

MOOCS REVISITED: STILL TRANSFORMATIVE OR PASSING FAD?

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ABSTRACT

Although *Massive Open Online Courses* have been in the media limelight for a relatively short time, their roots date back to the Open Access movement of the early 1990s as access to the World Wide Web was increasing and online publishing was coming of age. Once heralded the great disruptors of higher education, the hype surrounding MOOCs has fluctuated through multiple upsurges and slumps over the past 5 years (Corbeil & Corbeil, 2015). Are MOOCs the great disruptors of higher education? Are they a passing fad? What is the status of MOOCs today? Where will they be 5-10 years from now? This paper will attempt to answer these questions by providing a brief history of the MOOC phenomenon from its early beginnings, through its quick ascension, into a period of experimentation and soul-searching, concluding with a look at today's MOOCs and where they are heading in the next five to ten years.

Keywords: Massive Open Online Courses, online education, micro-masters and bachelors, nano-degrees

Introduction: The Rise of the MOOCs

The first course on record to use the 'MOOC' designation was Steven Downs and George Siemens's *Connectivism and Connective Knowledge/2008 (CCK8)* (Marques & McGuire, 2013). Not knowing what to expect, the course was open to anyone interested in taking it. Approximately 2,200 people signed up. Though miniscule by typical MOOC enrollment levels, it was nearly 100 times more participants than Downs or Siemens expected (Parr, 2013).

After *CCK8*, MOOCs developed slowly over the next two years. Then, in 2012, a Computer Science Professor at Stanford University, Sebastian Thrun, announced the release of a

new MOOC, *Introduction to Artificial Intelligence*. Within a few weeks, the course had over 160,000 registered students (Aulet, 2013). Motivated by the immense interest in his *AI* course, Thrun cofounded *Udacity* in February 2012 with David Stevens and Mike Sokolsky. Its mission was simple: “to bring accessible, affordable, engaging, and highly effective higher education to the world” (Udacity, n.d. para 1). The *AI* course became the "template" for future MOOCs and was credited with inciting the "MOOC revolution" (Aulet, 2013, Production Value, para. 3).

Two months after *Udacity*'s founding, Andrew Ng and Daphne Koller founded *Coursera* (*Coursera*. n.d.), followed quickly by *edX*, founded by Harvard and MIT (*edX*, n.d). Within the span of one year, the big three MOOC providers, *Udacity*, *Coursera*, and *edX*, were established, offering dozens of free online courses to nearly 5 million users worldwide. Despite having a 40-year head start in distance learning, UK's Open University was a late starter in the MOOC arena. It finally jumped in with *Futurelearn*, launching its first course in September 2013. Within a year, it had over 1 million course registrations (*Futurelearn*, n.d.).

The period of rapid expansion climaxed in 2012 when the New York Times proclaimed 2012 “The year of the MOOC” (Pappano, 2012). By year's end, MOOCs had become a worldwide phenomenon. Yuan and Powell (2015) present a timeline of the MOOC evolutionary process over a 15-year period. See Figure 1.

