

MOOCs and Universities: Competitors or Partners?

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Abstract—MOOC or ‘Massive Open Online Courses’ is the recent phenomenon in the education industry with the proliferation of players such as Coursera, Udacity, NovoEd, EdX, and Khan Academy. MOOCs are free to students, and open to anyone globally (regardless of age, and qualifications); hence, a course might attract thousands to tens of thousands of registrants. MOOC providers entice students with snappy, high professional quality, short instructional videos that communicate learning content succinctly. Currently, MOOCs are offered in partnerships with ivy-league universities and professors. Our paper ascertains whether this MOOC-phenomenon pose a threat or opportunity to the less-endowed and/or public colleges and universities. We discuss strategic business and pedagogical models of MOOC providers and universities, as well as competitive threats and partnership opportunities with MOOC’s proliferation.

Index Terms—Flipped classroom, learning management systems, massive open online course (MOOC), university partnerships.

I. INTRODUCTION AND RESEARCH QUESTIONS

MOOC or ‘Massive Open Online Courses’ is the recent phenomenon in the education industry where entrepreneurship, venture capital infusion, and IT pioneering are not the norm. Coursera, a MOOC platform and content provider, in late 2013, landed another \$20 million in funding, bringing the total venture investment in Coursera to \$63 million [1]. Even non-profit institutions, namely, Harvard and MIT, have teamed up on an initial \$60 million investment to start edX to offer MOOCs. Coursera has attracted 5 million students while edX has over 1.3 million registrants [2]. What made these MOOCs attractive is that the online classes are free to students. The completely online delivery format (which already comes with some pros over face-to-face classroom lectures), and the absence of prerequisites (e.g., evidence of foundation/basic knowledge on the subject, or educational credentials) and no age limitations have also contributed to the millions of students MOOC-style course have amassed. The free Artificial-Intelligence course taught by two Stanford professors (where Stanford’s students who signed up for the equivalent course on campus would be allowed to attend this MOOC in lieu of attending the face-to-face-classes) attracted 160,000 students in 190 nations [3].

Adding to the appeal of MOOCs is the content delivery format. Taking the cue from the success of Khan Academy, MOOC providers entice students with snappy, high

professional quality instructional videos that communicate learning content succinctly without exceeding today’s student attention span thresholds. In a typical 8- to 12-minute video, online students would be prompted two to three times to take interactive quizzes to make sure they understand the material before continuing with the lesson [4]. Students interact, share, and critique ideas via blogs or discussion board forums at a MOOC platform, meet fellow classmates from different regions and form study, project, or support groups, or vote on topics or questions the class would like the professor to address. MOOC today is an amalgam of education, entertainment, and social networking [4].

Now that MOOCs have become prominent formats in education, how would they impact colleges and universities? Ivy-league universities and professors from these institutions have jumped on the MOOC bandwagon. How could non-ivy-league colleges and universities leverage and learn from the success of MOOCs? Does this MOOC-phenomenon pose a threat or opportunity to the less-endowed and/or public colleges or universities? These are questions we plan to address in our paper.

II. STRATEGIC ISSUES

A. Competing with “Free” Courses

Most MOOC providers (even partnerships with pedigree university brands) currently offer courses for free. The service is free because the strategic business model of MOOCs is different than that of typical colleges and universities. MOOCs need to build to large user/customer base quickly to monetize on share of eyeballs and referrals, plus a few value-added services such as issuing certificate of course completion for a small fee [5]. A MOOC provider offers students a collection of course to take; but it does not offer students a degree that prospective employers and academia recognize and accept. Until a time when a Bachelors degree or equivalent from a MOOC provider is accepted by a prospective employer, or university as a pre-requisite for admission into its Masters program, a degree granting four-year college or university is not under severe threat from MOOCs. Recognition and acceptance of a MOOC-issued degree by prospective employers and academe (for transfer credits or graduate admission) could be expedited if MOOC providers can validate registered students and assess students’ performance. Did the registered students actually login to the MOOC platform to view the class materials, attempt the assignments, and took the exam/s, or did someone else help out? For exam assessments, physical test centers and online exam proctoring services are increasingly available. However, with MOOCs very large enrollment (say, 6,000 or 60,000 students) in each course,

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monitoring exams and assignments for cheating and plagiarism can be more challenging than an online class of 60 students offered by a traditional college.

Some critics argued that massification of the class size should not be the chief objective of online learning [6]. There is the challenge of identifying and assisting students who are struggling in a class [7]. If the MOOC provider were to downsize the course, or hire plenty of teaching assistants to monitor and tutor struggling students, the profit margin would thin out, or the operational losses would mount. Even if MOOCs could keep cheating and plagiarism down to minimal levels, there is still the quality perception issue as admission standards to a MOOC program may run into conflict with the business model of MOOCs to be massive in order to monetize on share of eyeballs (online advertising) or referrals (leverage on large customer base to sell them other services, or refer other services to these customers). These are a few of the limited number of monetizing models for MOOCs [5].

