

Chapter 2

Massive Open Online Courses: An Educational Revolution

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ABSTRACT

With the creation of online courses, colleges and universities created flexibility for students virtually impossible a few years earlier. No longer would a sizeable percentage of students be prevented from taking courses at their institution because of a conflict with a varying and sometimes arbitrary schedule of classes taught at a specific time in a specific place. Now students could avail themselves of learning opportunities at a time and place of their own choosing. Despite this increased freedom, students were still bound by entrance requirements, prerequisites, and institutional affiliations. With the creation of Massive Open Online Courses (MOOCs) in the first decade of the 21st century, many, if not most, of these restrictions disappeared. Now post-secondary coursework is available free to virtually anyone who wants to enroll, with age, finances status, institutional affiliation, experience, and geography ceasing to be barriers. This chapter reviews the history of distance education, discusses the emergence and characteristics of MOOCs, and identifies some of the more pressing challenges such courses pose to students, faculties, and institutions themselves.

HISTORY

The history of distance education demonstrates that the evolution of the phenomenon was both as difficult to accept and implement then as are the MOOCs of today (Jeffries, 2000). One of the earliest ventures in distance learning occurred when Sir Issac Pittman founded a Correspondence College in 1840s England, utilizing the new rural free delivery postal system to deliver course materials. Similar correspondence courses eventually

emerged in Germany, Canada, Australia, the Soviet Union, Japan, and the United States (Matthews, 1999). These attempts at distance education were necessarily restricted to mail correspondence courses which provided a readily available and inexpensive method to deliver and receive educational material at a reasonable cost (Casey, 2008). William Rainey Harper (1856-1906), the first president of the University of Chicago, created the first university distance education program and predicted that, in the future, correspondence

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students would outnumber classroom students (Simonson, 2000). A catalog of instructional films appeared as early as 1910 (Reiser, 1987) and the number of correspondence courses increased dramatically after WW1 when returning veterans sought to complete educations interrupted by the war (Sherron & Boettcher, 1997). The University of Iowa's development of such courses in 1916 was prominent among them.

The twentieth century witnessed further milestones in distance learning:

- **1922:** Pennsylvania State University began offering courses via radio.
- **1965:** The University of Wisconsin created the first telephone-based education program.
- **1968:** Stanford University founded the Stanford instructional Television Network.
- **1969:** U.S. Department of Defense created ARPANET, the Internet's precursor and a technological revolution.
- **1969:** The British Open University established offering mixed-media courses with texts and audio-visual offerings.
- **1976:** University of Phoenix, a for-profit institution relying heavily on online education founded.
- **1995:** Western Governor's University, a consortium of 19 western state governors created to provide online educational opportunities to students in the western United States.
- **1997:** California Virtual University was created, eventually offering over 1000 courses. The use of more recent technology like desktop.
- **2001:** MIT introduced OpenCourseWare (OCW) aimed at permanently publishing all its course materials on the World Wide Web virtually allowing their unlimited use, distribution and modification (Liyanagunawardena, 2013).

- **2007-08 Academic Year:** 20 percent of all undergraduates, approximately 4,277,000 of them, had taken at least one distance education class (Radford, 2011).

Until 2008, online courses were essentially institution-bound, with courses offered only to their own duly-enrolled students. In that year, a sea change in distance learning occurred with a course taught by at Athabasca University in Alberta, Canada. The course, Connectivism and Connective Knowledge (CCK08), open to anyone who wanted to take it, attracted 2,200 participants (Fini, 2009; Rodriguez, 2012). Thus MOOCs were born. Another similar pioneering effort occurred at the University of Illinois with a non-credit course in 2011 enrolling 2700 participants. Sebastian Thrun and Peter Norvig's Stanford University's Artificial Intelligence course (CS221) made a quantum leap and enrolled 160,000 students from 190 countries in 2012 (Carr, 2012; Rodriguez, 2012).

Hard on the heels of these non-profit efforts, three prominent for-profit ventures appeared. Udacity, offering "alternative lifelong learning options" in computer science and math, was launched by Thrun in 2012. Also in that year Harvard and MIT created edX with the goal of exploring innovations in classroom education (Kolowich, 2013a). Again in 2012, two other Stanford professors Daphne Koller and Andrew Ng founded Coursera (Carr, 2012).

MASSIVE OPEN ONLINE COURSES (MOOCs): DEFINITIONS AND CHARACTERISTICS

MOOC is a term coined in Canada by Dave Cormier and Bryan Alexander (Daniel, 2012). MOOCs differ from their more restrictive institutional counterparts in several ways, not the least of which by enrolling significantly more students. By 2012, more than 1 million people had taken at least one MOOC (Carr, 2012). These courses

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