

Distance Learning and MOOCs: Addressing the Evolving Needs of 21st-Century Learners

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Received on 30 November 2025

Accepted on 20 December 2025

Abstract

The increasing complexity of societal challenges significantly impacts educational systems, necessitating continual adaptation and innovation. In the Republic of Moldova, such transformations are particularly significant as the education sector strives to respond to diverse learner needs and align with global advancements in education. This study addresses the scarcity and restricted access of MOOCs (Massive Open Online Courses) in Moldova. It seeks to conduct a comprehensive needs analysis within the Moldovan educational context to assess the demand for MOOCs and explore their potential to address learners' special educational needs. The present research examines the possibilities of integrating AI in MOOC design and implementation and identifies systemic barriers to their development and adoption. To this end, the research takes a mixed-methods approach, combining regulatory analysis to ensure policy alignment with surveys designed to collect insights from representatives of various educational institutions. The research findings could lay the groundwork for further improvement of distance learning through MOOCs tailored to a range of special educational needs and the promotion of accessible, sustainable, and high-quality education.

Keywords: MOOC, distance learning, special educational needs, sustainable education

Introduction

The numerous societal challenges that directly influence everyday reality leave their mark on the educational system, causing it to undergo continuous transformation. It must keep pace with the latest innovations in the ICT field to address the growing diversity of educational needs among learners. Innovative educational technologies support the traditional teaching-learning-assessment process, providing teachers with valuable assistance in ensuring sustainable education.

Within this dynamic context, distance learning has evolved from a complementary educational option into a strategic response to global demands for flexibility, accessibility, inclusion, and lifelong learning. Among the most influential developments in this area are Massive Open Online Courses (MOOCs), which have reshaped access to knowledge by offering open, scalable, and technology-mediated learning opportunities. MOOCs are increasingly associated with the principles of sustainable education, as they promote educational equity, support continuous professional development, and enable learners to acquire relevant skills regardless of geographical, economic, or institutional constraints.

Despite their proven potential, the integration of MOOCs into national educational systems remains uneven, as evidenced in the Republic of Moldova, where their adoption remains underexplored. This lack of research is particularly significant given the growing diversity among learners, including students with special educational needs, which highlights the need to design digital learning environments that are inclusive, adaptable, and pedagogically effective.

In response, this study aims to examine the current state of MOOCs in the Republic of Moldova in terms of availability and accessibility. Through a mixed-methods needs analysis grounded in the Moldovan educational context, it seeks to identify barriers to their adoption and assess their potential to support teacher professional development and learners with special educational needs, and outlines pathways for their effective integration. Building on the findings, the study proposes the development of a MOOC with AI-integrated tools to provide adaptable, inclusive, and effective learning experiences for students with learning needs and difficulties.

By addressing existing gaps in availability, awareness and by integrating AI-assisted solutions, MOOCs have the potential to become a sustainable and inclusive component of the Moldovan education system, enhancing both teacher professional development and student learning outcomes.

Adoption, Practices, and Research Perspectives of MOOCs in Moldova

The emergence of massive open online courses represents a significant development at the intersection of online and distance learning, offering accessible educational opportunities globally (Oza, 2022). Traditionally, distance learning refers to any educational scenario where the instructor and learners are geographically separated, utilizing various media, from closed-circuit television to early internet technologies, to bridge this physical divide (Maclean et al., 2001). This includes methods such as correspondence courses, teleconferencing, and primary forms of virtual classrooms (Aktürk, Çubukçu, 2021). In contrast, online education, though a branch of distance learning, refers particularly to teaching delivered entirely or primarily via the internet, often encompassing synchronous or asynchronous interactions (Yang, 2014). Still, the distinctions between online learning and distance education are often subtle, residing in nuances of delivery mechanisms and pedagogical approaches rather than overt technological differences (Kalmár et al., 2022). However, the onset of Massive Open Online Courses introduced a new dimension, emphasizing not just geographical independence and internet-based delivery, but also growth to unprecedented participant numbers and a philosophy of open access to educational content (Banister et al., 2015) (Castaño-Muñoz et al., 2013). This distinction is