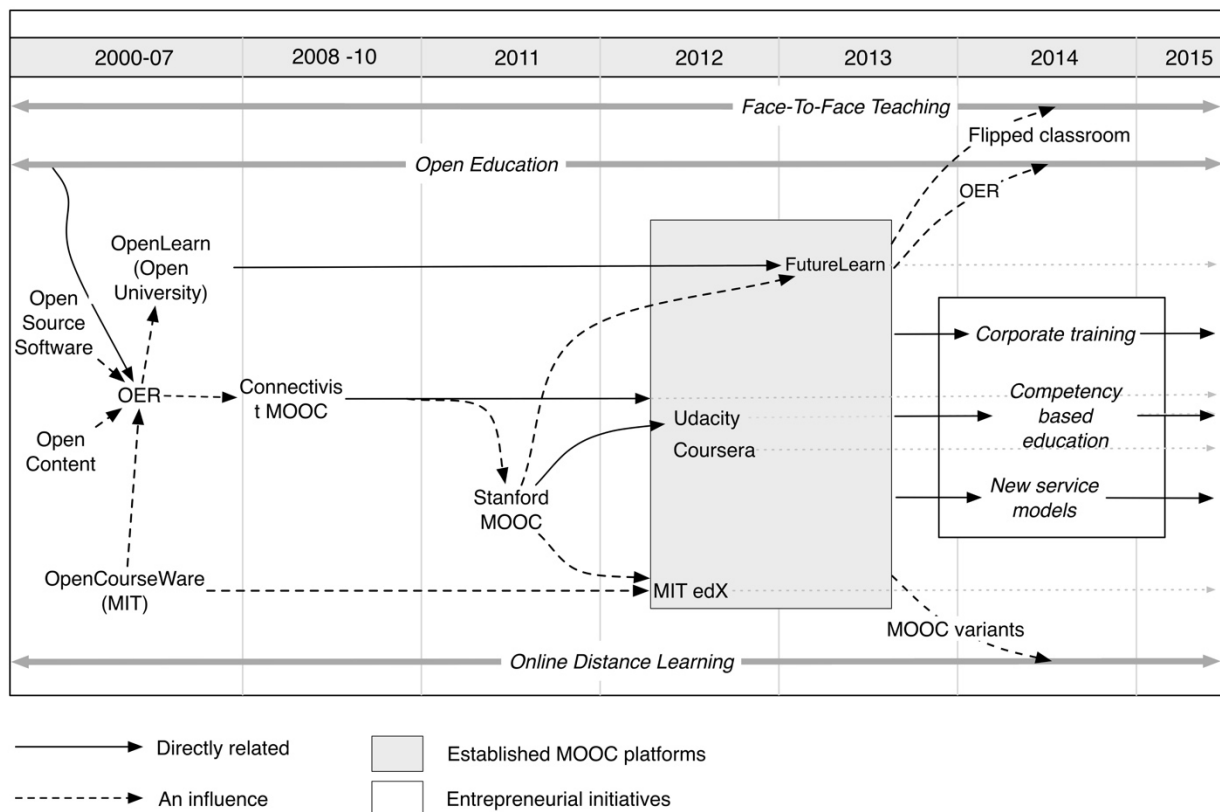


Figure 1. Yuan and Powell’s (2015) timeline of the evolutionary process of MOOC development.

The Age of Experimentation

While 2012 could be characterized as the year of explosive growth for MOOC startups, 2013 could best be described as the beginning of the age of experimentation. In that year, *Udacity* partnered with San Jose State University to offer a series of online courses, at a cost of \$150 each, for academic credit (Ha, 2014). Seven additional colleges also announced plans to award college credit to students who could demonstrate knowledge acquired from completed MOOCs (Daly, 2013). Despite great promise, pass rates were dismal, and few students actually received academic credit for their MOOC related coursework (Weiner, 2013).

In 2014, *edX* announced that it would begin to offer courses to high school students (Morrison, 2014). Soon afterward, the State of Florida enacted a bill allowing high school students to take MOOCs for credit in computer science, biology and mathematics (Morrison, 2014). Envisioned as a cost-saving measure for schools, the new law required certified Florida teachers to manage the courses for the MOOC providers (Horn, 2014). Also, in 2014, Arizona State University partnered with *edX* through its Global Freshman Academy to offer a full year of academic credit to first-year students at a sizeable discount. The courses would be listed on the university's official transcripts. Yet, from over 34,000 participants, less than 1% were eligible to earn college credit for their work (Straumsheim, 2015).

While MOOCs-for-credit were not catching on with students, faculty in higher education began experimenting with MOOCs, not as replacements for courses, but as supplements to courses and substitutions for textbooks. One example of the use of a MOOC as courseware was Amy Hagenrater-Gooding's undergraduate *Studies in Poetry* course at the University of Maryland Eastern Shore (Hagenrater-Gooding, 2015). In that course, Hagenrater-Gooding wrapped a 16-week course around the 10-week MOOC. This integration of a MOOC with a traditional course caught on with faculty around the world and is continuing to this very day.