There are college programs or courses that needed hands-on experience/learning and repeated practice handling tools, instruments, machines, and gauges. Programs in nursing, agriculture, industrial/mechanical engineering, biology, chemistry, or physical therapy would enjoy much lower threats than say, business or history studies from the proliferation of MOOCs. Exclusively online learning may not be conducive in the former set of courses. Case in point: FRONTLINE (a U.S. Public Broadcasting Services television program) aired a video documentary titled "College, Inc." where graduates of nursing program in a for-profit college said in the interview that they received their diploma without ever setting foot in a hospital, and that they were unable to find a job because their degree was perceived to be of little worth by prospective employers [8]. Even for a class such as Creative Writing where no hands-on use of sophisticated industrial machinery is needed, assessment and grading of long essays or stories (on a mass scale) present a challenge. Machine-scoring and grading are probably not feasible. Adding teaching assistants and paid graders to a MOOC provider's payroll, again, would impact the bottom line. Some MOOC platforms have resorted to peer grading or self-assessments, but results have been mixed, and plagiarism is an issue [2]. One comment to a Forbes article on MOOC questioned the ability of a student (who is still learning a skill or subject through the writing assignment) to grade his/her peers' works on the same assignment [9].

Our argument is that, in the short-run, degree granting colleges and universities are not under threat from MOOCs. These two sets of players are marketing different services/products to students or prospective students. One area that colleges or universities could lose students to MOOC providers would be the "recreational student" niche group. This niche might be heavily represented by retirees who take classes to keep their minds challenged intellectually, or, perhaps, to pursue higher stages of Maslow's Hierarchy of Needs, namely, "Esteem" and "Self-Actualization" [10]. The convenient online format and no-fee courses would be attractive to this niche. As for the cluster of MOOC students who are already employed in career jobs, and seek specialized or technical knowledge to enhance their

marketability or job performance, these professionals may not find such courses offered by a university. This could possibly be due to lack of sufficient enrollment in these specialized courses to break even. For this group of professionals, universities are really not losing students to MOOC providers since the universities may not be offering the courses in the first place.

B. Partnerships with MOOC Providers

San Francisco-based NovoEd is offering courses directly from the Stanford Business School, and Berlin-based iVersity is running a wide range of courses from European educational institutions [1]. Udacity has a partnership with San Jose State University that offers students college credit [2]. Coursera has "elite" partners which include Stanford, Princeton, and University of Pennsylvania [11]. These MOOC providers already have in-roads with pedigree universities as their founders are professors in ivy-league schools. In each case, Udacity, Coursera, and NovoEd, the founders are/were professors at Stanford University [12]. Coursera's co-founder, Dr. Ng, pointed out that most course offerings from Coursera are adapted from existing courses at a specific university; hence, a Princeton Coursera course is a Princeton course [4]. These close collaborations between MOOC providers and universities allow a specific university to achieve two objectives: 1) allow large number of its own students to take the course (possibly for credit), and 2) possibly, open the class to the public interested in taking the course on a non-credit basis. That MOOC-style course would likely be taught by professor/s of that university.

This partnership will be a win-win deal for the university and the MOOC provider. By opening the course to the public, the MOOC provider will amass subscribers and, perhaps, monetize on "eyeballs" while the university benefit from the use of professional, hi-tech MOOC management tool/system, capacity to serve large number of students with the same resources. The professor tasked with teaching the MOOC may not receive extra credit or support. A 2012 survey by *The Chronicle* revealed that professors who were teaching or had completed a MOOC felt that MOOCs took a lot of time out of them [13]. Typically a professor spent over 100 hours on his/her MOOC before it even started, and 8 to 10 hours per week on upkeep when the courses were in progress. These professors opted to teach MOOCs for altruism (i.e., desire to increase access to higher education worldwide) and novelty (e.g., desire to be early adopters of this new pedagogy and platform) reasons [13].

One finding from *The Chronicle* survey was that professors felt their online courses were as rigorous academically as the versions they taught in their classrooms [13]. One may be skeptical if the same level of teaching, professor-student interaction time, assessment and feedback, or learning could be achieved in a class of 3,000 or 8,000 students compared to a class of 50. Perhaps, these professors in the survey gauged rigor by the content (e.g., video lectures, quizzes, and assignments) posted online. However, a MOOC-university course could achieve multiple objectives if the university professor adopts a blended learning approach. For example, a specific university course may comprise of 50 of its own students enrolled in the course for

credit, and 3,000 registrants not from that university. The professor would “flip the classroom” – assigning the 50 students to view the video lectures and attempt the exercises at the online MOOC platform (as with the other 3,000 students). The face-to-face or online class interactive/consultation time would be open to only the on-campus university students for detailed discussions of the assignments and feedback by the professor, or for some other hands-on in-person experiential exercises. The 3,000 non-university-credit students would have their assignments auto-graded, peer-graded, or self-graded, and with a video recording of a generic feedback or explanation of answers/solutions to the assignment/exercise. A growing number of higher education faculties have begun using the flipped pedagogical model in their courses [14].

