



Interim Report:

A Collaborative Effort to Test
MOOCs and Other Online
Learning Platforms on
Campuses of the University
System of Maryland

October 2013

Ithaka S+R is a strategic consulting and research service provided by ITHAKA, a not-for-profit organization dedicated to helping the academic community use digital technologies to preserve the scholarly record and to advance research and teaching in sustainable ways. Ithaka S+R focuses on the transformation of scholarship and teaching in an online environment, with the goal of identifying the critical issues facing our community and acting as a catalyst for change. JSTOR, a research and learning platform, and Portico, a digital preservation service, are also part of ITHAKA.

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OVERVIEW

One year ago the University System of Maryland (USM) and Ithaka S+R embarked on an initiative to test a variety of interactive online learning platforms, with the broad aim of learning how emerging technologies could be used to improve outcomes and reduce costs for students enrolled in traditional institutions. Coursera became an early collaborator in this effort through its interest in understanding better how students learn from MOOCs and what benefits MOOCs might offer when embedded in hybrid courses. Carnegie Mellon University’s Open Learning Initiative (OLI) and Pearson also joined the effort and are contributing content for several tests. These three platforms have pursued very different approaches to content and technology development and business models. The partnership of Ithaka S+R and the USM provides an excellent vehicle for experimenting with these technologies to understand a variety of ways in which they can best be deployed to meet the needs of institutions and their students. As MOOCs account for the majority of the tests, and so little is known about how they can be used in campus-based environments, these implementations will be the primary focus of this paper. This study is supported by a grant from the Bill and Melinda Gates Foundation.

The backdrop for this initiative has been a rapidly evolving and often heated public discourse about MOOCs, as illustrated by a selection of news headlines over the past eighteen months in Appendix A. Some policy-makers see MOOCs as a lever to lower costs and expand capacity in higher education, while some within the academic community regard them as a threat to their core beliefs about education – not to mention their livelihoods. Attention was initially drawn by the enormous enrollments in public offerings of MOOCs and the involvement of elite institutions, which had largely stayed on the sidelines of online education since the demise of early ventures such as Fathom and AllLearn. There is also considerable optimism about the potential for leveraging massive data streams in order to create adaptive and personalized learning environments. At the same time, a number of studies suggest that students in most traditional college degree programs need – and expect – more personal support and interaction than MOOCs alone can provide, raising questions as to whether MOOCs could be embedded in campus environments set up to provide this kind of structure.

The USM office staff and Ithaka S+R share the view that MOOC platforms have the potential to offer benefits for traditional institutions and the students they serve, but it is critical that decisions to use (or not use) these technologies be based on sound evidence of both their effectiveness and their efficiency. Little evidence or data exist with regards to MOOCs in this capacity and even for hybrid courses more generally. It is essential that we look at the costs as well as the benefits, and that we rigorously monitor and measure both. Thus, much of this paper is devoted to describing the design of this project and the methodologies we are employing for collecting data and analyzing results.

These tests require much forbearance on all sides, because what we are trying to do with MOOCs is new. Many questions have arisen for which no answers yet exist. These questions are noted throughout this paper and illustrate the extent to which this is both an experiment and an endeavor to “learn by doing.” We believe that as much can be learned through the process of embedding MOOCs in campus-based courses as from the empirical results, and we are optimistic that what we learn will be of great value to future adopters. We thought these lessons sufficiently important to produce this interim report in order to share what we are learning about implementation even as most of the tests are just getting underway.

We are extremely fortunate that the USM office and so many faculty members stepped forward to participate in this project. We are also grateful to our technology partners for their contributions to these tests. Coursera, in particular, deserves great credit for joining this effort so early in its life as a new enterprise, as do its partners who granted permission to work with their MOOCs.

Project Scope and Design

Ten institutions in the USM are participating in the study, including research universities, regional comprehensives, metropolitan institutions, and HBCUs. These span the state of Maryland, including institutions serving urban populations, the Eastern Shore, the mountainous western part of the state, and suburbs of Baltimore and Washington D.C. While all are public institutions, they cover a very wide range of institutional types, making this study even more interesting and valuable. In terms of timing, one pilot was run in spring 2013, a pilot and four tests took place during summer 2013, and seventeen tests are underway in fall 2013. At least one test (a summer bridge course using a developmental program from Pearson) will be repeated in summer 2014.