After experiencing limited success in public and higher education, MOOC providers pivoted from the education sector to the business sector. In 2014, AT&T and *Udacity* teamed up to offer *nano-degrees* to prepare new hires for entry-level jobs within the company (LeBar, 2015). Google also worked with *Udacity* to create MOOCs in game design and Android to train programmers to work on Google platforms (Porter, 2014). Later that year, *Coursera* announced that it too would work with companies like MasterCard and Shell to provide specialized courses for their employees (Parr, 2014).

In October 2015, MIT launched the *MITx MicroMasters* credential on *edX*. The program enabled online learners to complete six graduate-level courses for a total cost of \$1,200. Learners who successfully completed the MicroMasters credential become eligible to complete a master's degree in *Supply Chain Management* by taking one additional semester on the MIT campus. In the following year, *edX* expanded the MicroMasters to 18 new programs across 13 universities. According to Sanjay Sarma (as cited in Office of Digital Learning, 2016), vice president for open learning at MIT, "MicroMasters gives learners the opportunity to demonstrate their abilities through a series of online courses, earn a valuable credential and, if they excel, complete their master's with an additional semester's residence" (para. 3).

On January 13, 2016, Sebastian Thrun, the founder of *Udacity*, tweeted the announcement of a new program dubbed the Nanodegree Plus with a guarantee of a job within six months or your money back (Sebastian Thrun, 2016). At launch, the program included four nanodegrees: Android Developer, iOS Developer, Machine Learning Engineer, and Senior Web Developer (Shah, 2016b).

While some MOOC initiatives were beginning to show promise, in 2016, MOOCs suffered a significant setback as advocates for the deaf filed lawsuits against Harvard and MIT for violating antidiscrimination laws by not providing closed captioning to their online materials (Lewin, 2015). In 2016, University of California, Berkeley was notified by the United States Department of Justice that its MOOC content also violated Title II of the Americans with Disabilities Act (ADA) for not addressing accessibility issues in their media content. As a consequence, on March 15, 2017, UC Berkeley took all of their free MOOC content, including more than 20,000 audio and video files, offline for non-UC Berkeley students. According to a spokesperson for the university, captioning for the videos would exceed one million dollars (Loftus, 2018). The ramifications of these lawsuits were enormous as they could potentially impact hundreds or thousands of courses that would need to be updated to satisfy the requirements of the law.

Though by the end of 2014, the hype surrounding MOOCs had appreciably subsided, MOOC providers continued to experiment and innovate. Yet, the setbacks experienced during the period of experimentation resulted in significantly lowered expectations. According to Kolowich (2015),

The conventional wisdom [regarding MOOCs was] that free online courses offer a promising recruiting tool and an interesting (but not essential) research tool for colleges that can afford the upkeep, while also nudging more-conservative institutions to finally start integrating online coursework into the curriculum (para. 8).

In a January 2015 interview, Daphne Koller, one of *Coursera*'s cofounders, disagreed. She noted, "...there was a lot of disillusionment because people saw that over the course of 12 months we hadn't put any universities out of business...." (Knowledge@Wharton, 2015). According to Koller, the negative hype surrounding MOOCs was unmerited.

The MOOC Hype Cycle

In the previous section, Koller's observation regarding the negative hype surrounding MOOCs, makes a reference to Gartner's Hype Cycle (Gartner, n.d.). According to Gartner (n.d.), all technologies go through a "hype" cycle that is punctuated by five distinct periods. For this article, Figure 2 below, adapted from the *Gartner Hype Cycle of key MOOC events/ developments* (Bozkurt, Özdamar Keskin, & de Waard, 2016), was updated to reflect the rise, fall, and reemergence of MOOCs over a ten-year period along the Gartner Hype Cycle. The points on the graph are not intended to be all-inclusive, but to highlight key transition points in the timeline.