The MOOC on Artificial Intelligence developed and conducted by Stanford Professors Thrun and Norvig in October 2011 attracted about 160,000 registered students but only 23,000 students completed the 10-week course [15]. Such high drop-out rates are typical in MOOCs. Thus, it may not be practical to lump for-credit students of a university with the rest of the MOOC non-credit seeking participants when it comes to team assignments and projects. Hence, we envision some partition between for-credit university students, and MOOC-registered non-credit and, probably, non-tuition-paying) students for a joint university-MOOC open to the public. The for-credit and tuition-paying university students’ registrations could be easily validated as the university registrar system is already in place. Furthermore, the university students could be required to sit for a test or final exam in a physical classroom, testing center, or via some other pre-approved online exam proctoring service. In a flipped model where only for-credit-students are required to meet the professor in a physical classroom or online, the small group interaction and discussion would enable the professor to better ascertain each student’s individual contributions on assignments, learning, progress, level of critical thinking, and gauge the likelihood of student cheating and plagiarism on assignments or tests. This “partitioned” course model would, to some extent, overcome the criticisms of MOOC, that is, the lack of the assessments and validation. These two processes would be less critical for non-credit, or non-degree MOOC registrants.

One impediment to MOOC being adopted by mainstream universities could, perhaps, be MOOC providers’ reluctance to partner with non-pedigree universities. First, the partnership or association might diminish the brand equity of the MOOC provider. The media or publicity value would also be higher by keeping the brand affinity almost exclusively with ivy-league institutions. Second, the course jointly offered by an average name university and a MOOC provider may not attract the high registration numbers in the tens of thousands, or hundreds of thousands to grab media attention. The MOOC provider would not be able to monetize effectively on the size of the audience.

C. Universities Licensing MOOC Platforms

As elucidated earlier, MOOC players are less likely to initiate partnership opportunities with the average name institutions unless the university is paying for the use of the

MOOC platform or course management system. In this case, the university is unlikely to agree to open the university course to the public since it is already paying MOOC for use of the system. The university licensing the platform would likely assign its professor to teach the course, rather than adopt the MOOC materials already prepared by a professor from another university for a similar course. This insistence to use its own professor to teach the MOOC could be due to local pride, university brand perceptions, and/or faculty union contracts. The MOOC enrollments may not be massive; perhaps, in the hundreds or low thousands. The “M” in MOOC would now be more appropriately labeled “Moderate-sized” or “Medium-sized”. Perhaps, new abbreviations would be coined: “SOOC” where “S” stands for “Small”, or “SMOOC” (Small-Medium Open Online Course).

On the other hand, if the university’s objective is to lower operational costs, the university may agree to “off-the-shelf, ready-to-use” course materials (possibly from a star-professor from a pedigree university) offered by the MOOC provider for lower licensing fee. The university could still engage the flipped classroom model by having its students view the course materials and hiring instructors or teaching assistants to moderate classroom discussions and grade assignments and exams. These less-endowed or under-funded universities may justify flipping with MOOC as an efficient, contemporary pedagogical model that lowers costs to ease the pressure to increase tuition [16]. The college student generation, being well represented by Millennials, may find flipped classrooms augmented by MOOC’s convenience (24/7 access to video lectures) suit their learning styles and social networking habits.

In a different model, MOOC providers may simultaneously license a course to multiple universities, or to a university system (e.g., University of California system), where each campus or university would task its teaching assistants or instructors to tweak the classroom meetings and discussions to the local curriculum or local environments. This multiple-site simultaneous licensing model would help the MOOC provider attain the massive enrollments.

There is also a threat to MOOC providers in that universities may not need MOOC platform if the university chooses to supply its own course content, format, materials, and use its existing Learning Management System (LMS) such as Blackboard. Two professors teamed up to offer their introductory psychology class at University of Texas (UT): Austin in a blended form of synchronous online, late-night television show, and real-time research experiment, where the technological platform was built in-house [17]. They netted 1,000 UT undergraduates, but less than 50 non-UT students at \$550 per registrant.

Many universities are already using Learning Management Systems or LMS (such as Blackboard or Moodle) and, possibly, lecture-capture software as well. LMS providers are probably working to add and enhance features to match what MOOC platforms can offer technology-wise. Textbook publishers are also able to offer LMS and course content (or supplements), and the publishers’ contents are already primed for deployment/integration within a university’s LMS.

III. CONCLUSION

The threat of competition of MOOCs to universities may not be significant as initially appeared. In the near future, MOOC and LMS providers as well as textbook publishers may compete in this education tool market where colleges and universities (of varying sizes and brand values) remain the customer that calls the shots. Colleges and universities remain the predominant gateway to the ultimate cohorts of customers (i.e., college students, or high school graduates). College-bound students and/or their parents may find comfort in choosing education institutions where their parents graduated from, or where most of the students' peers are heading to. And we should not forget that MOOCs are not suited for courses requiring hands-on experience/learning and interactions with machineries, instruments, animals, and people. Until recognition and acceptance of a MOOC-issued degree by prospective employers and academe become mainstream, and perhaps, MOOC providers add "University" to their brand name (e.g., Coursera University), colleges and university still pack plenty of market value, with leverage over IT platform providers.

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