The project encompasses twelve side-by-side comparison tests and ten case studies. Of the side-by-side comparisons, five are with Coursera, three are with OLI, and four are with Pearson (three with MyFoundationsLab using the Knewton adaptive engine, and one with MySocLabs). The tests cover a broad range of disciplines: roughly half are in the humanities and social sciences, including literature, philosophy, politics, sociology, classics, and studio art. There are two in computer science, one in communications, four in biology and genetics, and six in math and statistics. Courses range in size from small seminars to large introductory, multi-section courses. One test incorporated interactive online resources in an online-only course, while the rest are hybrid formats that include online and face-to-face components. For one test, students are enrolled in the public offering of a MOOC and engage in parallel seminar discussions and assessments at their own institution. In total this project will involve up to two thousand students.

Side-by-Side Comparisons

These tests are taking place in multi-section, introductory level courses that allow for comparisons of student outcomes in concurrent sections using online learning technology (“hybrid”) and sections that are taught in the normal fashion (“traditional”). Hybrid sections typically have one-two hours per week of in-class time. For these tests we will collect the following data: (1) scores on assessments, including exams and projects, and course grades; (2) pre-test scores for some of the tests; (3) student surveys at the beginning and end of term to collect background data and learn about the student experience; (4) instructor interviews and student focus groups to gain deeper insight into the experience of using a MOOC; (5) background data such as GPA, SAT scores, major, and demographic factors that will be used to correct for possible selection biases; and (6) usage data from the technology platforms. All student data will be anonymized with unique IDs before being transferred to Ithaka S+R.

These data will enable us to make careful side-by-side comparisons of the background characteristics of the students in our study as well as their performance in the course. First, we will examine whether certain kinds of students are more likely to enroll in a hybrid section as compared to a traditional section. For example, do hybrid-format students tend to have stronger or weaker academic credentials than their peers in the traditional sections? Second, we will measure whether student learning, as measured by course completion rates and common assessments, tends to be better (on average) in one format or the other. We may also gain some insight into whether hybrid formats have different impacts on learning for different types of students.

It is important to note some limitations with the methodology in these tests. First, we decided not to randomize student assignments to the treatment and control sections, unlike in the previous study conducted by Ithaka S+R with six public institutions. In the present study, we were deterred by the rapid pace of change in MOOC technology and the extreme difficulty and lead times required to conduct these kinds of tests with student populations. Consequently, it is all the more important that background characteristics be analyzed carefully to detect any effects of selection bias. We have also sought to compare sections that are offered at similar times of day, as early morning or evening classes may attract different types of students.

Second, there are several extraneous variables within and across tests. The most important of these is instructors, which also could not be randomly assigned. It is entirely possible that the variation across instructors could be as large as the variation between traditional and online versions of the same course. A few tests have the same instructors across the treatment and control sections, but most have different instructors. Across tests, there are variations in discipline, institution, and student characteristics. It is also important to note that the “traditional” formats vary by course; some already incorporate online resources and are not strictly lecture-based. These variations may encumber our ability to analyze patterns across tests, so we will be careful to explain these issues and describe the format of each test when we report the results.

Case Studies

We are also conducting tests in a set of courses that do not allow for side-by-side comparisons due to smaller course enrollments, lack of baseline data, and/or the nature of the discipline. For these courses, we will collect background data on students, course outcomes data, and usage data for the online course materials, but we will rely more heavily on the instructors’ evaluations of how the class went and whether the use of technology had the desired effect. These evaluations will be recorded through interviews with instructors and written responses to a questionnaire at the end of the term. Where possible, we will compare student outcomes in these courses to past offerings of the same course, taking into account any differences in student characteristics. In addition, we will conduct surveys of students to understand their experiences, and we hope also to conduct two-three focus groups with students late in the semester. We believe we can learn a great deal from these case studies about the instructors’ goals and experiences, the students’ experience and how they felt about the use of MOOCs in these courses, implementation challenges that arose, and how these were (or were not) overcome.

Cost Analysis

We aim to gain an understanding of the types and amounts of resources required to create and deliver the hybrid sections using content from Coursera, OLI, and Pearson. In order to analyze costs, we will track four types of inputs: instructional, materials, administrative, and IT support. Instructor time is by far the largest ingredient and merits careful attention. We have asked instructors to record the time they spent planning courses using worksheets that break activities down into several categories, such as learning to use the new technology and reviewing MOOC content. We are also tracking their time spent planning and delivering their courses during the semester. Instructors have the option of providing these data through periodic interviews or weekly timesheets, and most chose to submit timesheets. Additionally, we are collecting these data for some traditional sections in the side-by-side comparisons. Although direct comparisons between sections are not particularly meaningful due to variations among professors, these data will enrich our understanding of the ways instructors allocate their time in teaching different types of courses. As noted below, we also recognize that there are large differences between the costs of doing anything for the first time and the recurring costs involved in repeating a mode of instruction.

