

# Chapter 15

## MOOCs Theories, Trends, Critics, and Life Sciences Applications: Updates on MOOCs

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### ABSTRACT

*While humankind has already reached the so-called zettabyte era in the data transactions, scientific knowledge needs to be transferred and distributed globally, without limitations. Mainly for the case of life sciences and medical fields, the treatment of chronic and lethal diseases requires open access to large databases and clinical trials from researchers across the world, but mostly an open and high-quality education for everyone. The solution has already been applied lately, through the establishment of the massive open online courses (MOOCs) that offer a free and unobstructed multilevel education to anyone and anywhere, using emerging IT techniques. Applications are vast and cover all technologies of today. However, is this true? Are MOOCs the solution to a free and open forum for knowledge sharing, giving the opportunity of education to people from low-income countries? In this chapter, MOOCs are discussed and analyzed in depth alongside the advantages and disadvantages of their application in the higher education.*

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## **THE TERM MOOCS**

MOOC refers to massive open online course aimed at unrestricted participation and open access via the web. It not only offers the conventional course materials such as recorded lectures, problem sets and readings, but also it provides interactive user forums to maintain community interactions among candidates, professors, and teaching assistants (TAs). MOOCs are a recent and widely researched development in distance education which were first introduced in 2006 and emerged as a popular mode of learning in 2012. The year 2016 was also named as the “Year of the MOOCs” (Kalpan, 2016).

MOOCs are internet based educational environments which offer the prospects to take classes from high profile universities and instructors through videos and presentations via open and free courses. These course schedules give no formal degrees, accreditation or certification and are entirely for the purpose of the self-development in terms of acquiring knowledge and competence of the individuals. The name Massive Open Online Courses (MOOCs) has been rightly coined for these courses as this education appeal to a great mass of people. These courses are open for everyone to participate and that too for free. These courses are conducted online through interactive tools such as videos, presentations, and audios (Adamopoulos, 2013).

## **TYPES OF MOOCS**

### **MOOCs Are Divided Into Two Types: cMOOCs and the Other One Is xMOOCs**

xMOOCs basically focus On concise, targeted video content with short duration videos and use automated testing to check students understanding of the content. They include discussion forums and allow people to share their ideas and discuss amongst this group. The central idea always rotates around the instructor guided lessons. Each student’s journey throughout the course is linear, simple and defined. Learning is seen as something that can be tested competently and certified (Kesim, 2015).

Video lectures are indeed an improvement to the conventional lectures as it involves much more engaging experience for the learners. This could help the learner absorb the material and thereafter facilitates automated testing process which could review the requirements of the individual learners. The main drawback is of course the missing of one-to-one interaction and easy back-and-forth, questioning that can happen at the end of a formal lecture. No matter the questions can still find its way

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