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Libraries in the Time of MOOCs

by [Curtis Kendrick](#) and [Irene Gashurov](#)

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MOOCs give librarians new opportunities to help shape the conversation about changes in higher education and to guide administrators, faculty, and students through these changes. To assume this role, librarians must understand the MOOCs landscape. Numerous stakeholders will have an interest in the massive intellectual property that ultimately resides in libraries' owned and licensed digital repositories. Studying and adopting technologies to manage and monitor MOOC usage of library resources will be essential to controlling access and tightening Internet safeguards.

A wave of disruptive technological changes has hit higher education, forcing us to rethink the way we teach, learn, and provide educational resources. For libraries, the growing reach and sheer numbers of [massive open online courses](#) (MOOCs) raise unprecedented challenges and opportunities. As we try to see our role within this new market, it might be worth reflecting on our readiness to operate in the increasingly complex online landscape. Soon, librarians might be asked to provide access to copyrighted, licensed electronic resources for MOOC students around the world. Will we be equipped with the technology to accommodate unprecedented numbers of students inside and outside the university? We will also have to deal with legal issues related to MOOCs, such as intellectual property rights, privacy issues, and state regulations. After exhausting the many ways of saying no to difficult change, perhaps we can find a way to work with all the stakeholders and help shape the rapidly changing MOOC model in concert with our own needs while we still can.

MOOCs: Emergence and Controversy

Predicting the success or failure of MOOCs is turning out to be a popular but futile game. Higher education's regard for MOOCs has risen (10 U.S. public university systems have signed contracts with [Coursera](#)) and fallen (California shelved a bill to accredit MOOCs), but the market continues to grow and change in surprising ways. Coursera, the largest MOOC provider, has grown from 300,000 registrants taking seven courses in April 2012¹ to more than 4 million learners taking 453 courses today.²

Initially, MOOCs extended free courses developed at leading universities — Stanford, the Massachusetts Institute of Technology (MIT), and Harvard — to hundreds of thousands of independent students outside the university. But, last May, Coursera announced that it had formed partnerships with 10 public universities, from the State University of New York to the University of Tennessee, to develop courses for actual credit to students within those university systems. Not to be outdone, [Udacity](#) and [EdX](#) — two other MOOC powerhouses — are creating their own online content for credit-bearing courses at San Jose State University (SJSU), University of California Irvine, and Georgia Institute of Technology, which will launch the first MOOC-based master's program for 10,000 students.

The appearance of these and other MOOC providers has raised heated debate on the nation's campuses. Academics argue about everything from whether the new model threatens to further disenfranchise faculty to whether the courses are sound. Preliminary results from the MOOC experiment in the institutional environment are mixed. SJSU has reported poorer student outcomes with online-only Udacity math and statistics courses in a pilot last spring that compared them to face-to-face classes; as a result, SJSU said it would pause the Udacity course until January 2014 and make adjustments.³

But the SJSU Plus pilot program was offered again this summer, adding courses in psychology and programming, and this time producing student outcomes that in some cases exceeded pass rates of the face-to-face sections. Improved content, more faculty time for students, and a different mix of students in SJSU Plus in the summer session accounted for improved results, explained Udacity founder Sebastian Thrun in his blog, but that did not explain why some online

sections did better than the face-to-face sections that summer. "Not sure how to account for that," wrote an SJSU spokeswoman in an e-mail discussing the SJSU Plus pilot. "This is not an apples to apples comparison because the students who enroll in SJSU Plus for the most part are not matriculated at SJSU." During its hiatus, SJSU is "tinkering, as we do whenever we redesign a course" and discussing offering asynchronous classes that allow students to learn at their own pace. "It's not a one-shot deal with us."⁴

The future of MOOCs will ultimately depend on how certain factors play themselves out, and these factors seem to be changing daily. For instance, how and when will MOOCs finally start making money? How will MOOCs affect what culture critic Andrew Delbanco called the "community of teachers and students that has been the essence of the university for a thousand years?"⁵ And, is there a clear strategy driving MOOCs? "The devil's in the details," said Mark Yudof, the president of the University of California, summing up MOOCs' prospects.⁶

Why MOOCs, Why Now?

