The Evolving MOOC

When MOOCs (massive open online courses) emerged to great fanfare in 2011–2012, colleges and universities wrestled with how to best approach this new development in online learning, a development that promised to vastly increase access to education. Some institutions developed their own MOOCs with help from leading MOOC providers, whereas others engaged in sometimes heated discussions with their constituents on whether and how MOOCs might fit with their institutional missions and goals.

According to several recent studies on MOOC efficacy, the model—at least in its traditional form of open lectures and problem sets—is not the panacea that many had hoped it would be for worldwide access to education. The vast amounts of data provided by MOOCs reveal that the courses have extremely low completion rates. A recent study by Harvard and MIT found that 5 percent of the people registered for the first seventeen edX courses in 2012–13 earned a certificate of completion. The researchers also found that only about 3 percent of total participants were from underserved areas. In addition, 66 percent of all participants, and 74 percent of those who earned a certificate of completion, already held a bachelor’s degree or higher.1 Researchers from the University of Pennsylvania Graduate School of Education found that 4 percent of the one million users of Penn’s MOOCs completed the courses and that only around one-half of the registered participants listened to a lecture.2 A second study at Penn found that 83 percent of MOOC participants already had a postsecondary degree.3 San Jose State University’s partnership with the leading MOOC provider Udacity to offer low-cost online courses for college credit produced less than desirable results: students enrolled in the spring pilot online courses had lower pass rates than those in traditional on-campus classes.4 Although MOOCs have provided a valuable resource to many students, they seem to have fallen short of expected markers of success. As Sebastian Thrun, the founder of Udacity, famously pointed out in November of 2013, when it comes to MOOCs, our dreams and our data don’t match.5

Despite this discouraging news, MOOC momentum continues to grow. Many institutions are investing time and money in developing MOOCs. Stanford University, having propelled MOOCs into the spotlight, continues to offer new courses and share the exceptional caliber of its institution with the world through the leading platforms developed by its professors: Coursera, Udacity, and now NovoEd. Udacity has recently focused its attention on providing widely accessible professional development courses for people working with technology, using highly interactive content and instructors who come directly from tech companies. And edX, the nonprofit co-founded by MIT and Harvard, has continued to strive for broad access and availability of its courseware, attracting a large base of institutions to its platform.

Other colleges and universities are developing new types of MOOCs with specific audiences and goals in mind. For example, over the past two years, the leadership at Harvey Mudd College engaged in discussions with the campus community, including the board of trustees, about how the college might incorporate MOOC technology to further its mission and strategic vision. We base any decision that involves investment of college resources on our strategic vision. We asked ourselves the kinds of questions that other colleges and universities were surely asking: for example, should we create our own MOOCs? As a liberal arts college specializing in engineering, science, and mathematics and committed to innovative teaching, Harvey Mudd could offer outstanding MOOCs in many fields. On the other hand, our faculty and students prize the close one-on-one and small-group learning that is essential to the Harvey Mudd educational experience. Our faculty members already dedicate enormous amounts of time and energy—gladly and passionately—to hands-on research and experiential learning with our students. How could we, as a small college that must use its resources wisely, best incorporate MOOC opportunities to further our mandate for leadership, innovation, and societal impact, particularly in engineering, science, and mathematics education?6

We decided to tackle one of the most pressing issues facing STEM education today: the lack of women and students of color pursuing degrees in computer science and physics. Although these groups have been making steady progress in other STEM fields, their numbers have remained quite low in physics and are low, and dropping further still, in computer science. Research shows that students who are not exposed to computer science and physics in high school rarely go on to pursue these fields in college.4 Yet many high schools, especially those serving populations underrepresented in STEM,
feedback to further shape its development. We will use their feedback and data on student results each semester to further improve the course, sharing ideas for courseware changes with local teachers for input whenever possible. In this way, we will assess changes semester by semester and continue to fine-tune content. By enabling a large number of high school teachers to offer advanced science courses through this different kind of MOOC, Harvey Mudd hopes to reach more young students, including women and other groups underrepresented in science and technology, to both strengthen and diversify the K–12 STEM pipeline.

Harvey Mudd’s approach to developing MOOCs is one of many efforts under way at colleges and universities to adapt the MOOC model to fit and further institutional goals. Harvard recently announced that it would offer seven MOOCs exclusively for its alumni, a benefit that will strengthen engagement with the university; several institutions have started offering AP courses for high school students through edX; and instructors are using all or parts of courses for blended learning experiences. The recent discouraging turn in MOOC news is not a signal to abandon ship. It’s a sign that we can, and should, innovate even more. At the intersection of technology and education, we would want it no other way.

Notes


By MARIA KLAWE and ELLY SCHOFIELD

Maria Klawe (klawe@hmc.edu) is President of Harvey Mudd College.
Elly Schofield (eschofield@hmc.edu) is MOOC Program Coordinator for Harvey Mudd College.

© 2014 Maria Klawe and Elly Schofield