By Karen Fasimpaur

MASSIVE AND

Massive open online courses (MOOCs), which are already
education, are starting to create new opportunities in K–12
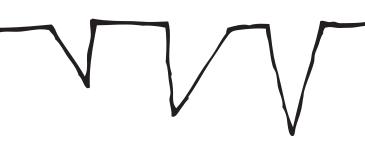
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MOOCs Are the Next Big Thing in Online Learning

MOOCs—massive open online courses—are all the rage these days, with hundreds of thousands of participants signing up and investors plunking down millions to get a piece of the pie. Why is there so much excitement about this new disruptive form of online learning? And how does this model apply to professional learning for teachers?

Let's start with looking at what constitutes a MOOC. MOOCs clearly have a unique structure, but there is no hard-and-fast rule as to what qualifies as *massive*. While Stanford's Artificial Intelligence MOOC drew more than 160,000 participants, other MOOCs may attract as few as 100 students. There is no magic number, and many agree with Alan Levine, a facilitator of the University of Mary Washington's Digital Storytelling course, who says, "The massive part is not really critical."

Open generally means that anyone who wants to participate is allowed to at no cost. However, some institutions do charge participants who want to earn college credits for MOOCs, and this is likely to become more common. While some MOOCs offer open-licensed content that anyone can remix and reuse, others are based on proprietary, copyright-protected content.

The term *open* also refers to how transparent course activity is. Whereas some MOOCs exist behind password-protected firewalls (arguably not open), many MOOCs are set up so that anyone can observe. "Having a larger public audience for the learning and work that gets done … changes learners' whole attitude," Levine says. Regardless of how it is defined, the aspect of openness is what most differentiates MOOCs from other online courses.
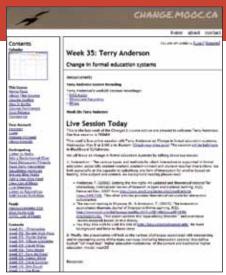
Online is perhaps the one unvarying element of these courses. They all are offered in an online format, though many have a face-to-face component too.

There are other variables across MOOCs. Some have intensive, ongoing involvement of instructors, and others have instructors with less active roles. Some MOOCs are peer driven and participatory, whereas others allow learners to function more independently and in isolation. Some rely on automated assessment, and others are project based. (See "A Brief History of MOOCs on page 16.)
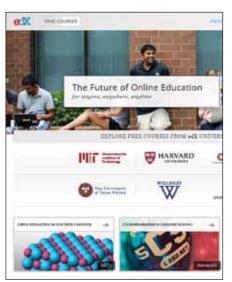
Beyond Facebook: theopenclassroomadlc. instructure.com/courses/8715

Change 11: change.mooc.ca

Connectivism and Connected Knowledge: cck12.mooc.ca

Coursera: www.coursera.org

DS106: www.ds106.us

edX: www.edx.org

Exploring Our Digital Footprints Together: digifoot12.wikispaces.com

Google Power Searching: www.google.com/ insidesearch/landing/powersearching.html

Learning Open Educational Resources: loer12.wikispaces.com

P2PU School of Ed: www.p2pu.org/school- of-ed

Udacity: www.udacity.com

Variations of MOOCs

As these new courses evolve, they span a broader continuum. We're starting to see subcategories of MOOCs, such as cMOOCs and xMOOCs:

cMOOCs. These are what online learning researcher Stephen Downes calls the original connectivist MOOCs. cMOOCs are characterized by deeply participatory learning conducted in peer groups of facilitators and participants. These types of MOOCs often involve participants blogging or creating projects. Assessments tend to be project based and authentic. While cMOOCs are often smaller than traditional MOOCs, they can achieve scale through cohorts of participants that form social learning groups.

xMOOCs. These are the newer MOOCs, such as those offered by Udacity and Coursera. They are truly massive, with participants in the tens of thousands or more. These MOOCs tend to focus on content mastery, especially in academic areas such as computer science or mathematics that lend themselves better to independent study.