MOOCs have arrived on the scene at a time when many institutions of higher learning are in extreme financial crisis. According to the *Chronicle of Higher Education*, "six in ten colleges and universities face balance sheets with flat or declining net-tuition revenue."⁷ The research firm [Gartner](#) reports that technological innovation in higher education has been so disruptive and funding streams so decimated that colleges and universities are being forced to examine their business models.⁸ At the same time, institutions are struggling with issues of class availability and student demand, with their attendant implications for tuition, revenue, and total time needed to complete a degree.

To many, online courses appear to be the answer. John Hennessy, president of Stanford University, said that online education is "our best hope" for making quality education widely accessible at a low cost.⁹

California lawmakers saw MOOCs as the answer to their overburdened public university systems and were ready to pass into law an online education bill that would establish incentive grants for California's public universities to offer full credit for MOOCs to students whom they couldn't accommodate in classrooms.¹⁰ However, the bill came to a halt after three public higher education systems announced they would expand their online courses.¹¹

At present, few options exist to educate more students at lower costs, increase course availability, and extend the reach of colleges and universities beyond the constraints of time and place by which they have traditionally been bound. MOOCs can provide more educational opportunity. For instance, the online for-credit Udacity math courses at SJSU were offered for \$150 per course, as opposed to the typical \$350 to \$750 per credit fee for on-site courses. The State University of New York (SUNY) recently announced Coursera as an option for online learning at two-thirds the current tuition cost and let students transfer up to one-third of their MOOC credits offered at other campuses within its system. But will this scenario work in our universities and for a broad range of students?

One of the few recent academic studies on MOOCs in the *International Review of Research in Open and Distance Learning* found that "the courses attracted adult, informal learners who were not concerned about course completion."¹² In a brief yet thoughtful article, Harry Pence of SUNY Oneonta raises the concern that "at a time when there is so much of an emphasis upon degree completion, one might question whether it is desirable for colleges to move toward the high dropout rate typical of MOOCs."¹³ A recent study of MOOC students on the [Canvas Network](#), found that granting credentials or college credit could increase MOOC completion rates,¹⁴ but it is not yet clear how many students will want to enroll in MOOCs for credit.

Within the MOOCs Whirlwind: Education at Scale

Although the platform is still in its infancy, MOOCs have demonstrated their most effective role in supplementing the "flipped classroom," a hybrid educational model where students watch video lectures in advance and do "homework" and interact with a faculty member during actual classroom meetings.

SJSU conducted its own experiment to test the flipped classroom when it partnered with EdX to offer three versions of an introductory course in electrical engineering. In one flipped class, students watched online videos created by MIT faculty as an open [MITx](#) course (the MIT model of EdX) and then came in to class for short lectures with SJSU faculty and

group activities during class time. "The principal benefits are that students cannot fall behind because they must complete the homework to keep up with the classwork, which is done in groups, so those who fail to keep up immediately stick out," wrote an SJSU spokeswoman in an e-mail. The other two sections were conventional face-to-face classrooms. The outcome: 91 percent of students passed in the flipped course, compared to only 55 percent and 59 percent in the face-to-face classrooms.¹⁵ Encouraged by the results, SJSU officials announced plans to offer the blended courses on other California State University campuses in the future.

According to McKinsey, the management consulting firm, the flipped classroom is one of the forms of hybrid learning that will define higher education's future. Students who can afford to pay more will learn in a "campus-centric" environment, in which lectures are shown online and small-group discussions occur in brick-and-mortar classrooms. The other far less costly model is "digital-centric," in which education occurs mainly online but might be complemented by self-organized study groups, as is already happening with MOOCs.¹⁶

In an e-mail exchange with us, James Michalko, vice president of the [OCLC Research Library Partnership](#), cautioned that because online education is changing so fast, it's important not to be focused on the current form: "As more and more colleges experiment with MOOCs," Michalko wrote, "outmoded technology like the text-based discussion boards [currently used in MOOCs] may be transformed into tools that let students interact socially in a more natural way."

