

Faculty Distance Learning Workgroup Report on Coursera and Semester Online, with Recommendations

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We learned four central lessons from the two distance learning initiatives in which Northwestern faculty and students engaged this year:

- 1) Major new curricular and pedagogical initiatives should be driven by the faculty
- 2) Online educational initiatives for undergraduates should focus on enhancing the learning of our own students
- 3) Blended learning has great potential improve the classroom experience for students
- 4) Experimentation with distance learning initiatives should continue

The following report expands upon these four points, provides detailed analysis of both initiatives, and makes three proposals for how the Provost might support further experimentation in online learning.

I. Introduction

This year Northwestern faculty and students engaged in two radically different experiments with online learning. The first was a partnership with Coursera, through which we offered an array of Massive Open Online Courses (MOOCs) serving Northwestern alumnae, students across the globe, and our own current undergraduates, who experienced a hybrid version of these courses, blending synchronous face-to-face classroom discussion with asynchronous “lessons” in the form of short videos, exercises and experiments. The second was Semester Online (SON)—a partnership with the corporation, 2U, and a consortium of universities (Boston College, Brandeis, Emory, UNC- Chapel Hill, Trinity College Dublin, the University of Melbourne, Notre Dame, Wake Forest, and Washington University)—through which we and other consortium members offered an array of seminar-style, exclusively online courses. These two experiments yielded some positive results for both faculty and students, and our committee strongly endorses the idea of experimenting with and learning about the technologies that might help us to better serve our collective pedagogical mission. However, our analysis of both partnerships, and the courses that arose from them, has yielded four clear lessons about how Northwestern should move forward in the field of online learning and what ground rules might ensure that our online learning experiments have a greater chance of success.

II. The four major lessons learned

1. Major new curricular and pedagogical initiatives should be driven by the faculty

One of the central principles of the university is the idea that the curriculum belongs to the faculty. New curricular and pedagogical initiatives should therefore be driven by the faculty's vision for how we should be educating our students—what habits of mind we want to inspire, what practices we value, what needs we have, and what problems we are trying to solve. While we certainly endorse initiatives that will allow us to experiment and learn in new ways, and while we recognize that innovation is not the sole purview of the faculty, we contend that the faculty should be the driving force behind these initiatives. Thus, thorough and timely faculty consultation is essential to the success of any major pedagogical initiative. Semester Online was introduced without sufficient consultation with the faculty. While the SON model offered a unique opportunity for Northwestern faculty to experiment with and learn about online education, a significant portion of the faculty had serious reservations about the SON business model. Those reservations were at once ethical and practical, as faculty raised concerns about the feasibility and advisability of the consortium-affiliate school model, about the scalability of the SON seminar-style platform, and about the pedagogical value of the model if it did in fact scale and the labor issues that would arise as a result. The concerns of the faculty have been borne out in our analysis of the initiative (see section III.2 below).

2. Online educational initiatives for undergraduates should focus on enhancing the learning of our own students

The design and implementation of online learning initiatives for undergraduates should focus on our residential, matriculated students. Identifying what challenges Northwestern students are facing and what pedagogical problems we are trying to solve, and determining which technologies can best help us address those problems should be the first priority. We can imagine a number of ways in which the technology platforms introduced through this year's experiments could serve our students:

- We might use them to devise a better, home-grown version of ALEKS, the online placement exam/tutorial system we use to assign undergraduates to the appropriate Math and Chemistry courses.
- We could develop online courses and tutorials as preparation for and/or complements to courses such as Calculus, General Chemistry, Organic Chemistry, or Introduction to Psychology. In this way, we could help better serve students who arrive at Northwestern with less preparation than their peers.

That said, although the School of Continuing Studies and the Professional Schools offer well-designed, pedagogically innovative and long-standing distance learning initiatives for non-residential, non-matriculated students, we have strong reservations about the involvement of our other Schools in distance learning initiatives offering credit- or tuition-bearing

undergraduate courses to non-residential students. Structurally, it would be counterproductive to have schools devoting significant resources to making money from offering undergraduate courses to non-residential students.

As the SON initiative has taught us, there are a number of reasons to remain highly skeptical of partnerships offering credit- and/or tuition-bearing courses. From a curricular perspective, it is ineffective to have a corporate partner or outside consortium determining a curriculum that is not designed to fill our needs: classes that duplicate ones we already offer, that do not fit into the sequences that structure our programs and majors, or that cover material at a different level than ones already offered on campus. While a consortium constituted through shared pedagogical or scholarly goals, such as the CIC, has the potential to enrich course offerings for our students and facilitate scholarly collaborations for our faculty, a consortium founded without such shared aims has a detrimental effect. We therefore contend that the schools should not participate in any such credit- and/or tuition-bearing initiatives without serious deliberation and full and careful consultation of the faculty.

3. Blended learning has great potential improve the classroom experience for students

It is clear to the committee that there is considerable potential for blended learning to improve upon a standard “brick and mortar” course. While this may not hold for all disciplines across all divisions, students who participated in the two initiatives spoke enthusiastically about the value of asynchronous material—the videos, exercises, quizzes and experiments that allowed them to engage with and review course material outside the classroom, both as preparation for lecture/discussion and as a review afterward to make sure they had understood the lesson. Students in both SON and Coursera courses particularly endorsed the use of short videos explaining specific points of the course material. Faculty teaching these courses similarly lauded the value of asynchronous material, testifying that students came to class with smarter questions and a fuller understanding of the course material, and that as a result they were able to delve deeper into the material in class discussion. We strongly encourage the Provost to provide greater financial and logistical support to enable the production of such asynchronous materials for a broader array of courses across the University.

