MOOCs: A paradigm shift from traditional learning to digital learning
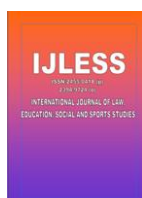
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ABSTRACT

The era of the 21st century is often regarded as the era of technology. Massive Open Online Courses (MOOCs) have become an increasingly popular digital learning environment. Digital learning is one of the most important technological breakthroughs in the 21st century. Digital learning programs are rapidly evolving in line with the internet. As part of this development, innovations that were only ideas in the past are now becoming a reality. One of them is the idea of MOOCs (Massive Open Online Courses). MOOCs are built on the dynamics of engaging hundreds of thousands of students who self-organize their participation according to their learning skills, goals, prior knowledge, and common interests. More and more people are participating in the learning process with MOOCs courses, as they offer autonomy, energy, and self-regulation for the students. Internet technologies have created many learning opportunities and are leading to various new learning approaches, which are evolving and changing according to learners' needs. This paper aims to study the paradigm shift from the traditional form of learning to digital learning. It also discusses the characteristics, types, advantages, and limitations of MOOCs, providing a framework for future studies.

Keywords: MOOCs, Massive Open Online Courses, Traditional learning, Distance education, Digital learning.

Introduction

Massive Open Online Courses (MOOCs) are free online courses available for anyone to enroll in. MOOCs provide an affordable and flexible way to learn new skills, advance careers, and deliver quality educational experiences at scale. They are aimed at unlimited participation and open access via the web. In addition to traditional course materials, such as filmed lectures, readings, and problem sets, many MOOCs provide interactive courses with user forums or social media discussions to support community interactions among students, professors, and teaching assistants (TAs), as well as immediate feedback to quick quizzes and assignments. MOOCs are a widely researched development in distance education, first introduced in 2008, and emerged as a popular mode of learning in 2012, a year called the "Year of the MOOC." Until the late 1980s, the primary educational model in higher

education was the traditional one, where teaching took place through workshops, in classrooms, and auditoriums. The teacher lectured, and the students took notes during the lesson. The student population consisted mostly of students in the 18-23 age group, most of whom lived close to the institution they were enrolled in. That approach was characterized by the physical presence of both: students and teachers. Moving from the traditional form of face-to-face teaching to a more contemporary one, it is now possible to do the training remotely (via the internet), with the support of learning management systems and, more recently, with the Massive Open Online Courses (MOOCs).

In distance education, there is physical distance between the teacher and the learners, which implies a lack of direct contact with each other, with the exception of some possible mandatory meetings. On the other hand, throughout the learning process, the operation of a learning team is mainly absent. In addition, the educational institution intervenes in the learning process as the educational provider, which designs the teaching material and implements the training program. The content of the training program is transferred through modern technologies, connecting the teacher with the learner and, at the same time, ensuring two-way communication. Distance education is a field of education that focuses on pedagogy, technology, and the design of educational systems, aimed at providing education to learners who are not physically "on the spot." Distance education is the process of creating an educational experience of equal quality value for the learner to better suit their needs outside the classroom. Digital learning is becoming one of the most important technological discoveries in the 21st century. Digital learning programs are growing rapidly. As part of that growth, innovations that were only ideas in the past are now becoming real. One of them is the idea of MOOCs (Massive Open Online Courses). MOOCs are built on the dynamics of engaging hundreds of thousands of students who self-organize. Early MOOCs often emphasized open-access features, such as open licensing of content, structure, and learning goals, to promote the reuse and remixing of resources. Later, MOOCs used closed licenses for their course materials while maintaining free access for students. Their participation, according to their learning skills, goals, prior knowledge, and common interests, creates diverse learning models that are evolving and changing according to learning needs. Thus, open education ceased to be peripheral and began to occupy an important place in dominant educational practice. MOOCs are referred to as the best example of continuing transformation powered by openness. Modern educational planning incorporates these two educational forms.

Massive Open Online Courses (MOOCs)

The word MOOC was coined in 2008 by Dave Cormier, from the University of Prince Edward Island, for a course offered by the University of Manitoba, "Connectivism and Connective Knowledge." The course *Connectivism and Connective Knowledge* was developed by Stephen Downes and George Siemens.

Definitions
• According to the Commonwealth of Learning 2015, "A MOOC is an online course that requires no prior qualifications for entry, can be accessed by anyone who has an Internet connection, and includes large or very large numbers of learners."