Moreover, not every future online class will be a MOOC. "In the future, discrete learning objects, such as tools or topic-specific modules, may be widely applied to support individualized teaching and learning," said Harvard President Alan Gerber. "Not every experience the university offers will be a complete course."¹⁷

MOOCs in the Market

MOOC development emerged from the most elite universities, which initially offered their open-source courses as a tool to help students succeed in introductory classes. In its original contract, Coursera intended to restrict its partner base in North America to universities that are members of the [Association of American Universities](#) (AAU). But as MOOC providers expand their partner base by reaching out to non-AAU partners (such as the 10 public universities in the deal mentioned above), the landscape is changing quickly. As MOOC providers try out different monetization strategies, there is growing concern that the pressure to generate revenue might push them to interfere with academic norms of sharing, according to media guru Clay Shirky. "While [commercial providers] start out well in the beginning, over time they extract the last profitable dollar."¹⁸

The MOOC marketplace is rapidly evolving as it is forming, and ultimately the services must become economically viable. Currently, each of the companies offering MOOCs follows different strategies to this end.

Coursera

The biggest player, Coursera, was launched with \$22 million in venture capital and raised another \$43 million in July 2013. Its early contracts focused on trying different monetizing strategies for the otherwise free MOOCs, such as asking students to pay a small fee (tens of dollars) for a certificate of course completion for its [Signature Track](#) model. From its launch in January 2013 through this September, Signature Track collected \$1 million in revenue, perhaps an early sign of its profitability.¹⁹

Another way that Coursera expects to generate revenues is by permitting third parties — such as textbook publishers — to license copyright-protected Coursera materials as supplemental materials on a payment and profit-sharing basis, giving anyone who buys the textbook free access to the MOOC material as well. A third source involves the analysis and sale of data "arising from mass participation." A fourth source of revenue might come from fees for giving companies leads on appropriate job candidates from among course participants.²⁰ Universities partnering with Coursera typically share 6–15 percent of the course revenue and 20 percent of its gross profit.²¹

Coursera's new contract is significantly different. Under this contract, university partners pay a licensing fee to test pedagogies that use the Coursera platform. Options include incorporating Coursera material into the university's credit-bearing courses or using the Coursera platform to develop courses of their own, and in the future offering these courses

to the public. Coursera leaves the issue of who owns the MOOC content to the university or instructor, but this provision might change in the future. In addition, with the student's consent, Coursera will make available to the university "individual and aggregate analytic data" regarding student performance in order to improve learning.²²

Shortly after Coursera announced its partnerships, we queried the chief librarians whose universities had partnered with Coursera about how their institutions plan to give learners outside the university remote access to their electronic resources. Three chief librarians responded to our query. Their institutions were in the early planning stages of supporting interactions between MOOC instructors and students on campus. "This is an experiment to see if the Coursera platform would be useful in delivering online education to our students," said Dean Steve Smith, director of the library at the University of Tennessee at Knoxville. "I have a team thinking about this now, but we are really just in the very early thinking stages." Mary Beth Thomson, senior associate dean at the University of Kentucky, wrote, "These are issues that we will be dealing with as MOOCs expand here." Dean Theresa Liedtka at the University of Tennessee, Chattanooga, said, "UTC is viewing this as an opportunity to experiment with the Coursera platform, but only UTC students will be included, and class size will not change. We are just starting to plan for the fall semester, as we just learned the UTC course had been selected."

Udacity

The for-profit Udacity launched the MOOC movement with \$15 million in venture capital and gets some of its revenue from corporations such as Google and Twitter for developing specialized courses. In June 2013, Udacity opened a new front when it announced its alliance with Georgia Tech and AT&T to develop the first MOOC-based master's degree in computer science. The online program, which will cost \$6,630 — 80 percent less than the current classroom version of this well-regarded curriculum — signaled a new trend in MOOC viability. By the end of the third year, Georgia Tech and Udacity are expected to net a \$4.8 million profit; Georgia Tech will receive 40 percent, and Udacity will get rest.²³

EdX

The not-for-profit EdX is governed by its founding partners, Harvard University and MIT, which each invested \$30 million in the venture. Currently, EdX offers classes from Harvard, MIT, University of California at Berkeley, Wellesley, Georgetown, and the 15-school University of Texas system. Each member retains rights over its MOOC production.²⁴ In addition, EdX has a research goal to study how students learn and how technology can transform learning.

