

The Emergence and Design of Massive Open Online Courses (MOOCs)

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During the past two decades, the Internet has made available a wealth of interactive learning resources, unique forms of social interaction and collaboration, and novel types of content and course delivery. Among the more exciting new ways of learning delivery is the MOOC or “massive open online course.” The MOOC, while certainly controversial, has arguably brought online learning to the attention of the public at large like nothing before. Though the term itself is less than a decade old, dozens of MOOC vendors and software companies as well as a barrage of reports, announcements, courses, and programs related to MOOCs have emerged during the past few years. There are growing numbers of MOOC developers and instructors, MOOC participants or “learners,” MOOC researchers, MOOC books and journals, and MOOC lists (for an historical perspective on MOOCs, including key events leading up to them, see Moe, 2015). As inevitably occurs with a new phenomenon of this kind, there are enthusiastic MOOC advocates as well as skeptical critics.

MOOCs Defined

The term MOOC was coined by Dave Cormier from the University of Prince Edward Island, Canada. Cormier came up with this term when he noticed that his colleagues, George Siemens, at the time, from the University of Manitoba, and Stephens Downes, from the Canadian Research Council, had opened their online course titled “Connectivism and Connective Knowledge” well beyond the 25 enrolled and tuition-paying students to more than 2,200 learners who participated for free (Downes, 2011). As such, the MOOC descriptor is basically an attempt to provide unlimited participation in an educational experience via the Web, typically for free. Aside from the increased enrollment numbers and open access to course content, MOOCs often include both traditional instructional components and those more typically found in online courses, such as discussion forums and interactive exercises.

There is some controversy regarding what actually constitutes a MOOC. For example, some argue that MOOCs are not truly open since the content is often not available for reuse, such as when it is taken down once the course is over (Wiley, 2015). For others the word “massive” is misleading or difficult to pin down—at what point do we consider the enrollment massive? Other courses may be miscategorized as MOOCs since they may not actually be open to anyone, as with Google’s offering MOOCs internally to company employees and not the outside world in its G2G (Googler to Googler) initiative on topics like public speaking, parenting, Python programming, data visualization, mindfulness, and meditation (Kessler, 2013). Clearly, such internal offerings do not meet openness criteria. Concerns have also been expressed about the degree to which MOOC offerings are over-represented by elite U.S. institutions such as Harvard,

M.I.T., and Stanford, and whether the MOOC movement perpetuates the perceived hegemony of Western culture and the English language to less developed parts of the world.

cMOOCs, xMOOCs, and pMOOCs

As noted above, the MOOC trend began when several instructors in Canada taught courses that were free and open for outside participation and connections (Moe, 2015). Given that Stephen Downs and George Siemens tested ideas related to an emerging learning theory called “connectivism” when they taught their first MOOC, courses based on their ideals have come to be known as connectivist or cMOOCs (Kop, Fournier, & Mak, 2011).

In a cMOOC, fostering greater social interaction through sharing and negotiation of meaning is encouraged. Importantly, everyone in such courses has the potential to be a vital co-instructor or source of knowledge. For instance, each participant may have a blog to reflect on a course module or on resources shared by others, as well as provide some resources of their own. Others might post links to such blogs using various social media tools including Facebook, Twitter, Pinterest, and LinkedIn. In fact, participants will often mark their Twitter posts with a hash tag related to the course, thereby expanding as well as uniquely connecting course content resources (Kop et al., 2011). There might also be a course wiki in the MOOC for accumulating resources, in addition to tools for visualizing participant contributions and aggregating resources. Active participation through the production of digital artifacts related to the course often exceeds course expectations and can help participants reflect on their creative processes (Kop et al., 2011).

It was not long, however, before other individuals and institutions envisioned the possibilities for greater access to content. By 2010, for instance, universities such as Stanford, MIT, Harvard, Duke University, the University of Edinburgh, the University of Pennsylvania, and many other well-established institutions were experimenting with the notion of a MOOC. In the fall of 2011, Stanford offered several MOOCs that reached over 100,000 enrolled learners. Most of these massive courses were in the fields of computer science and engineering. Not surprisingly, such courses relied on traditional models of instruction, including the use of streamed or prerecorded lectures as well as discussion forums and online tests graded by computing technology. These types of MOOCs were labeled xMOOCs. Needless to say, not all such courses can rely solely on objectively scored exams; some xMOOCs, in fact, have experimented with peer assessment as well as with different forms of certification or badging for course completion.