For the other categories of costs, we will focus on understanding the ways that the use of support services and their “ripple effects” across campus differ for hybrid courses relative to traditionally taught courses. Impacts on facilities costs are especially difficult to quantify, and at present we are attempting to estimate these cost impacts for only one of the participating campuses.

The primary challenge in this exercise, as in previous work by Ithaka S+R, is that the initial costs to teach a hybrid course are not a good predictor of ongoing costs, and in most cases we will only have one semester of data on which to base our analysis. Moreover, MOOCs were not built to be used in traditional institutions. The faculty members in our study have had to devote extra time to figure out how to adapt these resources and work around current platform constraints. It is reasonable to expect that these platforms will continue to improve, and thus future implementations would be less

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time-consuming. While we will try to distinguish fixed and recurring costs in our data collection, we can only attempt to predict resource expenditures for future iterations of a class. Furthermore, we will only be able to speculate about the broader potential for these technologies to help more students graduate on time and, thus, reduce the “cost per degree.”

Promising Opportunities

Faculty members in the USM envisaged an impressive range of ideas for ways that MOOCs could be used to solve problems in their courses or enhance instruction. Several of the professors participating in the study see an opportunity to “flip” their courses using readily available online content, which they do not have the time or resources to create from scratch. Using MOOCs in this manner will allow instructors to use class time for experiential learning activities rather than lecturing. An instructor of a summer pilot was thrilled that she could use class time to assign group problem solving rather than lecturing. The chair of one department, who by his own admission had been slow to adopt instructional technology, had a dramatic change of heart when he started exploring the MOOC selected for his course and thinking about how it could allow him to teach differently. He described the technology tools, such as peer review, as “incredibly empowering” for students and felt energized by the opportunity to overhaul the way his course is structured. Several instructors were attracted by the possibility of using MOOCs to add expert voices that complement their own areas of expertise, such as in interdisciplinary programs or survey courses. For example, one instructor of an information literacy course plans to use an introductory statistics MOOC to cover analytical techniques that are outside his comfort zone. Another is using a MOOC to add macroeconomic context to an introductory course in comparative politics. Several faculty members are exploring whether MOOCs can be used to strengthen students’ foundational skills such as critical thinking and learning how to “consume” online courseware. For example, a studio arts instructor will augment her course with a MOOC on critical reasoning with the aim of teaching her students to approach art more analytically. Another will integrate a MOOC on nutrition into a program that seeks to strengthen basic life skills that have been shown to correlate with student success. Yet another will use a critical thinking MOOC both for its educational content and as a vehicle for teaching students to become more effective learners.

One instructor saw an opportunity to enhance an online introductory philosophy course with online lectures, as she did not have the time or resources to create these materials herself and felt that they would be highly beneficial for students. In a survey at the end of this course, which took place during the summer, students rated the lecture videos as having the highest educational value among the components of the course, confirming this instructor’s hypothesis. Several of the MOOCs selected for the study had been wildly successful in their public offering, based on enrollment, completion, and general level of enthusiasm in discussion forums. One professor decided to use components of an especially well-received MOOC on genetics to replace publisher content in hopes of improving student engagement. It will be exciting to observe how students at these various institutions interact with these materials in courses that are tailored to their needs and connected to other parts of the curriculum.

In order to recruit faculty participants for this project, it was essential that they have the ability to customize the MOOCs used in their courses. Coursera enables them to do this by setting up local instances of MOOCs that local instructors deliver on their own time frame exclusively to their own students. The USM instructors can use the same authoring tools as the original faculty developers to remove or reorder course materials and create new content to fill gaps (while ensuring proper attribution).

Our faculty partners are aware of the controversy surrounding MOOCs and of their potential to disrupt traditional modes of teaching. One explained his decision to participate with the observation that “the internet is here to stay” and that change seems inevitable. Another acknowledged that MOOCs could interfere with her personal career goals of becoming a tenured faculty member. She was adamant that she would not have participated if she had not believed that the use of a MOOC in her online course could benefit her students. Still, she said that she saw this project as an opportunity to contribute to shaping the future of higher education rather than sitting on the sidelines.