Other Companies

These MOOCs are the most important ones, but the nearly 90 other companies around the world, including [Khan Academy](#), [MOOC Factory](#), and [Udemy](#), are offering MOOCs for higher education, K–12, and professional development, as well.²⁵ Understanding the different types of business models and their impact on education norms — on privacy, sharing, intellectual property, and accreditation — will prepare academic libraries to confront the new legal territory ahead.

MOOCs and the Law

If MOOCs represent the future of education, academic libraries will have to develop strategies to address the issues that they raise. Amanda Marie Baer, an attorney at Mirick O'Connell, reports that, while contracts between Coursera and EdX and educational institutions are neutral with respect to ownership interests of professors or universities, this condition may change in the future, particularly as materials used in MOOCs shift from print to multimedia.²⁶ In particular, the question of who owns the ancillary material that is contributed during the course could end up being a huge individual copyright problem or, worse, a massively complex joint copyright problem, warns K. Matthew Dames, interim dean of libraries at Syracuse University and director of the Copyright and Information Policy Office, who responded to our e-mail asking what he saw as a key forthcoming issue.

At a session of the recent OCLC conference, "[MOOCs and Libraries: Massive Opportunity or Overwhelming Challenge?](#)" speakers emphasized that librarians are increasingly required to guide faculty on the proper scope of the fair-use provision with respect to copyrighted materials in a MOOC. Discussing this with faculty gives librarians the opportunity to recommend alternatives to using third-party materials — such as citing, hyperlinking, or embedding copyrighted sources — and to advocate the use of open-access materials that broaden students' understanding of a topic. "Copyright

talk can lead to alternative resources talk, and librarians are expert at that," said Kyle K. Courtney, Harvard's manager of Faculty Research and Scholarship. In addition, libraries need to develop MOOC-specific copyright policies. "Done right, they resolve ownership issues," said Kevin Smith, Duke University's Scholarly Communications officer.

MOOCs can also inspire universities to review their existing rules about copyright ownership. Currently, faculty members own the right to their scholarship; this is an exception to the "work for hire" rule, which gives ownership of faculty work to the university. The MOOC movement might change this copyright-ownership contract between university and faculty. "MOOCs give cover to universities to begin rewriting rules about faculty copyright ownership in scholarship," said Dames. Another twist in this scenario is that universities might see MOOCs as an opportunity to replace unproductive full-time faculty with part-time faculty, who will bear the teaching load. In this event, the university is likely to claim copyright ownership of all part-time professors' MOOC content.

Yet another potential problem, albeit for universities, is the question of how to safeguard student privacy when the MOOC platform collects data on how students learn. For example, Coursera's data analytics — which can identify student learning patterns — have implications for privacy rights under the U.S. [Family Educational Rights and Privacy Act](#) (FERPA), which forbids disclosure of student information under penalty of losing federal funding. The lack of clear policies on student data collection may endanger student privacy and expose students to the risk of having their data used for commercial purposes. According to the Hanover Research report "Trends in the Use of Learning Analytics," which examines trends in the use of data analytics by universities and by MOOCs, many institutions lack clear policies on student data collection. On the other hand, MOOC providers specify how that student data may be used, including the possibility of selling it to third-party partners, but typically only with student opt-in. To safeguard student information, Hanover recommends that universities create a data governance body to enforce data standards, establish data privacy and fair information practices and policies, and de-identify data.²⁷

MOOCs and Library Resources

For libraries, the new MOOC frontier calls not only for mitigating copyright risk and advocating for new services but also for establishing the grounds for network access. Most institutions are not equipped with the technology infrastructure to manage a MOOC, said Dames, which entails thousands of people pulling or streaming multimedia assets concurrently.

Similarly, MOOCs will require drawing up a new licensing model that gives a huge national and overseas market access to library resources. Typically, libraries give walk-in patrons access to resources but restrict remote resource access to users affiliated with the college or university. This model works reasonably well when there is a known population; with MOOCs, this option is not viable.