• A Massive Open Online Course (MOOC) is an online course aimed at large-scale interactive participation and open access via the web. In addition to traditional course materials such as videos, readings, and problem sets, MOOCs provide interactive user forums that help build a community for the students, professors, and teaching assistants (TAs). MOOCs are a recent development in distance education.

Characteristics
Bates (2015) specifies the essential elements behind each acronym of MOOC. Common in these definitions are the following aspects to give meaning to the elements of a MOOC:

- **Massive**: Designed for an unlimited number of participants. This means that the course is designed such that the efforts of all services do not increase significantly as the number of participants increases.

- **Open**: Access to the course is free without entry qualifications.

- **Online**: The full course is available through the internet.

- **Course**: The offering is a course, meaning it offers a complete learning experience, structured around a set of learning goals in a defined area of study and includes the course materials, quizzes, feedback, examination, and certificate of completion.

Types

- **xMOOCs** – Stands for eXtended Massive Open Online Courses, which are based on traditional course structures and make use of established teaching approaches and materials. Students will observe prerecorded lectures, complete required readings, and participate in discussions as produced and curated by the course instructor or an instructional team from a higher education institution. It follows the behavioristic approach to learning.

- **cMOOCs** – The "c" in cMOOC stands for connectivist, which represents the nature of cMOOCs based on connectivist learning models that privilege collaboration as a form of active learning. Students in a cMOOC will work together to locate, evaluate, and contribute course content, uploading materials (tweets, blog posts, wikis, etc.) to the course using the learning platform.

MOOC Providers

Universities play an important role in creating MOOCs but rarely provide MOOCs themselves. Instead, they depend on course providers such as:

- **Coursera**: Works with universities and organizations to provide courses in physics, engineering, humanities, medicine, digital marketing, data science, mathematics, business, social sciences, and others.

- **EdX**: Created in 2012 by the Massachusetts Institute of Technology and Harvard University, it is a massive MOOC provider and different from other providers as it is a non-profit organization and runs on the Open edX open-source software.

- **Future Learn**: Launched in December 2012 by The Open University in Milton Keynes, England, and includes partners like the British Museum, European Space Agency, and more.

- **Udacity**: Founded by Sebastian Thrun, David Stavens, and Mike Sokolsky, it originally focused on offering university-style courses but now focuses on vocational courses for professionals.

- **NovoEd**: Founded by Stanford University professor Amin Saberi and Ph.D. student Farnaz Ronaghi, it partners with universities, foundations, and corporations to offer MOOCs as well as small private online courses (SPOCs).

- **Iversity**: A European online education platform that provides free courses for anyone to enroll in and participate.

Indian Platforms for MOOCs

- **SWAYAM**: Stands for Study Webs of Active Learning for Young Aspiring Minds. It is India's version of MOOCs, developed by the Government of India, and offers courses from school level (Class IX) to post-graduation level.

- **NPTEL**: An initiative by seven Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc), offering online courses in engineering and science.

- **mooKIT**: A MOOC Management System developed at IIT Kanpur to deliver and manage courses online.

- **ITBX**: A MOOC platform developed by IIT Bombay through the customization of the Open edX codebase.

Advantages of MOOCs

- Free or low-cost access to quality education.

- Flexibility to learn at one's own pace and time.

- A wide range of content and interaction with experts.

- Opportunities for job placements through partnerships with employers.

Limitations of MOOCs

- Lack of personalized courseware and tutor attention.

- Difficult to track student assignments and engagement.

- Internet and disability barriers can limit access.

- Language can be a barrier in course delivery.

Conclusion

MOOCs have transformed learning by offering free access to a wide range of courses and promoting self-paced learning opportunities. Their integration into corporate training presents unique advantages and challenges. The self-paced nature can be both beneficial and limiting, depending on learners' motivation. Nevertheless, their potential for upskilling, reskilling, and professional development is undeniable. The shift from traditional to digital learning has significantly impacted the education sector, making education more accessible, engaging, and personalized.

MOOCs align with technological, economic, and social developments by utilizing innovative technologies to offer diverse educational content to a broad audience. They apply various teaching methods to meet the individual needs of learners and encourage participation in lifelong learning through collaborative techniques. MOOCs provide open, equal, high-quality, and free education, catering to both personal growth and professional requirements. In essence, they embody the ideal of lifelong learning by offering inclusive and flexible learning opportunities to all.

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