The widely publicized intent of xMOOCs was the delivery of content to masses of people with the hope of democratizing education. However, many issues arose and arguably continue with the xMOOC instructional approach--related to a perceived lack of individualization, limited feedback, a sense of isolation or loneliness among learners, and weak forms of assessment. Many participants report significant difficulties keeping up with the pace of these online offerings while working full time or fulfilling other personal and professional commitments. Accordingly, the attrition rates in xMOOCs are often reported at 90 percent or above.

Beginning in 2013, the pMOOC model began to emerge (Reeves & Hedberg, 2014). In a pMOOC, participants collaborate online to complete a project (e.g., design a memorial) or

address a problem (e.g., develop a plan for urban renewal of a declining area of a town or city). For example, in a pMOOC focused on open educational resources (OER), preservice or inservice teachers might be called upon to work together to produce OER that could be used by themselves and other teachers. Figure 1 outlines the differences among cMOOCs, xMOOCs, and pMOOCs.

Type of MOOC	cMOOC	xMOOC	pMOOC
Learner Role	Active	Passive	Active
Instructor Role	Co-learner	Sage on video stage	Guide on the side
Learning Theory	Connectivism	Behaviorism	Constructivism
Primary Pedagogy	Knowledge integration	Knowledge duplication	Knowledge production
Metaphor	“We link movies”	“We watch movies”	“We make movies”
Development Approach	Learning design	Instructional design	Educational design research
Primary Type of Assessment	Self Assessment	External and/or Peer Assessment	Self and/or Client Assessment
Funding Source	Seat of the pants funding	Large external funding	Moderate client provided funding

Figure 1. Differences among three types of MOOCs (Reeves & Hedberg, 2014).

Additional Types of MOOCs

What has become clear in the short history of MOOCs is that benefits of MOOC participation depend on how it is delivered and the extent to which it meets audience needs and expectations. Increasingly, MOOCs are finding their way into lifelong learning and professional development situations such as those intended for K-12 teachers (Laurillard, 2014), healthcare personnel, or business leaders. Such MOOCs are referred to as “professional development” MOOCs (i.e., PD-MOOCs) (Bonk, Lee, Reeves, & Reynolds, 2015). These PD-MOOCs vary in length from a few days or meetings to several months. Some colleges and universities are catering to their extensive alumni and donor base with these types of MOOCs; in effect, bringing prior students and supporters back to the campus, albeit virtually. As might be expected, PD-MOOCs often are designed to upgrade the workplace skills of their participants—such as learning about a new statistical software tool, regulatory procedure, mortgage lending practice, or management style. Importantly, participants can sign up from their computers or mobile devices and participate in a PD-MOOC to quickly access the course content from wherever and whenever it is convenient. No longer must a person apply for admission, find funding, and then travel to a campus for several months for classes. With a MOOC, the course is online and typically without direct costs, although those who desire some sort of official recognition for MOOC completion may be required to pay a fee.

In addition to PD-MOOCs, other types of MOOCs have emerged during the past few years. For instance, remedial MOOCs are designed to help students who have fallen behind academically or lack sufficient skills or competencies to move to the next level. Remedial MOOCs often respond to the lack of sufficient reading, writing, mathematical, or general study skills among first time college entrants (Bandi-Rao & Devers, 2015). Other types of MOOCs may be aimed at learners who want to take advanced placement (AP) tests. For example, learners can enroll in courses from edX's High School Initiative (edX, 2014b) with more than 40 high school and AP exam preparation courses in such areas as calculus, computer science, biology, Spanish, introductory psychology, and physics.