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Early Implementation Challenges

Of course, working at the cutting edge of innovation can bring with it substantial challenges. In this case, most issues that have surfaced thus far stem from two sources:

First, the MOOCs in our tests were designed for the original creator to deliver direct to students, not for third party instructors to incorporate within their own courses. We embarked upon this study because it was evident early on that MOOC platforms can be vehicles for stimulating the creation of high quality content, attracting investment, developing innovative interactive learning technologies, and aggregating learning data on a large scale. At the same time, it must be acknowledged that most MOOCs were not conceived with our purpose in mind, and this creates some significant gaps between what these MOOCs presently offer and the resources faculty need. Most MOOCs in our study are configured as integrated and often linear bundles of content, assessment, social collaboration, and technology – in accordance with the needs of unaffiliated end-users. Embedding them in institutions may mean unbundling those elements, and that prospect is sometimes disconcerting for creators. There are also issues of overlapping or incompatible IT systems, especially because the MOOC platforms do not yet plug easily into enrollment management or Learning Management Systems (LMSs).

Second, MOOCs constitute a new class of content without precedents or established practices around intellectual property. This creates both a set of challenges for our study and an opportunity to consider what principles might best serve the values and interests of the higher education community.

MOOCs Were Not Designed for Institutional Licensing

Most MOOCs were conceived as coherent entities with a narrative structure. They may take a particular approach to teaching a subject that underlies all decisions about sequencing topics, choices of examples, ways of presenting concepts, assessments, etc. At the same time, academic departments develop degree program curricula as a whole, making deliberate decisions about when and where certain content should be taught and competencies assessed within specific courses. To integrate a MOOC into an existing class, it may not be a simple case of including pieces that fit and excluding those that do not. The local instructor might need to reconceptualize or restructure his or her existing course to fit with the MOOC, which may not map to his/her ideas or pedagogical approach or to the needs of his/her students. Even beyond that very real concern, we have also encountered cases where those individual courses, whether the newly-designed hybrid courses or the earlier versions that relied primarily on face-to-face instruction, needed reworking in order to fit most effectively into a larger program curriculum. All of this raises the very important – and largely unanswered – question of how the tradition of individual faculty “owning” the courses they teach fits with the departmental and institutional responsibility to offer a degree that certifies to the outside world a certain level of knowledge and competency for the students who have pursued those programs and earned those degrees.

Some challenges that arise when trying to incorporate a MOOC into an existing course surfaced in the spring pilot at the University of Maryland, College Park (UMCP). Here a faculty member in the sociology department intended to use a MOOC for the online component of a hybrid introductory statistics course. While the MOOC covers many standard topics for such a course, the sequencing and focus of these concepts did not align well with the UMCP sociology syllabus. The MOOC, designed by a lecturer in psychology, had a strong emphasis on experimental design, a method that is less applicable to the field of sociology. Moreover, many of the online lectures build upon concepts covered in previous lectures, making it difficult to reorder the online material. In the end, the UMCP instructor decided to recreate most of the online content himself, suggesting that there is no guarantee that using MOOCs will save faculty time or reduce costs. (He was, however, sufficiently pleased with the hybrid format to continue teaching in this way.)

This study naturally raises questions about what might be lost by replacing some amount of face-to-face class time with online learning. Through discussions with faculty at institutions that create MOOCs, we also became attuned to what might be lost by eliminating the “massively open” communities and synchronous delivery. One MOOC creator was deeply

uneasy with the idea that his MOOC might be “turned into a textbook.” In his view, the lecture videos themselves have limited value, while the communal experience of discovery in the public offering is intrinsic to the value of the course.

Challenges have also arisen in integrating MOOC technology with campus IT systems. The Coursera platform in its current form can be thought of as a learning management system optimized for a particular mode of delivery (i.e., teaching a “massive” online audience). Some features are not yet configured for teaching conventionally sized classes, and the platform overlaps with some features of local LMSs. USM faculty must decide whether they want the primary interface for students to be Coursera or their local LMS and then create links between these systems.