crucial for understanding the evolutionary trajectory of digital pedagogy, as MOOCs fundamentally altered the accessibility landscape by offering free, non-credit-bearing courses to a global audience (Oza, 2022). This accessibility is a key differentiator, as traditional online education and distance learning often involve tuition fees and enrollment limitations, while MOOCs are generally open to anyone with an internet connection, aiming to democratise learning on a massive scale (Adarkwah, 2020). This open access, however, often implies a different level of institutional support and accreditation compared to structured distance education programs. While traditional online courses emerged earlier in the twenty-first century, MOOCs represent a pedagogical paradigm shift, challenging established norms by accommodating a vast scale of learners with minimal instructor feedback and often without formal certification as a primary outcome (Natan et al., 2022). Understanding how MOOCs have transformed learning worldwide highlights the need to analyse their emergence and adoption locally.

The substantial impact MOOCs have on the global higher education system prompts a need to assess the MOOC landscape in Moldova. Therefore, it is vital to examine the issue when planning to launch a MOOC platform in Moldova. It is, thus, important to answer two questions: *Are there any MOOCs in the country?* and *What research has been done on the topic?* Investigating the MOOC landscape also helps determine whether the courses exist in Moldova and identify any gaps in their offerings, subjects covered and how learners interact with them. At the same time, it is possible to analyse research studies on MOOCs, digital learning and Open Educational Resources in Moldovan higher educational institutions concerning digital infrastructure, teachers' and students' readiness and online education challenges. The study seeks to investigate what has been done so far and what needs to be considered to set the basis for launching a MOOC in Moldova.

Early attempts to adapt online learning in Moldova emerged through experimentation with Moodle-based open courses and Open Educational Resources (OER), particularly at the Technical University of Moldova, where locally developed "OER MOOC" initiatives reflected one of the first efforts to translate learning management systems into MOOC-style delivery. Building on these foundations, the following decade witnessed the development of project-based MOOCs, typically university-led, rather than sustained national platforms. There are some notable examples, which are worth mentioning, such as Moldova State University's collaboration with international partners to design a MOOC on Moldova and EU Integration in cooperation with Tartu Ülikool (Moldova State University; Tartu Ülikool 2022), the Horizon 2020-linked Renewable Energy Innovation MOOC (Horizon 2020 Moldova), and media and language literacy MOOCs supported by AICE (AICE). The projects were temporary and isolated and no national MOOC systems were established in the country. The COVID-19 pandemic (2020–2022) was an essential factor in implementing the remote format of teacher training. The Ministry of Education and Research also gave directions for distance education as well as professional development training (Ministry of Education and Research of the Republic of Moldova 2025). However, insufficient infrastructure on all levels is a significant limitation for the MOOC institutionalisation in Moldova. These initiatives laid the foundation for the subsequent MOOC projects in Moldova and project-based remote learning courses that drew lessons from previous attempts.

Over the past decade, Moldova has gradually developed its approach to distance learning, online education and Massive Open Online Courses (MOOCs). The early attempts to introduce online learning into universities have been reported in academic literature (Tîrșu, 2015). The universities' platforms such as Moodle were utilised to supplement face-to-face teaching (Tîrșu, 2015). The government initiated this project to modernise learning, promote students' access in rural areas and meet European standards. However, lack of infrastructure, inadequate digital literacy among teachers and students and cultural attitudes posed significant barriers. resistance to non-traditional educational formats. Around the same time, Ovidiu Voicu (2015) explored the potential of Open Educational Resources (OER) in teacher training, proposing a national distance learning center based on the MOOC model. Voicu's work emphasised advancement and flexibility as core advantages of OER and MOOCs, while also noting barriers such as limited teacher familiarity with digital resources and the need for localised course adaptation. Meanwhile, initiatives like the CRUNT TEMPUS project, as reported by Adăscăliței, Secieru, and Todos (2015), demonstrated practical strategies for integrating MOOCs into higher education curricula. By leveraging the Moodle platform, the project enabled universities to offer accessible, flexible courses and share educational resources, highlighting the potential of MOOCs to enhance teacher preparation and general higher education quality in Moldova (Adascalitei 2015).