In addition to professional development, job reskilling, remediation, and advanced placement, there are still other types of MOOCs or MOOC-like derivatives. Among these MOOC-like forms are BOOCs (big open online courses), MOOD (massive open online discussion), SPOCS (small private online courses) (Watters, 2013), and DOCCs (distributed open collaborative courses) (Bonk et al., 2015). Not surprisingly, many visions and plans for MOOCs, especially those that focus on requirements related to certification of completion or competency, presently lag behind in their implementation as institutions work to codify and align MOOC experiences with traditional forms of accreditation. As with any new instructional delivery system, much remains to be sorted out when it comes to MOOCs and the general use of open educational resources (OER) and open courseware (OCW). Nevertheless, the wide array of MOOC related terms and their associated forms of organization and delivery fuels the discussion between those supporting and those arguing against the long-term potential of MOOCs as a type of transformative and, for many, disruptive delivery mechanism.

MOOC Vendors and Lists

Many people complain that they have trouble locating high quality online contents (Bonk, Lee, Kou, Xu, & Sheu, 2015). Others cannot find the MOOCs or open educational resources that they need. Fortunately, there are lists of MOOCs from each MOOC vendor such as Udacity, edX, NovoEd, Coursera, and Udemy in the United States as well as from companies in the online learning and course management space which have begun offering MOOCs, such as Blackboard and Canvas. In addition to these U.S.-based entities, there are initiatives such as Mirada X in Latin America, Open2Study in Australia and New Zealand, FutureLearn from the Open University of the UK, iversity from Berlin, and the OpenupEd project from Europe. There are also summary lists across the MOOC providers such TechnoDuet, the MOOC List, Class Central, and Open Culture. Which of these lists will assume prominence in the coming years is difficult to forecast. It is likely that one or more additional services will emerge to better aggregate, advertise, and even manage MOOC courses and programs.

MOOC Business Plans

A common question related to MOOCs and other forms of open education is if these resources or courses are free, then what is the business model? Just how are they sustainable? A number of ideas to sustain MOOCs as a learning delivery vehicle have been discussed in the past few years. Some of these are listed below.

1. Require a course entry fee;
2. Establish a small and flexible program application fee (though it remains free or inexpensive for those from developing parts of the world);

3. Assign a fee for graded work, secured assessments, or examination processing (e.g., the University of the People);
4. Prove a certificate of completion or licensure fee option [Note: the certificate option is highly common across MOOC vendors; MOOC providers like Coursera has a “signature track” whereas Udacity refers to this as a “nanodegree” (Schroeder, Cook, Levin, & Gribbins, 2015); it might also be referred to as a microcredential, or microlearning (Grovo, 2015)];
5. Charge tuition fees for those seeking course credit;
6. Charge a course enhancement fee for learners who desire more sophisticated or extensive content;
7. Sell data analytics derived from MOOC participants;
8. Provide a free initial MOOC experience in a certificate or degree program (i.e., what the business world would call “a loss leader”);
9. Sell instructional support services and ancillary services (e.g., tutoring, study preparation, etc.) around MOOCs;
10. Recruit advertisers to underwrite courses and degrees.

Other ideas for generating income from MOOCs include revenue sharing schemes, membership or subscription services, donation models, corporate sponsorship, talent location fees and commissions, and content leasing and licensing. Recently, some universities like Georgia Tech University are experimenting with lowering the cost of traditional degree programs such as those in computer science by offering courses via MOOCs and removing or significantly reducing fees associated with being on campus (DeMillo, 2015). Clearly, there are various ways to support the giving away of educational services such as a MOOC. Additional business plans and models related to free and more open forms of education will likely emerge in the coming years. For now, it is important to learn from the experiences of those using one or more of the ideas listed above.

Why Should Instructional Design and Technology Professionals Care about MOOCs?

There are numerous reasons why instructional designers and other professionals in the field of instructional design and technology should be aware of MOOCs. First of all, they currently represent a scalable and disruptive form of educational delivery; as such, they are gaining the attention of educational administrators as well as instructors, parents, learners, and even politicians. Consequently, instructional designers and other educational technology practitioners are increasingly asked to design, develop, and evaluate MOOCs. Second, a wide array of organizations and institutions are experimenting with MOOCs and other forms of open education. As a result, there are many job opportunities for those who have experience with aspects of these new forms of educational content and delivery; especially those who have assumed leadership positions on MOOC-related projects and initiatives. Third, while the jury is still out on MOOCs, those involved in designing and offering MOOCs have a unique opportunity to impact the lives of people around the world that they will likely never meet. Involvement in MOOCs, therefore, might be highly meaningful work. Fourth, as a fast emerging form of educational delivery, MOOCs are testing the limits of technology, instruction, and learning. Those involved in such experiences would likely be piloting unique approaches to instructional delivery including the use of emerging technologies that might have relevance in other forms of online learning. Fifth, many resources have been allocated to MOOC ventures.