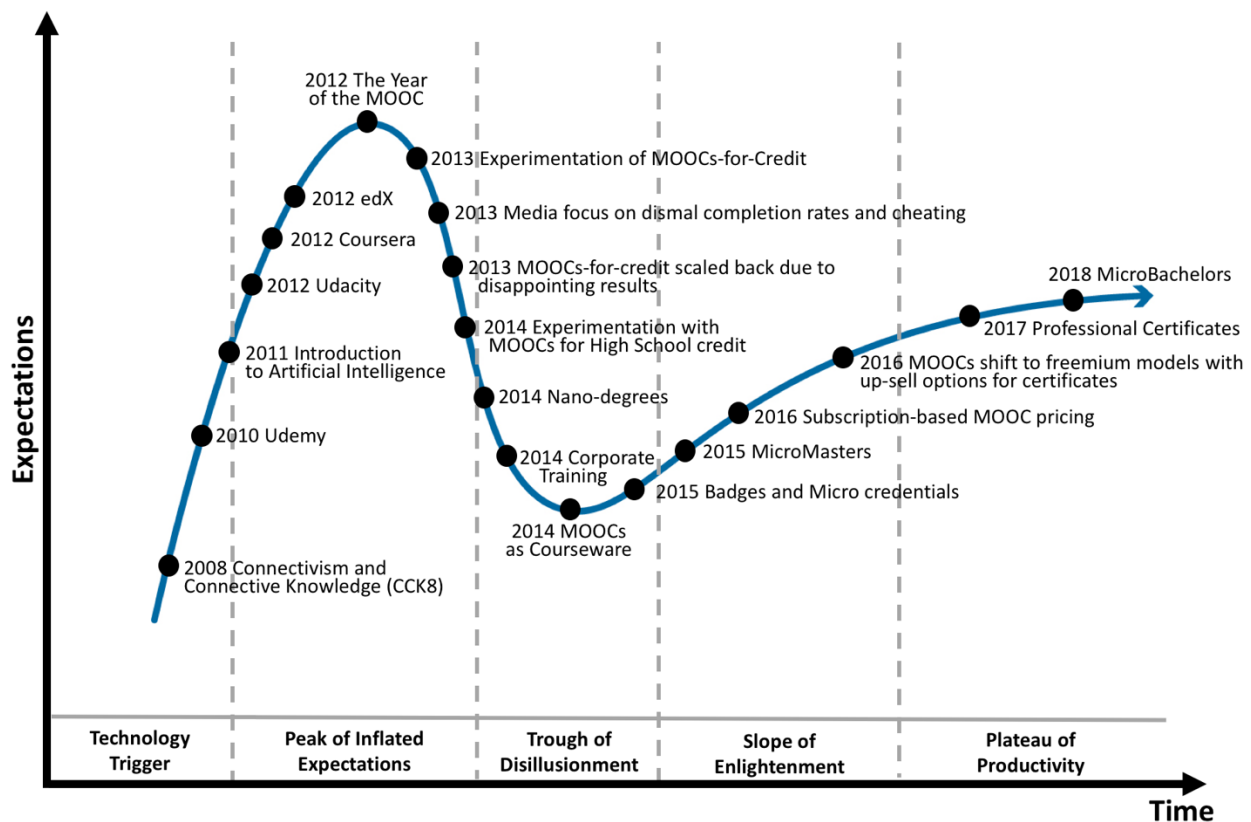


Figure 2. MOOC milestones visualized through the Gartner Hype Cycle. Adapted from *Gartner Hype Cycle of key MOOC events/developments* (Bozkurt, Özdamar Keskin, & de Waard, 2016)

The trigger for the MOOC phenomenon can be traced to Downs and Siemens’s *Connectivism and Connective Knowledge/2008 (CCK8)* course in 2008. It was the first course to use the “MOOC” moniker. Followed by the runaway success of Thrun’s *AI* course in 2011, MOOCs expanded quickly through 2012, resulting in the formation of *Udacity*, *Coursera*, and *edX*, the big three MOOC providers in the United States. The hype surrounding MOOCs reached its apex in November 2012 when the *New York Times* proclaimed 2012 ‘*The Year of the MOOC*’. Over the next two years, MOOCs entered a period of experimentation resulting in numerous mistakes and false starts. Media accounts of MOOC disasters, dismal completion rates, and rampant cheating began to take their toll, and by the end of 2014, the once promising disruptor of higher education had begun to lose its sheen, leading to a period of disillusionment (Corbeil & Corbeil, 2015).

