Chapter 2

# MOOC in a Blended Learning Model for a Statistics Course:
## Exploring Participation and Achievement

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## ABSTRACT

*The present contribution appreciates and acknowledges the new features that distance education attains via the advances in information technologies and supports the multiplicity of combined learning pathways serving the needs and preferences of the student. This chapter presents the design of a MOOC integration into an undergraduate statistics course, aiming to create a complete blended learning system, by implementing a series of tools to facilitate its use. Besides offering an enhanced learning environment and facilitating the evaluation processes for learning outcomes, this educational setting comprises a system for conducting research and providing measurements and appraisals for learners' academic behavior. The above were evaluated by conducting empirical research on human-technology interactions, fostering achievement goal theory, and probing students' participation and achievement within the proposed educational setting.*

## INTRODUCTION

In recent years, technology has played an essential role in the educational process, especially in distance education, with a special interest in massive open online courses (MOOC), where the educational material provided is mainly video lectures based on different learning approaches (Veletsianos, 2016). Courses in open electronic platforms, MOOC, which are the evolution of distance education, are offered by specialized providers online and are available to learners who need to attend a specific curriculum. The learners use the online material while they can interact in the course forum and receive help from a large student community that simultaneously is attending the same program. MOOCs have some features in common with traditional courses, such as timetables, assignments, prescheduled activities, and assessments. Access to the platform is usually free unless the learner intents to get academic credit for the course or acquire a certificate (Sammour et al., 2015). Next, MOOCs are explained, along with their advantages and weak points.

## MOOCS: Types, Advantages, and Disadvantages

There are three types or categories of MOOCs based on their pedagogical design: cMOOCs, xMOOCs, and the mixed or combined form. The cMOOC course, which appeared in 2008, notionally landed on the theory of connectivity (Anderson & Dron, 2011); "c" stands for '*C*onnectivity' and since cMOOCs platforms focus on producing and presenting information, it indicates that the underlined logic emphasizes networking and knowledge creation by participants. Thus, tools like blogs, wikis, and social networking platforms, dominate the learning process and management systems. In the xMOOCs that appeared in 2011, 'x' stands for "eXtended" or "eXtension" of the core curriculum (Carranza et al., 2015), which is based on the standard classroom structure, where the role of the instructor is central to the creation and coordination of all curriculum activities. The trainer is responsible for completing the work by the trainee within xMOOCs that have a strictly defined duration (Arnavut & Bicen, 2018). Commonly, the courses include video lectures with predefined tests and automatic feedback systems.

The fundamental value of a cMOOC design is that it facilitates a learner-centered approach. This is because students become actively involved in the learning process and can adapt the course content based on their profile by changing their traditions and attitudes and being armed with the proper strategies (Daradoumis et al., 2013). The mixed type of MOOC that appeared later, around 2013, combines features from both types mentioned above, and possibly it becomes more flexible and effective.

The main advantage of MOOCs is that they can provide access to knowledge to almost everyone. They solve the problem of inaccessibility due to distance and

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