The *English for Media Literacy* MOOC project, launched in Moldova in 2017 with funding from the U.S. Embassy and implementation by AISE.MD engaged 177 participants from across the country, organised into 12 regional groups under the guidance of local facilitators. The initiative aimed to enhance participants' media literacy skills through an online learning format while simultaneously introducing them to the concept of MOOCs. All participants successfully completed the *English for Media Literacy* course developed by the University of Pennsylvania and delivered through the Coursera platform (AICE 2017) (U.S. Embassy in Moldova 2017). This project represented a major step forward for digital education in Moldova and had a significant impact on promoting both English language development and critical media literacy skills nationwide.

In 2018, Roza Dumbrăveanu examined the challenges that higher education teachers in Moldova encountered when implementing OER. Dumbrăveanu's research underscored obstacles such as limited awareness of OER concepts, insufficient professional development, lack of quality assessment mechanisms, and infrastructural limitations, particularly in rural areas. Such findings echoed the broader issues identified in previous online learning studies, reinforcing the conclusion that institutional support, policy frameworks, and teacher training are crucial for the effective adoption of digital education initiatives. Rosa Dumbrăveanu reached a significant conclusion after conducting the project *Teachers' Continuous Professional Training through Development of Massive Open Online Courses*, implemented within the bilateral collaboration program Romania–Moldova. Her analysis of the responses (1740 teachers from Romania and Moldova) revealed that around 90% of teachers intended to study to update their knowledge, reflecting a strong interest in continuing professional development, while approximately 75% expressed a willingness to enroll in digital courses and MOOCs to achieve these goals. The study also identified the most popular topics among teachers, including the implementation of ICT tools in education, educational software, e-teaching, and

assessment strategies, highlighting the demand for targeted, technology-focused professional development opportunities (Dumbrăveanu 2018, 2020).

The start of the COVID-19 pandemic became the catalyst for the digital transformation of higher education institutions in Moldova. The impact of the sudden transition to e-learning on the Technical University of Moldova was analyzed by Turcanu, Siminiuc, and Bostan, revealing the success of the use of platforms like Moodle and Microsoft 365, as they ensured the continuation of the learning process despite the sudden stop caused by the pandemic. The authors reported the success of the transition, including the growth of the use of digital technologies, and the challenges caused, including the differences in the digital skills of teachers, inequity among students regarding computer and internet accessibility, and the importance of better instructional design. To provide a balanced view, Turcanu's 2022 paper on the University Management System highlighted the positive influence of the administrative digital infrastructure on the overall digitalization of the learning process, making it possible for universities to efficiently administer educational processes and incorporate e-learning into the usual activities of the institution (Turcanu, Siminiuc, Bostan 2020).

When it comes to country-level evaluations, such as the World Bank's Digital Education Readiness Assessment for the year 2021-22, it can be seen that it provides further explanation regarding Moldova's status within the context of digital education within its regional settings. The study focused on improvements within the delivery of digital connectivity and availability of learning equipment for pupils and teaching staff, yet highlighted inadequacies within the overall teaching and use of online learning resources. Again, evaluations on education within rural settings, like that of Bărbuță, Ghețău, and Iovu (2024), it was found that students' overall aptitude within middle schools is very likely associated with their overall engagement with technological tools and interactions with teaching staff, showing that a blended learning approach is most successful within settings where resources are less accessible.