Given these and many other reasons, we recommend that those interested in instructional design and technology at any level seriously consider gaining experience related to MOOCs.

As mentioned earlier, MOOCs have been employed for a vast array of learning needs and situations from remedial skill development to advanced learning at the secondary or higher education levels to skill upgrades and retooling for the general public. Notably in 2014, the company ALISON offered MOOCs to help with the Ebola crisis, while at about the same time, FutureLearn from the Open University in the UK offered a MOOC related to the Scottish referendum on independence (Reynolds, Reeves, Lee, & Bonk, 2015). Even more recently, Arizona State University partnered with edX to create the Global Freshman Academy that directly addresses the escalating costs of higher education by providing MOOCs as a low cost option for introductory college courses (Lewin, 2015; Stripling, 2015). Along these same lines, as indicated earlier, Georgia Tech is unbundling the costs of its master's program in computer science to provide a much more competitively priced degree program for those who select the MOOC option (DeMillo, 2015).

In the corporate training world, there is more attention being given to MOOCs as well (Hilger, 2014). For instance, engineers at Yahoo! can now obtain certificates via MOOCs (Meister, 2013). In this same vein, corporate MOOC provider Udacity has formed the Open Education Alliance to help educate the workforce of tomorrow by providing “nanodegrees” in areas like Web design, coding, interactive 3D graphics, and data analysis (Waters, 2015). Similarly, Aquent Gymnasium offers free technology courses for creative professionals in Web design, Coding, JavaScript, and related skill areas. Yet another example is SAP, which now offers “OpenSAP” for its partners and various developers of SAP technologies to educate them in its technologies (Bersin, 2013).

Quality Concerns for Instructional Design and Technology Professionals

While it is obvious that MOOCs are opening up many new ways to learn online, the issue of quality has not been adequately addressed to the satisfaction of most critics of this unique educational development. First of all, no widely accepted means for accreditation of MOOCs has emerged to date. Second of all, some critics point to the low completion rates among MOOC enrollees (only two to ten percent) as a sign of their poor quality. Keep in mind, however, as previously noted, such data often stems from studies of xMOOCs, not cMOOCs, pMOOCs, or PD-MOOCs. Moreover, there are new ways to look at actual engagement and course completion, such as following those who participate beyond the first week sign-up. Stated another way, many potential participants have good intentions when signing up but often forget about the course or lack sufficient time to devote to it.

Quality can be examined using criteria other than course completion (edX, 2014a; Reeves & Bonk, 2015). For instance, an investigation of the degree to which instructional design principles were represented in 76 randomly selected MOOCs (26 cMOOCs and 50 xMOOCs) found very weak evidence of these principles across both types of MOOCs (Margaryan, Bianco, & Littlejohn, 2015). Although we know of no research to verify this, we speculate that relatively few MOOCs have been designed systematically with the aid of skilled instructional designers; instead, most MOOCs appear to have been assembled by a mix of subject matter experts and computer programmers using persisting instructional materials.

A third obvious quality issue relates to the assessment of learning in MOOCs, especially when a specific MOOC involves topic areas that are difficult to objectively assess and score. There is also widespread concern voiced about the acceptability of MOOC credit by potential employers. Still other issues include: (a) the extent to which MOOCs are truly open or full-fledged courses, (b) the capacity to transfer MOOC credits into other educational systems, (c) the English dominance in MOOCs, (d) issues of online plagiarism and verification of competence, (e) the use of copyrighted material, (f) adequate instructor training, and (g) various problems of equity and access, especially in regards to MOOCs that are, by intent and design, not free.

Despite these assorted issues and concerns, MOOCs and various byproducts of MOOCs will most likely be around for some time into the future. As such, instructional designers, learning center directors, human performance technologists, and many others need to be aware of what a MOOC is or represents as well as their potential for extending and enhancing learning opportunities. Additionally, we encourage instructional designers or those in instructional design and technology programs to enroll in several different types of MOOCs to gain direct experience of their quality (or lack thereof).

