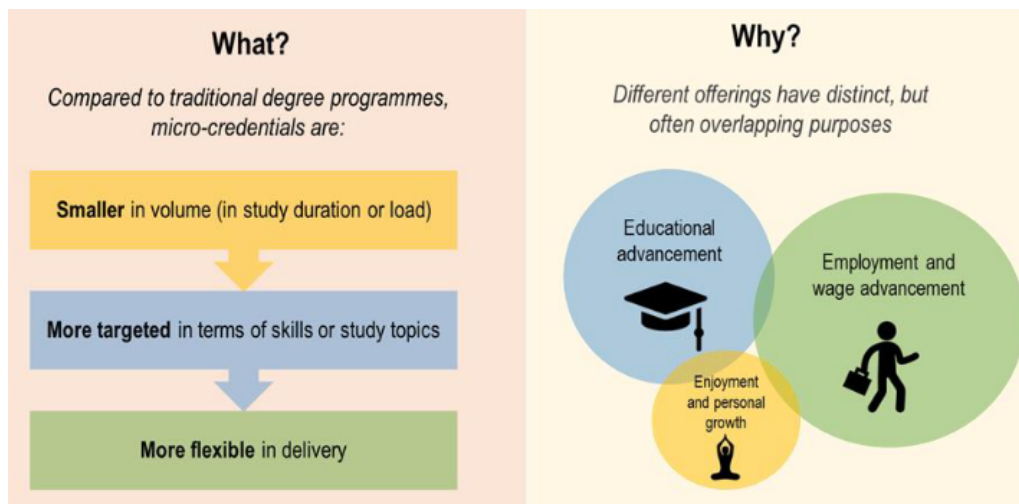

Figure 1: What are micro-credentials, and what are they for? (Source: [4]).

To summarize the literature review findings, we can conclude next:

1. Benefits of micro-credentials in professional development:
   - micro-credentials offer rapid upskilling for the workforce and potential pathways for gaining employment [5];
   - learners seek short, practical, and up-to-date courses for their chosen career path, while employers want clarity regarding the competencies gained through micro-credentials [5];
   - they can help workers tighten the 'skills gap' and ensure continuous professional growth by keeping up to date with relevant and emerging practices [2].

2. Impact on traditional education systems:
   - implementing micro-credentials can be disruptive in the higher education sector and present several challenges, but these challenges are likely to be mitigated by increased collaboration among stakeholders [5];

- micro-credentials are still at an early stage of development, and further research is required to evaluate their viability and effectiveness in the long term [6].

3. Challenges of implementing micro-credentials in the workplace:

- challenges include a lack of clear definitions, ambiguous course descriptions, lack of accreditation and quality assurance, unclear remuneration policies, and lack of coordination between learning hours and learning outcomes [7].

4. Role of micro-credentials in the future of work and employment:

- micro-credentials are becoming prevalent as a means of upskilling and reskilling the labor market and for achieving academic advancement and personal development [2];
- they are increasingly considered a key mechanism through which to empower learners by enabling flexible upskilling and reskilling [8];
- the potential of micro-credentials lies especially among educational institutions and the networks of institutions innovating beyond traditional study offerings and programmes [8].

E-learning is an effective modern form of obtaining micro-credentials. For example, massive open online course (MOOC) platforms give convenient opportunities to deliver learning content to many students. So, they can be used as an environment for short-term training of teachers in a micro-credential framework. Researchers are examining different aspects of using e-learning and its means to give micro-credentials to all interested in additional credits or qualifications [9, 10, 11, 12, 13, 14, 15, 16].

3. Research result

According to the tasks of the Erasmus+ project "MOOC-based micro-credentials for teacher professional development", we need to create the MOOC for educators. This task consists of such sub-tasks:

- to formulate micro-credentials;
- to define the target audience of the MOOC;
- to define the purpose of the MOOC;
- to define learning outcomes;
- to design the structure and content of the MOOC;
- to choose the platform for developing the MOOC;
- to create the MOOC;
- to offer passes for obtaining micro-credentials.

We analyse some micro-credential platforms, e.g. [17, 18].
The Future Learn Platform [17] offers 9 teaching micro-credentials. The most interesting for us are:

1. Online Teaching: Creating Courses for Adult Learners. This micro-credential develops the skills to create online courses, and the ability to teach adults online. Students will receive 15 UK credits at the Postgraduate level (figure 2).
2. Online Teaching: Evaluating and Improving Courses. This micro-credential develops the skills to evaluate the success of online teaching and enhance students' remote learning experience. Students will receive 15 UK credits at the Postgraduate level.
3. Online Teaching: Embedding Social, Race, and Gender-Related Equity. This micro-credential discovers how to embed equity in online teaching and support equitable participation for all. Students will receive 15 UK credits at the Postgraduate level.