Overall, this study reinforces the argument that politicians and institutions of learning need to make equitable access to reliable infrastructure and devices for students in general, and in rural areas in particular, a priority, including comprehensive teacher training in digital pedagogy to further advance digital and online learning in Moldova, as well as national strategies with regard to integration of OER and MOOCs into education curricula. Development of standards of quality assurance, inter-university cooperation, and long-term monitoring and evaluation mechanisms would help to maintain the dynamics of digital transformation. Addressing these areas systematically will enable Moldova to fully realise the distance education and MOOC potential for improving the quality and accessibility of education and lifelong learning opportunities for all learners.

In the light of the above, this research supports the notion that in order to further advance digital and online learning in Moldova, national strategies for OER and MOOC integration into education curricula must be implemented, policymakers and educational institutions must prioritise comprehensive teacher training programs in digital pedagogy, and all students, especially those in rural areas, must have equitable access to dependable infrastructure and devices. The pace of digital transformation can be maintained by creating long-term monitoring and evaluation systems, encouraging inter-university collaboration, and creating quality assurance standards for digital information. Moldova

can fully utilise MOOCs and online learning to enhance educational quality, accessibility, and chances for lifelong learning for all students by methodically tackling these issues.

Research Methodology

Since the goal of this study is to perform an in-depth needs analysis regarding MOOCs in Moldovan educational institutions, a questionnaire has been designed and distributed among teachers to collect data regarding their knowledge of and interest in MOOCs as well as to examine how they could be adapted to learners' special educational needs. Overall, 436 responses have been collected from teachers employed in various educational institutions throughout Moldova. The questionnaire was designed with 13 questions, including both open-ended and multiple-choice items, some of which permitted multiple responses. It aimed at collecting data about teachers' work experience, the subjects they teach, their familiarity with and interest in MOOCs, the ways MOOCs can be utilised in education, and the ways MOOCs can facilitate learning for students with special educational needs. In addition, the teachers were asked to suggest MOOC topics that appeal to them, as well as to write suggestions and indicate the institutions that offer such courses.

Apart from the descriptive data and the qualitative analysis grounded in the respondents' comments, a quantitative approach was employed since it allows a deeper insight into the availability of MOOCs across the country as well as the number of teachers who are unfamiliar or scarcely familiar with the concept. Data management and analysis were performed using the Likert scale to rate the respondents' opinions on MOOC courses importance and practicality for both teachers and students. Overall, the present study combines several approaches to ensure qualitative and quantitative data processing.

Findings

The first set of questions aimed to gain a detailed understanding of the teachers' activity in terms of the educational institution they belong to, the location, the subjects they teach, and their experience in using MOOCs. The results show that the respondents work in various educational institutions, with the majority representing secondary schools (49,8%), high schools (38,3%), primary schools (30,5%), and universities (9,9%). A lower number of respondents identified themselves as working in colleges (2,3%), vocational schools (1,4%), kindergartens (0,9%), and private schools (0,6%). In addition, the respondents represent a wide range of disciplinary backgrounds in schools (science and humanities) as well as diverse university courses. Regardless of the institution they represent, the respondents display different levels of work experience. The largest group (47,7%) have over 20 years of teaching experience, followed by teachers whose work experience ranges between 10 and 20 years (27,1%). The remaining respondents include teachers with 5-10 years of experience (13,1%) and the recently employed teachers whose experience is under 5 years (12,2%). These results, therefore, indicate that over half of the respondents have sufficient digital literacy skills and could be potential MOOCs beneficiaries.

An important finding is that most respondents either have never heard of MOOCs (38,1%) or have heard about MOOCs but never enrolled in one (39%). The number of respondents who completed one MOOC (9,9%) and the number of those who completed

several courses (13,1%) scarcely reach 1/3 of the total number of respondents. Moreover, only 12,2% of respondents were familiar with the educational institutions offering MOOCs in Moldova. The pie chart below shows the proportion of teachers who are familiar or not familiar with MOOCs:

Are you familiar with the concept of MOOCs (massive open online courses)?
 Note: MOOC – an online course for a large number of participants, which can be accessed from anywhere, is free and open to everyone, with no admission requirements, and offers a complete learning experience (such as courses offered by Coursera, Edx, Udemny, etc.).