One model that might work is an opt-in model for both patrons and vendors. Some MOOC students might take courses without ever using library electronic resources, but students who would like access to those resources could opt for a premium service at an additional charge. With this model, there would be a combination of fixed costs to opt in to the service, plus a per item charge (article or chapter). Operationally, signing up for library service could be part of the course registration process, with the MOOCs provider passing ID information to the library. On the library side, patrons taking MOOC courses exclusively would be segmented from the main patron file. Setting up an authentication schema (such as EZ Proxy) would distinguish MOOC patrons logging in remotely from traditional students and faculty. In addition, having an Internet Protocol (IP) range set aside for the MOOC student would also allow institutions to restrict the amount or speed of downloads.

Segmenting the MOOC students would also let librarians monitor MOOC usage separately from the main university usage and would help ensure that pirates aren't downloading the entire database. Vendors — including database companies, publishers, and aggregators — will be particularly concerned to ensure that access to their licensed database is really controlled and that the marginal revenue from additional users is worth the risk. Using a distinct authentication scheme for the MOOC students will also let institutions put in place more effective security features. For example, additional measures might include a system that prevents access from two or more geographically disparate areas more or less simultaneously. Restricting access to a specific device would be another possibility.

For vendors willing to experiment with access to the library as an opt-in service, only those MOOC students who agreed to pay the premium would have access to vendor-provided resources. With revenue coming in commensurate with usage for this category of students, vendors might come to view this as an additional revenue stream that's worth the extra risk.

MOOCs and the Future

Are MOOCs the wave of the future or just hype? Given the current plethora of existing business models, the numerous sources of academic content, the variety of relationships with established institutions, and the relative dearth of research into what works and what doesn't, it seems far too soon to tell.

Currently, despite all the investors and universities jumping on the MOOC bandwagon, there are signs that higher education's enthusiasm for MOOCs might be slowing down. Dan Greenstein, director of postsecondary education at the [Bill and Melinda Gates Foundation](#) — a big funder of the MOOC experiment — asked in an editorial if there is a clear strategy driving MOOCs in higher education. "We've jumped right into the chase without much of a discussion about the problems [MOOCs] can help us to solve," said Greenstein.²⁸

For some, MOOCs mania might recall the dot-com roller-coaster ride, when stock prices for the new Internet companies soared in the period of exuberance . . . and then went bust in 2001. The vast majority of dot-coms disappeared, but after the detritus settled, the survivors — Facebook, Google, and Amazon — were game changers. It might be that the new MOOC technology is passing through what Gartner calls the *hype-cycle* phase of tech innovation: following their "peak of inflated expectations," institutions are now expressing innovation fatigue with MOOCs and experiencing a "trough of disillusionment."²⁹ In the cycle's next phase, higher education might begin to see a clear purpose and strategy behind the MOOC innovation.

What is beyond doubt, however, is that regardless of exactly how the MOOC phenomenon plays out, numerous stakeholders, providers, and consumers will have an interest in the massive amounts of intellectual property that ultimately reside in our libraries' digital repositories.

As librarians, we are in the best position to confront these challenges, because we work at the intersection of technology and pedagogy, and we are well equipped to understand technology's broader implications and impact on teaching, learning, and scholarship. We understand what infrastructure is essential for a flipped classroom or what licensed resources can be extended to faculty and students. According to Michalko, the type of services that we will offer to help deliver and create MOOCs will be defined by how this form of online education develops on our campuses. If our institution is a major producer of these courses, then library support might involve the production or provision of ancillary materials or the rights clearance of course materials. If, on the other hand, the institution is primarily a consumer of online education, the library might provide meet-up space, organize course materials, or otherwise support the learning experience.

At a minimum, the library should join the university support team to oversee MOOC development; Michalko also recommends that we bring together our copyright, open access, and permission staff members and get our experts to join or lead any cross-institutional teams — such as for instructional technology, licensing, or preservation — that might be formed to bring MOOCs to the campus.

Libraries should not miss out on a chance to get involved in the future of MOOCs on campus; as Michalko noted, "At the times that libraries were slow to help, slow to reconfigure their resources, and waited to see what might develop, they lost chances to renew their importance to their home institution."

The MOOC frontier offers new opportunities for librarians to provide leadership and guidance in advising administration, faculty, and students about changes in higher education. But first, we must study and analyze the MOOCs landscape so that we can shape the conversation about MOOCs and their successors in a more purposeful and organized way.

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