Many of these hurdles can be attributed to the fact that we are testing the first iterations of MOOCs, and the developers of those MOOCs had no idea that their courses might be used by other instructors. In the future, MOOC developers will be able to decide up front whether they wish to allow their courses to be repurposed and, thus, design them accordingly. For example, they might then choose to separate content that is specific to a public offering of the MOOC (e.g. contests, references to comments in discussion forums) from other materials. Or they might choose to avoid using third party copyrighted materials that create complications in institutional licensing or negotiate the necessary permissions up front (another issue that tripped us up). Likewise, the technology platform will continue to evolve and develop more of the functionality needed in campus environments.

Intellectual Property Ownership

Since there are few precedents for these types of partnerships, we have encountered many uncertainties about intellectual property ownership. When an instructor adapts a MOOC for use in a hybrid course, who owns the adapted version of the MOOC? What kinds of adaptations are permissible? What rights, if any, does the instructor have to continue using the adapted MOOC—which may well have entailed a significant investment of time and effort—in the future? Should the originating institution have the right to use the adapted version of the MOOC? And if the MOOC is offered again publicly, must the instructor re-adapt the new version of the MOOC?

Another critical issue is how to balance the MOOC creators’ natural desire to monitor the way their courses are used with instructors’ freedom to teach their courses as they wish. This tension arose in one instance in which the USM instructor had a particularly creative plan for repurposing a MOOC, but the MOOC originator had strong reservations about this plan as well as a strong desire to see his MOOC used as it was originally conceived. While there are some similarities in the way MOOCs might be used in hybrid courses and the way textbooks are used, this analogy only goes so far. The inclusion of lecture videos and the intellectual investment in a comprehensive course may imbue MOOC creators with a deeper sense of ownership or personal attachment than he or she might have in the case of a textbook. On the “consumption” side, the ability to customize MOOCs is essential. The question of whether instructors would be able to make adaptations to MOOCs arose in every one of our information sessions with faculty of the USM, and we may not have found a single partner if the answer had been “no.” A crucial question for MOOCs, then, is how to balance the needs of faculty on the “supply” and “consumption” sides.

These are the kinds of issues that have surfaced in the course of this study. In some cases we can look to precedents, such as those governing copyright ownership for other forms of derivative works, for guidance. For most, though, Ithaca S+R and Coursera have corresponded with each partner institution and MOOC creator to ascertain their preferences for the purpose of this study and for the future. We are fortunate that these partners have entrusted us to make appropriate use of their materials. We are also fortunate that the USM faculty have been willing to work with the MOOCs despite the lack of clarity regarding future access. It is clear, though, that we cannot rely on these kinds of ad hoc answers if the hybrid model is to be developed and implemented on a more systematic and continuing basis beyond this one experiment. We hope to have more to say about this in our subsequent reports.

CONCLUSIONS

We have a great deal to learn over the coming months. A key question is how students will respond to hybrid courses that incorporate MOOCs. Will they embrace the opportunity to view lectures from leading thinkers, or will they find it confusing to have two lead “instructors,” one virtual and one in person? How will their learning experience compare to face-to-face courses or online-only courses in various institutions? How can students be encouraged to take greater ownership of their learning, a requirement for success in hybrid courses? What types of students will enroll in these courses? Will we find evidence in support of the notion that MOOCs can be used to reduce costs in traditional institutions, despite the adaptations required to make them work in these environments? We are eager to gain insight into these and other research questions over the summer and fall studies and to be able to contribute some real evidence to discussions about the significance of MOOCs for higher education. We expect the results of these tests to be available in spring of 2014.