Yet, through dogged perseverance and a shift in focus from higher education to corporate training, MOOCs began to evolve. In 2015, MOOC providers tested a variety of business models to make them profitable. Freemium models offering free content with up-sell options for certificates and badges resulted in increased completion rates for paying students (Kronk, 2018). Partnerships with government and industry began to pay off. In 2016, MOOCs reemerged into the limelight but this time, the MOOC providers were more targeted. They had identified their target audiences and refined their business models (Kronk, 2018). Although they will undoubtedly

continue to mature over the coming years, today, in 2018, MOOCs appear to be on a trajectory toward productivity and relevance (Corbeil & Corbeil, 2015).

MOOCs Today

Today, the big three offer over 7,000 courses through more than 700 university partners, and have enrolled over 23 million people worldwide (Gallagher, 2017). No longer considered a threat to higher education, MOOCs are finding their niche in corporate training and personalized learning. According to Gallagher (2017), author of *The Future of University Credentials: New Developments at the Intersection of Higher Education and Hiring*:

Today's more mature marketplace of MOOC-based learning has pivoted away from free general interest courses, and is instead focused on fee-based certificates and professional programs... This program-level rather than course-centric approach is spawning entirely new types of postsecondary credentials—and further, MOOC-based technology infrastructure and pedagogical innovations are becoming interwoven into *traditional* higher education programs (para. 2).

Recognizing that the MOOCs-for credit initiatives were not catching on with universities as MOOC providers had hoped, Steven Klinsky, founder of the *Modern States Education Alliance*, devised a way around MOOC accreditation issues (Modern States Education Alliance, n.d.). Instead of trying to convince universities to accept MOOC courses for credit, he developed the *Freshman Year for Free* program to prepare students to sit for *Advanced Placement* (AP) and *College Level Examination Program* (CLEP) tests (Modern States Education Alliance, n.d.). The exams, accepted by more than 2,900 colleges and universities, are available on demand, across 1,800 testing centers across the United States (Ukueberuwa, 2018).

Today, the *Freshman Year for Free* program, working in partnership with *edX* and ten universities, offers 32 tuition-free CLEP courses—one for every subject in the College Board test library (Ukueberuwa, 2018). According to Ukueberuwa (2018), the courses allow students to prepare for the credit-granting exams through online courses that include practice exercises and tests with questions closely matching those on the actual tests.

Building upon on the successes of the *Freshman Year for Free* and *MicroMaster's* programs, in January 2018, *edX* announced the development of a new *MicroBachelors* degree, “designed to break the undergraduate credential into Lego-like components” (Young, 2018, para. 1). While describing his vision for the *MicroBachelors* degree, *edX* CEO, Anant Agarwal (as cited in Young, 2018), predicted education in the next five to ten years would become more “modular,” “omnichannel,” and “lifelong” (para. 3). According to Dhawal Shah at *Class Central*, today, there are over 500 MOOC based credentials, including 22 Nanodegrees by *Udacity*, 43 *MicroMasters*, 35 Professional Certificates by *edX*, 257 Specializations by *Coursera*, and 22 programs by *FutureLearn*. Based on these developments, on January 20, 2018, *Class Central* published the following list of the six biggest MOOC trends of 2017:

1. **Fewer MOOC courses are available free of charge.** Today's MOOCs range in cost from free, or free to audit, to millions of dollars, with each pricing tier adding value over the preceding tier.
2. **More MOOC content is behind paywalls.** As MOOC providers searched for sustainable business models, paywalls were initiated to differentiate the *non-credential* from *credential* courses.
3. **MOOCs find their audience.** The audience of today's MOOCs is characterized as the "lifelong career learner," who is seeking professional and career advancement.
4. **MOOC providers are investing big in degree program and corporate training markets.** Shifting away from individual courses, MOOC providers are developing complete undergraduate and graduate degrees and corporate training programs.
5. **MOOCs are becoming more flexible and convenient.** Instead of offering cohort-based courses with specific start and end dates, MOOCs are enabling learners to start anytime.
6. **Campuses are beginning to accept MOOCs.** Campuses are warming up to the idea of allowing students to earn credit from MOOCs, even MOOCs from other universities.