"The thing that really distinguishes them from prior models is the scaleable assessment piece," says Steve Carson, external relations director at MIT OpenCourseWare.

Machine-scoreable assessments, whether they are adaptive, simulation-based, or short answer, are a potential game changer. But some subjects don't lend themselves to automated assessment or independent study.

"I found the lack of support, encouragement, acknowledgment, or collaborative spirit extremely disturbing, unsettling, and uncomfortable," says Liz Renshaw, an adult literacy and numeracy consultant in Australia, about one xMOOC.

Renshaw, who has participated in many types of MOOCs, prefers those that foster the emotional connection of a community.

Both models of MOOCs are valid but different. When learners choose a MOOC, they should consider the structure and design that best meets their learning needs.

MOOCs for Teachers

Some MOOCs are specifically designed for K–12 teachers. These MOOCs offer an authentic model of professional learning.

Last year, Verena Roberts, an elearning consultant and chief education officer for www.GlobalEd.ca, started a course for K–12 teachers called Exploring Our Digital Footprints Together (#DigiFoot12). This was Roberts' first foray into facilitating this kind of course, which she calls "not an official MOOC." It had approximately 150 participants and featured several guest presenters. The course was housed on a wiki, tapped into a variety of social media tools, and used Blackboard's Collaborate software for synchronous sessions,

provided through collaborator Steve Hargadon, founder of Classroom 2.0. Hargadon has also set up the site www.MOOC.me, which offers a clear and simple way to create, list, and view MOOCs.

Roberts created her course after participating in several other MOOCs and finding that K–12 education wasn't adequately represented. She found some other MOOCs to be intimidating and lacking in supportive social connections.

Roberts believes that in the K–12 space, it is critical to provide a well-scaffolded environment for teachers. MOOCs and other online professional development opportunities should be engaging and support teachers' needs in their own classrooms.

"It needs to be something that teachers can take away and use immediately," Renshaw adds.

Roberts favors an inquiry-driven approach to online learning. In the Digital Footprints course, participants

A BRIEF HISTORY OF MOOCS

The term massive open online courses was coined by Dave Cormier and Bryan Alexander in reference to the 2008 course Connectivism and Connected Knowledge, which was facilitated by George Siemens and Stephen Downes in partnership with the University of Manitoba. This course was then, and continues to be, offered for credit to registered students as well as to anyone in an open format.

In fall 2011, the evolution of MOOCs took a new direction with Stanford University's Introduction to Artificial Intelligence course, facilitated by Sebastian Thrun and Peter Norvig. The team that developed it went on to start the for-profit company Udacity, which has attracted considerable attention as a disruptive force in higher education.

Udacity offers courses for free with an option to pay for certification. Another part of Udacity's model is to match qualified students with hiring companies that it partners with.
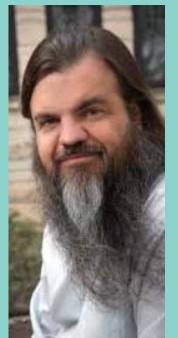
Another entry to the MOOC space is Coursera, a for-profit company that partners with leading universities to offer free online courses. Its course offerings span a wide array of topics, from computer science to the humanities and education. Coursera's pedagogical approach includes mastery learning and peer assessment, which is used where automated assessment is not appropriate.

MIT has long been involved in open online courses through the MIT OpenCourseWare initiative and recently entered the MOOC space through MITx. Its first course, Circuits and Electronics, was offered in 2012 and had nearly 155,000 people registered at the start. Of those, roughly 23,000 tried the first problem set, 9,000 passed the midterm, and 7,157 (or a little more than 4.5% of those registered) passed the course as a whole. Although that final percentage might not seem that impressive, as Anant Agarwal, MIT professor and president of edX, says, "If you look at the number in absolute terms, it's as many students as might take the course in 40 years at MIT."

MIT and Harvard created edX in 2012 as a non-profit organization dedicated to developing MOOCs. The University of California Berkeley has since joined them.