MOOC Challenges and Barriers for Instructional Design and Technology Professionals

Beyond the array of issues mentioned above, MOOC instructors, instructional designers, and other instructional technology professionals face many other challenges and barriers related to MOOCs and open education. Among these key barriers is finding and organizing quality content for use with thousands of participants. Given the wealth of online content available today, it is not only difficult to ascertain if one has located the most effective, current, useful, and accessible resource, but it is often equally challenging to produce an instructional strategy or set of strategies that aligns with and best implements the content within the problems, needs, and interests of diverse MOOC learners from different global regions and with unique expectations. Simply put, even though MOOCs are a liberating and disruptive technology, they represent a form of technology that is severely constrained and challenged by the immensity and complexity of its undertaking.

To this end, instructional designers who have traditionally organized instruction around accepted and canonical accounts of knowledge using behavioral or cognitive approaches to learning and instruction may be compelled to extend their designs and invite broader models of both learning and teaching to inform their efforts. For example, forms of feedback and assessment that extend across cultural, linguistic, and social boundaries present huge challenges; especially when they must align with various standards of practice. The massiveness of each MOOC course makes it extremely difficult, if not impossible at times, for the instructor to provide timely and accurate feedback to all of the diverse learners enrolled in the course. Yet another issue relates to creating sufficient instructional supports so that the open education aspects of MOOCs are not burdening the learner with too much content or choices. Opening up access, while important in offering learners a sense of autonomy and control, can seem chaotic and easily overwhelm the cognitive capacity of participants involved in the course experience.

MOOCs and the corollary distribution of open resources hold promise to advance cultural understanding and interaction, but this potential will not be realized in the present form of

MOOCs and other types of open education. Some critics maintain that MOOCs are a 21st century form of digital colonialism whereby the cultural practices, systems, and knowledge of the developed world are delivered to the developing and less developed world via MOOC platforms with little attention paid to learning needs across cultures and languages (Portmess, 2013). As such, MOOC-based instructional design approaches—perhaps more than other forms of instruction—require that participant voices and personal forms of agency be included in instructional considerations. More than ever before, instructional design and technology professionals need to discuss viable ways for MOOC participants and learners to evaluate and deal with culturally offensive or hegemonic open resources. However imposing these challenges might be, there remain unique opportunities to formulate educational reforms that promote culturally thoughtful and respectful instructional designs that reduce or perhaps even eliminate such types of learner impediments and barriers.

Designing MOOCs: Some Guidelines

In some ways, designing a MOOC is similar to designing any type of online course experience. And, yet, in many ways, it is different. The design principles, however, will depend on the intended type of MOOC experience and content area. Some general guidelines and principles for the creation of MOOCs are listed below.

- 1. Plan for the experience.** Perhaps the most important instructional design principle is to plan ahead for the MOOC experience. Naturally, some activities will evolve during the MOOC and be in response to learner needs. However, given the scale of a MOOC, there is much that must be designed and produced before the first class, including any video lectures, most, if not all, of the course tasks or activities, and the course assessments and examinations. In regards to the course tasks and activities, it is especially important for clearly designed participation opportunities such as discussion summarizer, content aggregator, annotator, and cultural interpreter (Bonk & Khoo, 2014).
- 2. Build in feedback for each experience.** Feedback is critical in online environments; it is even more so in a MOOC. Feedback can come from other participants or learners (i.e., peers), the instructor(s) or instructional staff, self-evaluation, tutors and mentors (including prior learners of the MOOC), and the computer system. Feedback provided by computer algorithms is more often associated with xMOOCs. Other approaches involve peer review and different forms of group collaboration and evaluation.
- 3. Create interactivities.** To increase retention, it is vital to create interactive sessions in a MOOC such as polling questions in a synchronous session or debates, role plays, discussion forums, and surveys. Participants want to know that their voices are being heard.
- 4. Provide Variation and Choice.** Choice and variation of tasks is not only possible online, it is essential (Bonk & Khoo, 2014). Offer various types of tasks including self-initiated groups and collaborations with others as well as personal reflection activities. Embed the possibility to modify previously created learning objects using combination, permutation, substitution, deletion, and other strategies. Be sure to place learning objects into open resource collections and repositories.
- 5. Combine Synchronous and Asynchronous Experiences.** There is an increased social presence with synchronous experiences. However, combining both synchronous and

asynchronous experiences in a MOOC provides opportunities for reflection as well as interaction.