APPENDIX A: SELECTED MOOC RELATED HEADLINES, 12/2011 THROUGH 8/2013

- “Will MITx Disrupt Higher Education?” Robert Talbert. The Chronicle of Higher Education. December 20, 2011.
- “MIT’s New Free Courses May Threaten (and Improve) the Traditional Model, Program’s Leader Says.” Jeffrey R. Young. The Chronicle of Higher Education. February 6, 2012.
- “Treating Higher Ed’s ‘Cost Disease’ With Supersize Online Courses.” Marc Parry. The Chronicle of Higher Education. February 26, 2012.
- “Online Education Lures Cash Infusion and Deals with 5 Top Universities.” John Markoff. The New York Times. April 18, 2012.
- “MOOC’s Aren’t a Panacea, but That Doesn’t Blunt Their Promise.” Jeff Selingo. The Chronicle of Higher Education. July 11, 2012.
- “Universities Reshaping Education on the Web.” Tamar Lewin. The New York Times. July 17, 2012.
- “MOOC Brigade: Will Massive, Open Online Courses Revolutionize Higher Education”? Kayla Webley. TIME. September 4, 2012.
- “A First for Udacity: a U.S. University Will Accept Transfer Credit for One of Its Courses.” Katherine Mangan. The Chronicle of Higher Education. September 6, 2012.
- “Coursera doubles university partnerships.” Steve Kolowich. Inside Higher Ed. September 19, 2012.
- “MOOCs Shift From Curiosity to Employability.” Tom Vander Ark. Huffington Post. September 26, 2012.
- “Online Education Grows Up, And For Now, It’s Free.” NPR. September 30, 2012.
- “Why MOOCs won’t replace traditional instruction.” Jonathan Marks. Inside Higher Ed. October 5, 2012.
- “Texas MOOCs for Credit?” Steve Kolowich. Inside Higher Ed. October 16, 2012.
- San Jose State U. Says Replacing Live Lectures with Videos Increased Test Scores.” The Chronicle of Higher Education. October 17, 2012.
- “Free, high-quality and with mass appeal.” Rebecca Knight. Financial Times. October 22, 2012.
- “Coursera strikes MOOC licensing deal with Antioch University.” Steve Kolowich. Inside Higher Ed. October 29, 2012.
- “Warming Up to MOOC’s.” Douglas H. Fisher. The Chronicle of Higher Education. November 6, 2012.
- “How Online Courses Can Form a Basis for On-Campus Teaching.” Daphne Koller. Forbes. November 7, 2012.
- “Napster, Udacity, and the Academy.” Clay Shirky. November 12, 2012.
- “Essay on the challenges posed by MOOCs to liberal arts colleges.” W. Joseph King and Michael Nanfito. Inside Higher Ed. November 29, 2012.
- “Coursera Creates Service to Help Its Many Students Find Jobs.” Inside Higher Ed. December 5, 2012.
- “Learning new lessons: Online courses are transforming higher education, creating new opportunities for the best and huge problems for the rest.” The Economist. December 22, 2012.
- “Students Rush to Web Classes, but Profits May be Much Later.” Tomar Lewin. The New York Times. January 6, 2013.
- “Essay says faculty involved in MOOCs may be making rope for professional hangings.” Jennifer Cost, Peter Haro, Jim Maheler, Jim Miller, Jonathan McLeod, and Marie St. George. Inside Higher Ed. January 14, 2013.
- “California to Give Web Courses a Big Trial.” Tamar Lewin and John Markoff. The New York Times. January 15, 2013.
- “How California’s Online Education Pilot Will End College as We Know It.” Gregory Ferenstein. TechCrunch. January 15, 2013.
- “American Council on Education Recommends 5 MOOCs for Credit” Steve Kolowich. The Chronicle of Higher Education. February 7, 2012.
- “Big (MOOC) Data” Dayna Catropa. Inside Higher Ed. February 24, 2013.
- “Researchers explore who is taking MOOCs and why so many drop out” Ry Rivard. Inside Higher Ed. March 8, 2013.
- “MOOCs are no panacea for universities” Karan Khemka. Financial Times. March 10, 2013.
- “Why MOOCs May Drive up Higher Ed Costs” Joshua Kim. Inside Higher Ed. March 11 2013.
- “California educational factions eye plan to offer MOOC credit at public colleges” Ry Rivard. Inside Higher Ed. March 14, 2013.
- “Colleges Assess Cost of Free Online-Only Courses” David Wallis. The New York Times. March 19, 2013.
- “MOOCs do not represent the best of online learning (essay)” Ronald Legon. Inside Higher Ed. April 25, 2013.
- “Why Some Colleges Are Saying No to MOOC Deals, at Least for Now” Steve Kolowich. The Chronicle of Higher Education. April 29, 2013.

“Coursera Enters Teacher Professional Development Market” Ry Rivard. Inside Higher Ed. May 1, 2013.

“Survey finds Presidents are skeptical on MOOCs” Scott Jaschik. Inside Higher Ed. May 2, 2013.

“As MOOC debate Simmers at San Jose State, American U Calls a Halt.” Steve Kolowich. The Chronicle of Higher Education. May 9, 2013.

“New study of low MOOC completion rates” Chris Parr (for Times Higher Education). Inside Higher Ed. May 10, 2013.

“MOOC Professors Claim No Responsibility for How Courses are Used” Steve Kolowich. The Chronicle of Higher Education. May 21, 2013.

“Harvard Professors Call for Greater Oversight of MOOCs” Steve Kolowich. The Chronicle of Higher Education. May 24, 2013.