According to FutureLearn Platform [17], obtaining micro-credentials consists of such steps (figure 3):

- online learning with expert instructors;
- completing project-based assessments;
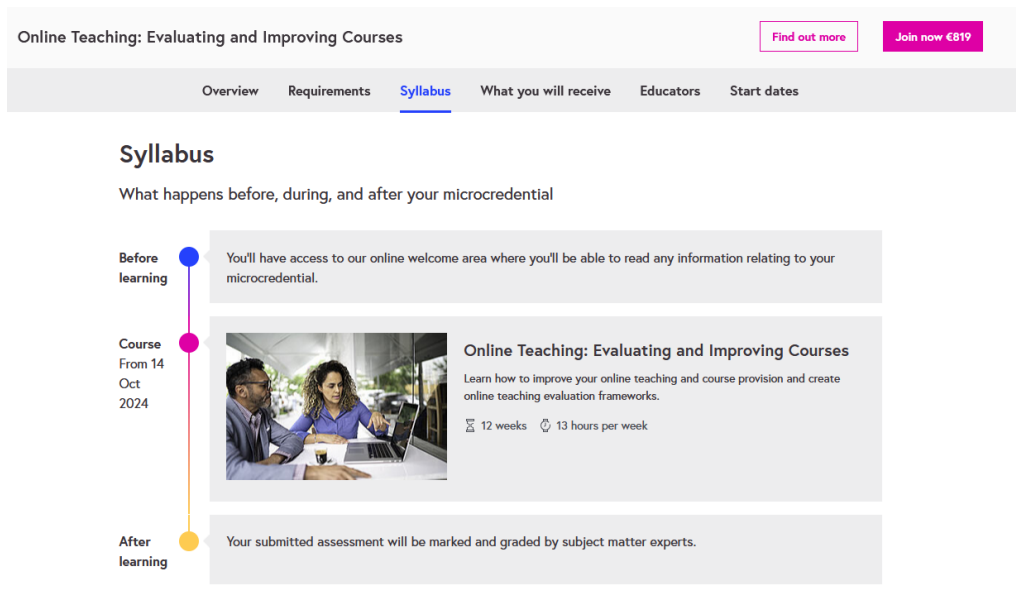- earning a professional credential.

Figure 2: "Online Teaching: Creating Courses for Adult Learners" course page (Source: [17]).
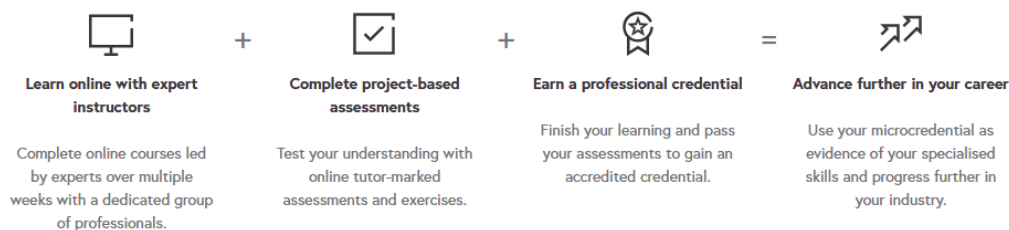

Figure 3: How to get micro-credentials (Source: [17]).

The Microcreds Platform [18] offers different teaching micro-credentials for those who are interested in digital educational technologies, e.g.:

1. The course "Blended Learning and Teaching" aims to develop the capabilities to incorporate digital learning practices, tools, and strategies in academic contexts. Students will receive 10 ECTS.
2. The module "Designing and building interactive online training" aims to practice and develop multimedia digital skills, develop strategies for effective planning, creativity and visual design and build online interactive multimedia. Students will receive 5 ECTS.

Based on the exploring different aspects of the digital transformation of education, we decided to design the MOOC "Innovative Teaching: Essentials of Digital Creativity and Hybrid Learning". It is located on the Moodle platform of BK MSPU.

The target audience of this MOOC is teachers, tutors, lecturers, and instructors, who are interested in obtaining additional micro-credentials in educational digital technologies and its creative using, as well as students of pedagogical specialities.

The purpose of the course is to provide a comprehensive understanding of educational digital technologies and their application in the academic context, as well as methods of conducting professional pedagogical activities using various types of digital technologies (interactive technologies, distance learning, MOOCs, Metaverse, artificial intelligence).