Figure 1. Familiarity with MOOCs

Do you know any institutions in the Republic of Moldova that create and offer MOOCs?

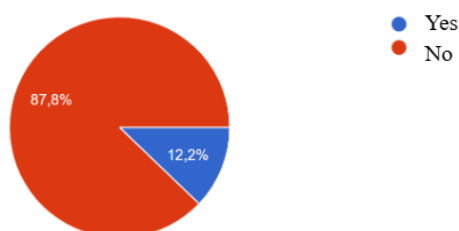


Figure 2. Familiarity with MOOCs Providers

These findings prove the hypotheses of scarcity of MOOCs availability in Moldova and the small number of institutions (four universities and one professional development Institute) offering such courses. Moreover, the access to some courses is restricted and is not available throughout the academic year. This indicates that the teachers cannot easily access MOOCs at their convenience but wait for the course to be launched when the group is formed or after the course fee is paid.

Further analysis shows that more than half of the respondents find MOOCs very useful (30,3%) and useful (54,1%) in the educational process for teachers and very useful (28,2%) and useful (51,1%) for students. The results reveal that Moldovan teachers acknowledge the need for MOOCs and regard them as valuable resources for professional development (71%), a useful database for diversifying teaching methods (58,5%), a space to ensure the continuity of distance learning in exceptional situations (45%), and as an

additional resource for students (29,1%). Surprisingly, only a minority of respondents (29,1%) consider that MOOCs can be used as an additional resource for students despite the overall acknowledgement of MOOCs usefulness for students. This shows that many MOOC features and settings that could be used by students remain undiscovered and underrated. Moreover, a number of respondents were not able to appreciate the usefulness of MOOCs for both teachers (13,1%) and students (14,2%), and a limited number found MOOCs to be of little use both for teachers (2,5%) and students (6%). They presumably belong to the respondents who never heard of MOOCs (38%) or heard of but never enrolled in a course. Despite the controversial data regarding the usefulness of MOOCs for teachers and students, it can be stated that most teachers have an opinion regarding the benefits of MOOCs in education. The differences between attitudes regarding the usefulness of MOOCs for teachers and students are highlighted in Fig 3 and 4.

How useful do you consider MOOCs to be for teachers in Moldova?

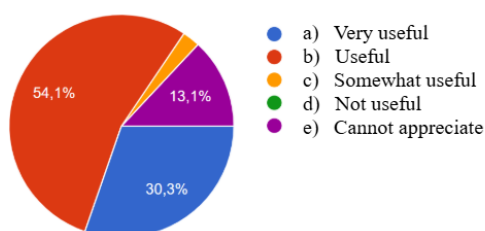


Figure 3. The Usefulness of MOOCs for Teachers

How useful do you consider MOOCs to be for students in Moldova?

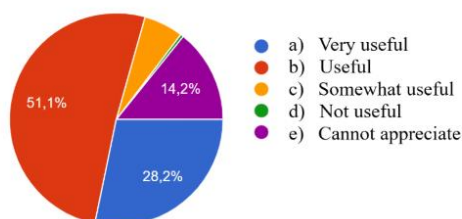


Figure 4. The Usefulness of MOOCs for Students

When asked to share ideas concerning course titles teachers showed interest in and the MOOCs they would like to enrol in, the respondents suggested various topics. For the purpose of analysis, these topics have been categorised into four groups. The first and the largest group of suggested MOOCs including 30 titles, belongs to the group of professional development courses. This choice is obvious since the respondents are teachers in various fields, who as life-long learners, look for the most accessible and convenient opportunities to strengthen expertise in the field they are teaching. Hence most course titles approach the diversification of teaching and assessment methods and procedures in subjects such as language skills, History, Arts, Pedagogy, Computer Science and current trends in fostering students' participation, interaction, and high-level skills such as problem-solving, collaborative learning, and critical thinking. A growing interest can be traced to courses encouraging inclusion in the classroom, finding reliable sources and adapting the learning content, teaching and assessment methods for students with special educational needs. This