“Outsourced Lectures Raise Concerns About Academic Freedom” Steve Kolowich. The Chronicle of Higher Education. May 28, 2013.

“AAUP sees MOOCs as Spawning New Threats to Professor’s Intellectual Property” Peter Schmidt. The Chronicle of Higher Education. June 12, 2013.

“Watered Down MOOC Bill Becomes Law in Florida” Ry Rivard. Inside Higher Ed. July 1, 2013.

“American MOOC providers face international competition” Sara Grossman. The Chronicle of Higher Education. July 5, 2013.

“Higher ed leaders urge slow down of MOOC train” Ry Rivard. Inside Higher Ed. July 9, 2013.

“Blackboard goes MOOC” Ry Rivard. Inside Higher Ed. July 10, 2013.

“Udacity Project on Pause” Ry Rivard. Inside Higher Ed. July 18, 2013.

“The attack of the MOOCs: An army of new online courses is scaring the wits out of traditional universities. But can they find a viable business model?” The Economist. July 20, 2013.

“The MOOC That Roared: How Georgia Tech’s new, super-cheap online master’s degree could radically change American higher education” Gabriel Kahn. Slate. July 23, 2013.

“Udacity’s Lessons Learned: MOOC gets a lesson in the complex challenges faced by schools” Betsy Corcoran. edSurge. July 24, 2013.

“MIT Will Offer MOOC Curricula, Not Just Single Courses, on edX” by Steve Kolowich. The Chronicle of Higher Education. September 18, 2013.

APPENDIX B: HOW WE GOT HERE

The process undertaken to assemble this complex set of test cases was lengthy and merits some explanation. The main thrust of our recruiting effort began in December 2012 with a series of meetings across nearly all institutions in the USM and two Maryland community colleges. The purpose of these meetings was for the USM office and Ithaca S+R staff to present the goals and design of our study and invite questions and comments. We also invited faculty to tell us how they would like to use MOOCs in their courses rather than prescribing a particular approach. Most of these well-attended meetings were chaired by the president or provost and included deans, department chairs, faculty, and sometimes library and IT directors – with an average of six to ten faculty, staff, and administrators committing 1.5 to 3 hours of their time for the discussion.

Not surprisingly, responses ranged in tone from open engagement to skepticism about the pedagogical implications and potential impact on faculty roles. Several professors noted that their institutions do not offer large lecture courses, and one suggested that using MOOCs as a replacement for passive lecture formats is a solution created by research universities for a problem that is largely unique to them. One professor raised a concern that assigning students to “watch hour-long videos” was far less interactive than participating in a class of thirty students, which she said is the norm at her institution. Another noted that it would be very difficult and potentially undesirable to separate the teaching of content from skills, as these two learning objectives are deeply enmeshed in her class. A couple of attendees expressed discomfort with the notion of local instructors delivering courses which had been developed by faculty at other institutions.

Following these initial meetings, we invited faculty from each campus to submit “statements of interest.” These were brief, no-commitment declarations of a desire to participate together with some background information on what courses the faculty member teaches and what MOOCs he/she would like to use. It is worth noting that at the time of those meetings, the MOOC catalogues were considerably more limited than they are now, and many of them had not yet started or completed their first public offering. In many cases, therefore, faculty were asked to identify MOOCs that might be a good fit for their courses based only on the introductory videos and high-level descriptions available at that time.

By the end of January, we had received roughly thirty statements of interest across the USM institutions and community colleges, and another five or so trickled in over the next month. Ithaca S+R and the USM office staff then began a process of vetting these statements to determine which ones met our study objectives and to compile a “wishlist” of MOOCs which professors hoped to use in their courses. In most cases, we also spoke with individual faculty members by phone to identify what problems they aimed to address in their courses, clarify how they might use the selected MOOCs, and brainstorm ideas.

We then selected fifteen proposals that best fit the goals of the study and/or described especially innovative approaches to incorporating MOOCs into hybrid courses. This was more than twice the number of tests we initially aimed to undertake, a testament to the range and creativity of ideas presented by the USM faculty. We prioritized concepts that would enable us to learn how institutions and faculty could improve learning outcomes, increase enrollment capacity with existing resources, or achieve equivalent student outcomes with reduced costs. Of the concepts we did not select, many proposed using the MOOCs as optional, supplementary resources, and we feared that the findings from such tests might be difficult to interpret.