Since the creation of edX, many more MOOCs have sprung up as this learning innovation continues to gain popularity.

Dave Cormier

Bryan Alexander

George Siemens

Stephen Downes

Sebastian Thrun

Anant Agarwal

Peter Norvig

MOOCs are primarily used for informal learning, which calls for flexibility and highly modularized content so that learners can pick and choose what is most applicable to them.

explore topics such as social media, digital citizenship, and investigation skills through probing questions, sharing of experiences, and hands-on projects. In one module, participants shared experiences related to digital identity and went on to track their own digital footprints online. They then applied this information to school policies and classroom activities. Teachers can use this inquiry process in their own classrooms as well.

Teachers may also need guidance in how to participate in peer-driven learning. Last year, Peer 2 Peer University (P2PU), a grassroots organization offering free, open-licensed opportunities to learn almost anything, started its School of Education for K–12 teachers. P2PU has offered 25 courses on topics ranging from differentiating instruction to e-portfolios for teachers, with relatively small groups and a high level of facilitator and participant interaction.

Initially, organizers found that many participants weren't comfortable with a participatory, peer-driven style of learning. Some teachers said it was very different from their past professional development experiences, which were delivered top-down in a manner that didn't involve active participation. In response, a group at P2PU put together Empower Your Personal Learning to explore why and how teachers might take control of their own learning.

Renshaw values P2PU's collaborative context, diversity of voices, and rich potential. As the P2PU teacher community grows, conversations are developing that spawn new courses and groups.

Another course that offers participants unique opportunities to both connect with others and engage in hands-on activities is Digital Storytelling (DS106), developed by Jim Groom, director of the Division of Teaching and Learning Technologies and adjunct professor at the University of Mary Washington in Fredericksburg, Virginia, USA. This course was not specifically geared toward teachers but has developed a following in the education community.

DS106 is offered as a face-to-face course for credit at the university but is also open to anyone online. This option has attracted thousands of participants, including students at other institutions who have taken it. One unique feature of DS106 is a large assignment bank that students can choose from and submit ideas to. DS106 uses a unique model of network aggregation to compile student submissions of work, including audio, video, and photography projects, prompting broad sharing and collaboration. These activities, along with the intensive support of course facilitators, create a strong feeling of community.

A sense of community is a critical factor in the success of MOOCs for teachers and must be built over time and sustained through ongoing participation.

"Community can't be created course by course," Carson says. Participants should seek online communities that persist, are strong, and align with their own interests and goals.

The Future of MOOCs

MOOCs are here to stay! The larger xMOOCs will see experimentation in the areas of adaptive instruction and automated assessment. New partnerships with traditional universities are likely to explode. For-profit MOOC providers will also try different business models to bring revenue.

At the same time, cMOOCs will also thrive. While their enrollment numbers will not be as high as xMOOCs, their impact may be as great, particularly among specialized communities, such as educators. For teachers' professional learning, a hands-on, highly participatory environment is likely to be the most effective approach.

While some critics express concern about the high "dropout" rate among students who participate in MOOCs, this may not be the right frame of reference. MOOCs are primarily used for informal learning, which calls for flexibility and highly modularized content so that learners can pick and choose what is most applicable to them. In the future, MOOCs will need to offer learners more choices for how to participate.

Traditional educational institutions will need to consider what, if any, part they want to play in the MOOC space and how they can best serve their on-campus learners as well as the broader universe of potential students.

"Why should education be this box with 18 people in a classroom?" Levine asks. "It's a good opportunity to rethink and experiment with how learning happens."

For lifelong learners, MOOCs offer unprecedented opportunities. Every educator should participate in or lead a MOOC to appreciate this new form of learning and to bring its strongest benefits to their own classrooms, Roberts says. Everyone benefits where there are so many new learning opportunities available.

Karen Fasimpaur works with schools to integrate mobile technology into the curriculum to enhance learning. She is also an evangelist for open education, an award-winning author, and a blogger.