concern for increasing inclusive teaching efficiency explains the existing gaps in the adaptability and flexibility of inclusive education. Furthermore, suggested MOOC titles reflect a surge of interest in the usage of AI in teaching, learning content adaptation, and assessment strategies. The inclination towards using AI, despite existing suspicions, is gradually gaining ground in the professional development courses since teachers become aware of the growing features of AI in education. The need for digital skills improvement is an area which is still given great attention and concern when choosing professional development MOOCs. The respondents incline toward learning more about the available educational platforms, digitization, gamification and interactive digital skills in education.

Apart from professional development MOOCs, the respondents suggested personal development MOOC titles related to the development of various types of literacy. Thus, the results show that teachers might choose MOOCs that would help them improve their digital literacy, AI, and financial literacy skills to align with the current demands in education. MOOCs that would cultivate emotional intelligence have also been suggested.

The questionnaire responses put forward ideas for developing MOOCs for specific subjects and purposes. 38% of suggestions highlight the need for MOOCs that teach English for general purposes and for specific purposes targeting beneficiaries of various levels and age groups. The interest in courses such as Academic Writing, Business Writing, and Creative Writing have also been outlined since they align with the current requirements of the academic world and the labour market. The remaining suggestions reveal the need for MOOCs in Maths, Economy, AI, Pedagogy, and Environmental Education, and Computer Science, disciplines that support the global goals that meet the demands of beneficiaries of various age groups and educational levels. All in all, the suggestions prove that teachers view MOOCs more as a source for professional development rather than one for student learning. This may be explained by the constant requirements for teachers to take career development training sessions and the low promotion of MOOCs among Moldovan students.

Despite the exhaustive list of suggested MOOCs, there were respondents who were unable to suggest any MOOCs or found it difficult to express their needs or preferences for one. This could result from poor awareness of what MOOCs might offer and their restricted accessibility in Moldova. Yet, despite the low rates of teachers having heard of or accessed MOOCs, more than half of the respondents could anticipate the benefits of MOOCs from the acronym and the brief description provided in the questionnaire. This indicates that concrete actions should be undertaken to address the knowledge gaps regarding the benefits and opportunities offered by MOOCs in terms of content format, adjustment, accessibility, and credentials whereas the educational authorities and the institutions authorised to offer distance learning courses should provide more substantial support in this sense.

The analysis confirms that the respondents have mixed perspectives regarding MOOCs as tools facilitating learning for students with special educational needs. Most respondents (43,8%) agree that MOOCs may support students with special educational needs under certain conditions. These conditions might range from adaptive settings and apps to instructors assisting students in the learning process. However, over one third of respondents (39,2%) consider that MOOCs may facilitate learning that would respond to students' needs to a great extent. This may imply various AI tools that could change text

to speech, generate subtitles, provide video speech speed variations, customise font for dyslexic learners, adapt texts and tasks for multi-level students. Furthermore, these options can increase course content accessibility and objective assessment possibilities. A number of respondents were not able to appreciate MOOC prospects for students with special educational needs (11,9%) or found them of little use (5%). These hesitant views derive from insufficient popularisation of open online courses among educators, mentors, and assistants who seek new opportunities of inclusion and equity regarding learning content consistency and adaptability. The questionnaire data can be viewed in the diagram below:

To what extent do you think a MOOC could facilitate learning for pupils/students with special educational needs and/or learning difficulties?