In February 2013, Ithaca S+R submitted to Coursera a “wishlist” of around twenty MOOCs that faculty had identified (some selected more than one). Coursera subsequently sought permission from its institutional partners to use MOOCs their faculty had created in our study, and Ithaca S+R then responded to a variety of inquiries such as: the purpose and methodology of the study, how the materials would be used, whether participation would create additional work for their faculty, whether partners would receive license fees, and whether they would have access to student data from the study. Ultimately, we received permission for fourteen of the twenty courses on our wishlist, all without charge for the purpose

of this research effort. In a few cases, we did not get permission to use the first choice MOOC and went through multiple iterations to find alternatives that could work. Altogether, this matching and approval process took several months. Initially, we had hoped to conduct tests with other MOOC platforms in addition to Coursera. We had a number of discussions with staff at edX exploring whether any of its MOOCs could be included in the study. In principle they were enthusiastic about participation, but we were not able to gain permission to use any MOOCs that fit with the needs of the USM instructors. We also explored the possibility of collaborating with Udacity, but the model of embedding MOOCs into hybrid courses offered on campus was not a priority for Udacity at that time. They were, however, open to testing a MOOC in a summer bridge course.

Discussions with OLI and Pearson were more fruitful. Two groups of faculty decided to conduct tests using an adapted version of an OLI Biology course for non-majors developed in partnership with University of Maryland University College (UMUC), and another decided to use an OLI Biology course for majors. Pearson agreed to waive license fees for MyFoundationsLab for up to 500 students, and three institutions agreed to join tests of this platform in summer bridge programs for incoming first year students. Sociology instructors opted to use Pearson’s MySocLabs online materials when we failed to gain permission to use a MOOC in their course.

As the recruiting process concluded, enthusiasm among faculty remained strong. Nearly all faculty who submitted statements of interest committed to participating, and some made considerable efforts to adjust their plans to the MOOCs we had obtained permission to use. Over fifty faculty, IT staff, instructional designers, and others with an interest in the study travelled to a kickoff workshop held at University of Maryland, Baltimore County (UMBC) in late May – a time when most would normally have left for the summer. The workshop provided an orientation to the overall study, the research design and the kinds of data collection faculty members would need to administer, as well as a walk-through of the Coursera platform. Senior staff of USM, Ithaca S+R, and Coursera (including USM Chancellor William “Brit” Kirwan and Coursera co-founder Daphne Koller) also addressed the group.

Motivating Faculty Interest

Leadership, adequate resources to support the work, and appropriate incentives were crucial to attracting faculty participants and ensuring their success. Instructional innovation is a key part of the University System of Maryland’s long-term strategic plan and of its commitment to meet the state’s education goals over the next decade. The USM has worked hard for over a decade to create a supportive climate for experimentation and innovation in instruction, and this was clearly a factor in attracting so much interest.

We have also been able to take advantage of the system of incentives and support structures put in place through ongoing initiatives in academic transformation. Precedents are in place to provide stipends to faculty for the extra time needed to plan their courses and contribute to data collection. On most of the USM campuses, IT and instructional design staff are familiar with the demands of supporting hybrid courses and new technologies, and that has made a significant difference in our collective ability to design and build these courses. In addition, networks exist among faculty and support staff who have participated in course redesigns in the past.

This is not to say that we encountered universal enthusiasm in our recruiting efforts. Some faculty expressed concerns that the models we proposed testing would lead to a new hierarchy between MOOC creators and instructors who adapt their courses, or that these models could threaten jobs. Moreover, we are very conscious of the fact that our faculty partners are those most open to using new technologies and are not necessarily representative of their colleagues.

NOTES

¹ These include University of Maryland College Park, Towson University, University of Maryland Eastern Shore, Bowie State University, Coppin State, University of Baltimore, Salisbury University, Frostburg State University, and University of Maryland Baltimore County.

² See William G. Bowen, Matthew M. Chingos, Kelly A. Lack, and Thomas I. Nygren, *Interactive Learning Online at Public Universities: Evidence from Randomized Trial*, *Trials* Ithaka S+R. May 22, 2012.

³ For courses with more than fifteen students, these datasets will be submitted to Ithaka S+R with unique IDs so that they can be linked together. We will not obtain background data for smaller courses.

⁴ This test is now using Pearson's MySocLabs in hybrid sections, but the MOOC that was initially under consideration helped to spark many exciting ideas about how the course could be redesigned.