These trends reveal how MOOCs have evolved since their inception. According to Shah (2018), while MOOCs were not the end of traditional higher education as originally expected, they "may have changed how working professionals access continued learning and career-advancement opportunities" (para. 4). He added, consequently, "... 2017 could just have been the year MOOCs became big business" (para. 5). As a result, now business people and educators are looking ahead to what the next iteration of MOOCs may bring.

Summary and Future Directions

Have MOOCs lived up to the hype? Are they still relevant? What will future MOOCs look like? Based on recent trends, future MOOCs probably won't be as *massive*. They also won't be as *open*, and many of them won't resemble typical *courses*. MOOCs will begin to target a narrower niche of learners, focusing on delivering highly specific workforce skills to corporate workers. As more MOOCs offer certifications and nanodegrees, fewer MOOCs will be free, making them less open to learners in developing countries. These MOOCs will become more individualized and self-paced, with no formal start and end date, enabling learners to enroll at any time, and take as much time as they need to complete the courses. Interactions among learners in these courses will be voluntary, resembling interactions found on social media sites and specialized message boards. As a result, future MOOCs may need a new name to describe them, since they will lose many of the initial characteristics that made them MOOCs (Corbeil & Corbeil, 2015).

Looking to the future, the following trends seem to be emerging:

- **The MOOC name will go away.** In a 2017 opinion piece submitted to *Inside HigherEd*, Cathy Sandeen (2017) predicts the term "MOOC" will go away. "I am somewhat surprised the moniker has stuck around as long as it has, because what exists today is quite different than what we were discussing five years ago" (Sandeen, 2017, para. 3). According to *Class Central* CEO Dhawal Shah, the MOOC name has evolved from its original meaning into more of a marketing term. Today's MOOC providers are distancing themselves from the MOOC provider designation by differentiating their products and creating their own brands

(i.e., Nanodegrees, MicroMasters, Specializations) (Kronk, 2018b).

- **MOOCs will continue to unbundle higher education.** Jim Hundrieser, associate managing principal for institutional strategies at the Association of Governing Boards, foresees the unbundling of higher education due to the introduction of nanodegrees and micro-credentialing (Arnett, 2017). According Arnett (2017), Hundrieser compares the earning of a college degree to having to buy an entire album for just one or two good songs, suggesting that professional certificates and micro-credentials are becoming more important to students and employers. If this is the case, Hundrieser suggests, MOOCs may still be a disrupting force in higher education (Arnett, 2017).
- **AI-Powered MOOCs will personalize MOOC learning.** Yu, Miao, Leung and White (2017) offer a perspective on how advances in Artificial Intelligence (AI) may enhance learning in MOOCs. They envision using AI in future MOOCs to: (1) enable students to personalize their learning by allowing them to adjust the sequencing of content to fit their needs; (2) provide personalized attention to learners by matching teaching assistants to mediation tasks; and (3) use virtual learning companions with human traits to interact with learners one on one. According to Hill (2018), in January 2018, the Georgia Institute of Technology launched its first MOOC with an AI teaching assistant named “Jill Watson,” based on IBM's AI Watson platform. Ashok Goel, Georgia Tech professor and creator of Jill Watson says he would like to see virtual learning companions universally available, “for every class, at every school, at every level” (as cited in Hill, 2018, para. 17).
- **MOOCs will serve as catalysts for the learner revolution.** While no longer considered the disruptive technology that would put universities out of business, MOOCs have made a huge impact on higher education and are credited with inspiring what Van Der Werf (2014) dubbed, “the learner revolution” (p. 1).

As we contemplate where MOOCs appear to be headed over the next 5-10 years, will they become the great disruptors of higher education as once predicted or settle into specialized training for niche markets? Has the disruption already begun and can we predict its destination? We will have to wait for the next chapter in the history of MOOC's to be written to know the answer to these questions.

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