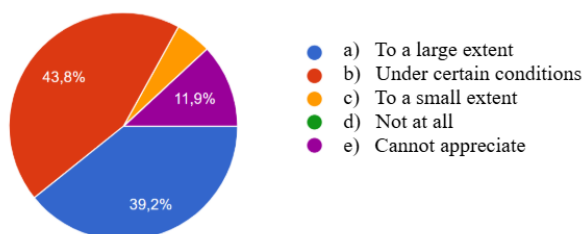


Figure 5. MOOCs as Tools for Facilitating Learning of Students with Special Educational Needs

The limited awareness and the poor exposure to MOOCs stirred questions regarding the requirements institutions should meet to be granted authorization on MOOCs development and the support they need. Questions with reference to MOOC adaptation for students with special educational needs were also addressed. This is indicative of the respondents' interest in the directives which set the grounds for distance learning and the standards that MOOCs should meet before being made accessible for the target groups. The respondents also asked for details regarding MOOC providers, course launching date and place, while others offered suggestions such as categorizing MOOCs for students with special educational needs of different types and developing a handbook with guidelines for course development and use. These suggestions highlight the importance of promoting MOOCs and the opportunities they offer for teachers and students.

The findings address the results of the needs analysis for MOOCs and reflect a high interest in open courses for teachers and students, which could be highly adaptable to stakeholders of various backgrounds, levels, and educational needs. Popularizing MOOCs through piloting and eventually launching them on a regular basis could increase trust in distance learning and prove its long-term efficiency.

Proposed Project

Considering the situation regarding MOOCs in Moldova and the worldwide growing interest in MOOCs, a project entitled *A Sustainable Approach to Education: Online Distance Learning through MOOCs* has been conceived. The project aims to support education for sustainable development by promoting online distance learning through the development and implementation of an innovative, accessible, and effective online course designed to improve creative writing skills in English, benefiting a wide range of learners,

particularly students. The course is intended not only for university students studying English, who have the course of Creative Writing in their curriculum, but also for school pupils, as they need good creative writing skills in English in order to pass the final exam. It can serve as an additional resource for English language teachers to use alongside traditional sources, including school textbooks. It can be helpful to anyone who wants to improve their creative writing skills in English. Despite the course's narrow focus, it will serve as a replicable model that can be used in various educational contexts to support the transition toward a more sustainable educational system.

Furthermore, the project proposes to explore ways of integrating artificial intelligence into the development of MOOCs to ensure differentiated learning by adapting content to the special educational needs and learning difficulties of beneficiaries and to facilitate their management by educators. On the one hand, AI tools can be used in the creation of an online course to provide valuable support to students with special educational needs and learning difficulties. For example, they can adapt texts for learners with dyslexia, generate subtitles for students with hearing impairments and transform written instructions into audio for learners with visual impairments. On the other hand, AI deployment within the creation of the MOOC can simplify the work of course developers and, subsequently, the creation and management of MOOCs by teachers from all over Moldova and beyond.

The course will be piloted and subsequently improved based on evaluations of accessibility, educational impact, relevance, and effectiveness, considering both participant and developer perspectives regarding the creation and management process, as well as the experience of other European institutions that have already integrated MOOCs into their educational systems. The final research findings will be disseminated primarily in the Republic of Moldova to promote sustainable education through MOOCs, supporting the traditional teaching-learning process on various levels, including increasing access to quality education for vulnerable groups, namely people with special educational needs and learning difficulties.

Consequently, the novelty and originality of the project lie in the fact that the creation of a sustainable educational model focused on efficiency, accessibility, and the promotion of the use of digital materials and adaptive teaching methods will support online distance learning through MOOCs in the Republic of Moldova and facilitate learning through inclusive online distance courses, designed taking into account the special educational needs and learning difficulties of the beneficiaries, using various AI tools in the creation and management of open online courses.