6. **Segment Video and Other Course Components.** Short video clips of under 20 minutes are favored by MOOC participants over longer episodes. The technology tools to segment video are increasingly available (e.g., TubeChop), as are tools to annotate such video content as well as assess the learning from watching shared online video lectures and other content.
7. **Design responsive and interactive learning communities.** There are many forms of social media (e.g., blogs, Facebook, Twitter, Pinterest, etc.) and collaborative technologies (e.g., wikis, Adobe Connect, Skype, Google Hangouts, etc.) for developing and building an online community of learners. Although certainly present to some degree in other MOOC formats, the creation of learning and sharing communities is often associated with cMOOCs.
8. **Build in moments or opportunities for self-reflection and team reflection.** Given the thousands of potential MOOC participants, individuals need to reflect on their own personal learning journeys and accomplishments.
9. **Provide Weekly Recaps and Updates.** With all the various resources provided and shared within a MOOC, a weekly summary of shared resources helps participants cope with information overload.
10. **Personalize the experience or activity where possible.** Addressing learners by name or location will foster more learning connectedness, as will linking to various social media sites or course profiles that include information that might promote personalization.
11. **Engage in Resource Sharing.** Often the MOOC participants will have knowledge and experience that the MOOC instructor(s) lack. Finding ways to share such experiences and resources will expand the course resources and learning possibilities.
12. **Be Willing to Change Midstream.** There are myriad people relying on the MOOC experience. If the course seems to be lacking in quality or participation, consider changing the delivery, assignments, evaluations, or other variables.

Conclusions and Future Directions

The emergence of the Web as an educational delivery mechanism has brought with it the development of MOOCs. There is much criticism and caution as well as hope and opportunity about MOOCs and open education. Clearly, a range of issues related to training, attrition, language, accreditation, design, and assessment still need to be explored further. Along these same lines, the quality of MOOC content and delivery remains a fundamental challenge and concern. While much is already known about the effective design of a MOOC, many instructional design considerations and practices for MOOCs and MOOC-related spin-offs will continue to unfold during the coming years.

It is likely that you will encounter MOOCs both in your professional lives as instructional design and technology professionals as well as in your personal lives as self-directed online learners, whether in early adulthood or much later in your career or even in your retirement years. Massive open online courses related to your personal interests as well as your job responsibilities are being offered each day. We sincerely hope you enjoy the new opportunities that MOOCs bring to satisfy your internal curiosity about a particular topic and overall thirst for learning.

Hopefully, this chapter offered you some insights in designing, as well as participating in, a high quality MOOC experience.

Application Cases and Questions

1. You work as an instructional designer in the flagship university in a state that is known to rate low on national rankings of health and fitness. You and a team of public health and online education experts have successfully written a grant proposal to a large foundation to address this concern in your state. The governor's office heard the exciting news and invited you to attend a major press release that makes the headlines in several newspapers; you even get to briefly meet with the governor before departing back to your university about an hour or two away. A week after you return, you find out that the university in which you work has just inked a deal with a major vendor to offer MOOCs. Unfortunately, it is not the MOOC vendor with which you are familiar and your team has planned for. You and your team are charged with helping design courses on meditation and mindfulness, fundamentals of human nutrition, digital fitness training, exercise physiology, physical and mental health, marathon training, rethinking aging, and sustainable healthy diets; the first two of which are supposed to roll out in three short months. To your surprise, thousands of people in your state are already pre-enrolling for these courses. Regrettably, however, due to downsizing by your university, one of the two key people from the School of Public Health with whom you were initially planning to work is no longer employed by your university. Your reputation is at stake. In this scenario,
 - a. What are two or three major issues that you feel must be addressed in this situation in order to insure that the project is a success? What key steps might be undertaken to resolve them?
 - b. What types of instructional design features or interactive components might you embed in these MOOCs on health and fitness to help them succeed? Are there specific pedagogical activities that can enhance these types of courses?
 - c. What resources might you turn to in order to learn more information about health and fitness MOOCs and health and fitness in general?
 - d. How might you evaluate the degree of success in this project? What are your criteria or goals? How might you sell your assessment approaches to management?