List of competencies acquired during the study of the course:

- ability to learn and acquire modern knowledge in the field of digital technologies;

- ability to understand and assess the level of digital literacy; foreign language skills;
- skills in using interactive learning technologies;
- ability to conduct distance learning;
- ability to use modern digital technologies and specialized software in the educational environment;
- skills in using artificial intelligence technologies in education;
- ability to manage the development of software projects for educational purposes.

Learning outcomes. Graduates should be able:

- to search for, process, analyze, and evaluate information related to professional activities;
- to apply tools to assess digital literacy;
- to understand the features of communication, interaction, and collaboration in international cultural and professional contexts;
- to use interactive technologies in professional activities;
- to apply software for distance learning and provide educational and methodological support;
- to use specialized software and modern means of storing and processing information;
- to use artificial intelligence technologies in education;
- to manage the process of developing software projects for educational purposes.

The course is designed for 90 academic hours so students will receive 3 ECTS. It includes self-study of theoretical material, completion of practical tasks, and a final project. Students are provided with educational videos, primary and supplementary text materials, tasks for developing practical skills, and more.

The MOOC content covers subjects necessary to develop skills in creative and effective using digital technology in education. It consists of two modules, both of which have final tests. We present the structure of the course in table 1.

To obtain micro-credential in the field of digital creativity and hybrid learning we offer two passes:

1. Self-paced learning. This approach is used for simultaneously training a large range of students who are in different settings. Students perform all tasks fully self. They can upload their materials to the MOOC environment for peer-reviewing by other participants, take part in learning discussions through special tools, and have quizzes and tests. Instructors do not give feedback to students. The main forms of assessment are self and peer assessment. To obtain the micro-credential they should accomplish the final project.
2. Teacher-guided learning. This approach is used for training small groups of students in conditions of formal academic institutions. Lecturers and instructors conduct online real-time classes (lectures, discussions, games, collaborative work, etc.), manage students' projects, provide feedback, and assess students' learning achievements.

At the moment the course is designed and in the process of creating. Here we present the introductory page (figure 4).

As we consider, the implementation of our MOOC will allow to overcome contradictions formulated in the Introduction, particularly will give opportunities:

- to deliver in-depth content about up-to-date educational technologies and to renew it timely;
- to combine standards demands with the needs of stakeholders through formulating extended lists of competencies and learning outcomes;
- to define the term of obtaining micro-credentials.

Table 1
Course structure.

Subject	Theoretical study (hours)	Practical tasks (hours)
Module 1		
Introductory lecture	0.5	
From the Calculator to the Supercomputer	2	
Computer Networks and Their Applications	2	
Digital literacy of the teacher and citizen		8
Software the heart of computing	2	
Data: From Binary Element to Intelligence	2	
Interactive tools and technologies		8
Technology Building Blocks	2	
Some Areas of Application	2	
Online tools during distance learning		8
About the Digitalization of Society	2	
Societal Issues	2	
Test 1		0.5
Module 1 Total	16.5	24.5
Module 2		
Industry 4.0: Definition and the Acceleration of Innovations	2	
Future Skills	2	
Digital skills in education		8
Digital technology for educational consumption	2	
Basics of creation and development of IT products		8
Massive open online courses	2	
Step into the Metaverse	2	
A Virtual Learning Environment seen as a System of Instrumented Activities	2	
Artificial intelligence in education		8
Why Digital Transformations Fail	2	
Test 2		0.5
Closing lecture	0.5	
Module 2 Total	14.5	24.5
Final Project		10

4. Conclusion

The professional training of future educators is characterised by different contradictions. To overcome them it is advisable to implement a micro-credentials system at the national and institutional levels.

We designed the MOOC "Innovative Teaching: Essentials of Digital Creativity and Hybrid Learning" for teachers, tutors, lecturers, and instructors, who are interested in obtaining additional micro-credentials in educational digital technologies and its creative using, as well as students of pedagogical specialities. The course is designed for 90 academic hours so students will receive 3 ECTS. It includes self-study of theoretical material, completion of practical tasks, and a final project.

To achieve the research goals, it is planned to develop institutional micro-credential policy, complete the development of the MOOC (design and upload necessary theoretical materials, create a set of tasks for assessing participants' learning achievements, develop tools for interactive learning, etc.), conduct a pilot evaluation of the course within the educational process, develop recommendations for providing micro-credentials using the developed MOOC, and adapt BK MSPU infrastructure to MOOC-based micro-credential delivery.

Figure 4: Introductory page of the MOOC "Innovative Teaching: Essentials of Digital Creativity and Hybrid Learning".

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