The study on the creation of MOOCs will provide a practical basis for teachers in the Republic of Moldova and, possibly, in other countries, giving them the opportunity to improve their skills in designing, developing, and implementing online courses and to use them productively in order to support the traditional teaching-learning process. At the same time, research on differentiated instruction for pupils/students with special educational needs or learning difficulties will contribute to the development of more accessible and effective teaching methods designed to facilitate the full integration and support of these individuals in the educational environment. Concurrently, the integration of artificial intelligence into the development and management of online courses will bring innovative

solutions for automation and personalisation, contributing to the creation of more adaptable educational platforms that are easier to create and manage.

Moreover, the creation of an open online course will enable the collection of data regarding the relevance, effectiveness, and accessibility of such an educational format. Their analysis, from both the learners' and the content creators' perspectives, will facilitate the optimisation of future online courses. The quantitative and qualitative analysis of empirical data resulting from the piloting of the course will validate the impact of the methodologies used and support informed decision-making to improve differentiated online teaching and learning. Through these results, the project will contribute to the creation of new sustainable, accessible, and effective online learning courses.

Conclusions

This study set out to explore the current landscape of MOOCs in the Republic of Moldova, with particular attention to their availability, integration into formal education, and accessibility. Furthermore, it examined teacher engagement with MOOCs and the potential of these courses to support learners with special educational needs and learning difficulties.

The study relied primarily on self-reported data from teachers, without direct input from students, which limits insights into student engagement, learning experiences, and perceptions of MOOCs.

The research has identified that MOOCs, despite being a key component of modern and sustainable education globally, remain scarce in Moldova, with only a limited number of institutions offering them, often with restricted accessibility. This emerging landscape highlights the need for a stronger framework to support the promotion, integration, and accessibility of MOOCs within the Moldovan educational context.

Critical insights gathered from teachers revealed that, despite limited exposure – with a relatively notable proportion of teachers either unfamiliar with MOOCs or having never enrolled in one – there is general recognition of their value. Teachers expressed interest in professional development courses, particularly in areas such as inclusive teaching, AI-assisted learning, digital skills, and subject-specific pedagogy, as well as personal development courses focusing on emotional intelligence and various types of literacy. The study further identified a dichotomy in teachers' perceptions: while MOOCs are seen primarily as tools for professional growth, they are not widely considered as resources directly benefiting students. This discrepancy suggests a need for training programmes and guidance to help teachers implement MOOCs effectively in ways that support student learning.

While most teachers acknowledge the potential of MOOCs in helping students with special educational needs and learning difficulties, some remain uncertain about how these courses can be applied effectively. Respondents emphasised the importance of clear guidelines, adaptive course design, and structured support in MOOCs implementation to facilitate inclusive learning. These findings point to the need for targeted/tailored training and awareness programmes to strengthen teacher familiarity with MOOCs and support inclusive classroom practices.

In light of the findings, policymakers and educational authorities in the Republic of Moldova should ensure that MOOCs offered in Moldova are properly authorised and meet national quality standards. To achieve this, they should develop a clear national policy for online learning and MOOCs, raise awareness of MOOCs, and encourage cooperation between educational entities to create high-quality courses. These courses should be designed to provide ongoing support for student learning, including students with special educational needs. Additionally, the authorities should establish clear standards for digital content and implement long-term monitoring and evaluation mechanisms to help sustain progress in distance learning. At the same time, teachers should receive proper training in digital teaching methods and in using AI-assisted tools effectively. By taking these steps, Moldova can make the most of MOOCs and distance learning to improve teaching quality, increase accessibility, and provide opportunities for lifelong, sustainable learning.

The insights gained from this study provide a basis for the design and implementation of a prospective MOOC pilot project on Creative Writing with integrated AI-assisted tools, aimed at supporting inclusive learning and addressing the evolving needs of 21st-century learners. This initiative contributes to the modernisation of the Moldovan educational system by providing a model for adaptive and sustainable learning that complements traditional teaching methods and promotes innovative educational practices.

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