2. You work for a private, enrollment driven university that is trying to improve its Latin American market share through offering an E-Teaching and Learning master's degree specialization utilizing four MOOC-based courses. This new degree program will generate revenue by offering the for-credit program at a reduced cost in Latin America. It will also charge for completion certificates. As such, instructional activities and strategies that will be built into it must not only answer to the needs and standards of practice of the program, institution, and professional society, but it must do so in a way that responds to the cultural, linguistic, and political differences between the United States and Latin American countries. You and your instructional design team have been selected by the university leadership to address this new initiative. The university president's office is

enthusiastic about the potential enrollment driven revenue that will be generated when the new program is fully implemented. To expedite the roll out of the MOOC-based e-teaching and learning specialization, the president has formulated a task force that will handle the program promotion as well as administer the course enrollments and address technological issues. However, the curriculum and instructional activities and strategies are being left to your group of instructional designers and subject matter experts. You and your team are charged with designing courses on: (1) the history and current trends in e-learning; (2) learning theories and instructional approaches in e-learning; (3) assessment and evidence of competence in e-learning; and (4) cultural and linguistic accommodation in e-learning.

- a. How will you manage this project? What policies and practices will you put in place to ensure success?
- b. What types of instructional design features might you embed in these MOOCs to help them succeed?
- c. How will you ensure that the collaboration between the subject matter experts and instructional designers is productive?
- d. How might you evaluate the degree of success in this project overall, as well as the specific MOOC courses you have been charged with designing?

Summary of Key Principles

1. **There are many types of MOOCs.** As detailed in this chapter, MOOCs provide educational content to large quantities of people, typically for free. They include standard course delivery xMOOCs, more socially-oriented cMOOCs, those entailing the completion of projects as in pMOOCs, and courses aimed to upgrade the skills of those in the workforce with professional development; namely, PD-MOOCs.

2. **Business models for MOOC sustainability abound.** There are many business plans related to MOOCs; among the most promising are those with fees for secured assessments and certifications of completion, various subscription models, and those that utilize paid advertisement.

3. **MOOCs can no longer be ignored as a passing fad.** Instructional designers and technology professionals should care about MOOCs since they represent an emerging form of instructional delivery that has gained much traction during the past few years. There is much resource allocation and experimentation underway related to MOOCs and open education in which instructional designers will play a key role in the ultimate success. MOOCs are testing the limits of instructional technologies and pedagogical approaches to potentially change people's lives. They are serving an increasing role in secondary schools, higher education, and corporate training. With nanodegrees and certificates, there will be additional inroads made in this field in the coming years.

4. **Many complex issues underpin MOOC quality.** As might be expected, there are many quality issues related to MOOCs. Some concerns relate to the means and types of assessment, whereas other issues include low completion rates; especially for xMOOCs. At least one large scale research study on MOOCs indicates that the application of instructional design principles in MOOCs is particularly weak (Margaryan et al., 2015). Other issues related to quality include assessment, learner plagiarism, limited instructor training, and the use of copyrighted materials.

5. There are immense challenges and barriers to effective use of MOOCs. The challenges facing those intending to utilize MOOCs include finding and organizing high quality content that is accessible to individuals of varying technological capacity and cultural opportunity. Personalizing the learning experience across the wide cultural, linguistic, and social boundaries of a MOOC is extremely difficult. Another issue relates to knowing what instructional strategies or approaches might benefit the needs and interests of the majority of MOOC participants. Not too surprisingly, the instructional designer is often tasked with creating the instructional supports for MOOC learners that can help them navigate through myriad resources without being overwhelmed.

6. Instructional design principles are beginning to unfold. While MOOCs are a recent phenomenon, there are many solid instructional design principles that are already proven to foster success. Among them are designing multiple ways for participants to offer feedback on peer work as well as receive feedback from others, designing responsive learning communities, building in interactive and engaging learning experiences, recapping course events and support materials, and designing ways to share resources among participants.

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