4. Experimentation with distance learning initiatives should continue

The committee strongly feels that our experimentation with online has yielded some wonderfully positive results and we strongly recommend that the Provost continue to support such experimentation. To that end, we enthusiastically endorse the three proposals outlined in Section IV of this document.

III. Detailed Analysis of Both Initiatives

1. Coursera

Over the course of this year we offered six Coursera courses. Faculty and students alike had strongly positive experiences with these courses. In the case of Todd Murphey's "Everything is the Same: Modeling Engineered Systems," which ran in Fall 2013 and was simultaneously conducted as an on-campus course: "Engineering Analysis 3," we have additional data about our faculty's and students' experience with blended learning.

- Students were overwhelmingly positive about the experience of the hybrid course, with many of them declaring it to be better than the purely "brick and mortar" version of the course. They particularly cited the utility of the asynchronous material in helping them become more engaged in the course material and the course, helping them formulate better questions, and appealing to and addressing a wider array of learning styles.
- The students were also careful to point out that while the hybrid course enhanced their experience of the course, they would not be interested in a wholly online course. As one student succinctly put it, "You can't replace that one-on-one communication in class."
- Given that students stressed the importance of having the course professor design the course materials, it is not clear how effectively asynchronous material designed by one member of the faculty can be repurposed by others.
- Students in Murphey's hybrid Coursera course learned more, performed better on exams, and asked more knowledgeable questions than in his previous "brick and mortar" versions of the same course.
- The course evaluations for the hybrid course were also higher than not only Murphey's earlier iterations of it but for any version in the course's history.

We learned some extremely positive lessons from the Coursera experiment, and we encourage faculty to continue to design and implement these courses. In light of the clear benefits of hybrid courses, however, it is worth exploring what specific advantages a Coursera course offers over a hybrid course taught exclusively to Northwestern students, given that designing and running a MOOC is incredibly labor intensive (Murphey estimated that his course required 600 hours of faculty time.)

- **Visibility:** Coursera courses have the ability to expand and serve the Northwestern brand, by advertising our scholarly and pedagogical innovations.
- **Alumni community building:** As the terrific distance learning programs of the School of Continuing Studies and the Professional Schools have demonstrated, such online courses have great potential for alumnae outreach and continuing education.

- **Public Outreach:** MOOCs have the potential to provide courses and training to underserved and underrepresented populations. However, as recent research has shown, of the tens of thousands of students who sign up for a Coursera course, only 3 or 4 % complete it. Moreover, students who complete these courses do not hail from underserved and underrepresented populations. Do we have an obligation to those students in the other 96%? Or do we have ways of targeting particular populations who might especially benefit from the public outreach these courses are imagined to provide? Murphey, for example, targeted Chicago-area public high school teachers, to draw a population of high students into his course. There is great potential in such an initiative, not only for public outreach, but also for the recruitment of students. It might also provide an alternative metric for assessing students (Murphey’s Op Ed, “Creating Content for Many to Access a Few” <http://www.psmag.com/navigation/books-and-culture/creating-content-many-access-mooc-value-education-76008/>). That is, while the “massive” ambition of the original Coursera vision—reaching out on a wide-scale to underserved populations— might not be realistic, the targeted recruitment of particular audiences—underprivileged high school students in Chicago and nationwide—could be our more modest ambition.

2. Semester Online

As with Coursera, faculty and students who participated in the SON initiative spoke positively about the experience. The students particularly stressed the value of asynchronous material in helping them to understand the material and the potential utility of first navigating and then mastering the challenges to discussion and argumentation posed by a virtual classroom. Candy Lee, one of our SON pioneers, stressed the value of acquiring the rhetorical skills necessary to negotiate the exchange of ideas in a virtual classroom for success the 21st-century workplace.

The technology platform that structures SON, to which we still have access, has considerable potential for pedagogical initiatives on all three of Northwestern’s campuses.

- We can imagine this technology being used to facilitate collaborations between students and scholars on the Evanston and Qatar campus: for example, a course that would for the most part be conducted virtually but would culminate in a face-to-face conference/capstone event in either Qatar or Evanston (or both).
- We can also imagine that this technology platform might enable the expansion of the terrifically successful Chicago Field Studies Program, allowing students to undertake internships across the country and across the globe, while still being able to participate in the “classroom” component of the program.
- Finally, we can see how two of the original motivating logics for participating in the SON initiative might be served by this technology platform:
 - Students studying abroad or on leave might be able to take courses at Northwestern without being in residence.
 - Courses underrepresented in our curriculum might be offered through already existing or newly formed consortia structured by shared curricular goals.

Although the committee appreciates the considerable opportunities afforded by the SON technology platform, or platforms like it, we, like many of our colleagues, found that the SON model exhibited a number of serious problems.

- At a curricular level, a key shortcoming of the SON model was that decisions about what courses to offer were made without regard to any shared curricular goals or priorities identified by consortium members. Instead, these decisions were driven by the pedagogical interests of individual faculty members. This absence of curriculum design meant that many of the SON courses were inappropriate for departments and programs at Northwestern. Programs and Departments voted not to accept SON courses for credit for a range of curricular reasons: SON courses duplicated “brick and mortar” courses currently on offer, and therefore competed with and potentially undermined those courses; SON courses designed by other universities did not fit easily or at all into long-standing and successful sequences here on campus (a problem exacerbated by the fact that SON operated on the semester rather than quarter system); and finally, that SON courses simply did not meet departmental standards.
- On a pedagogical level, although the “head professor” -“assistant teacher” model was never tested, as too few students enrolled in the courses to necessitate multiple sections, we, along with our colleagues, had serious concerns about how the model would scale. How would the synchronous class sections work with multiple sections? What access would the students in other sections have to the “head professor”? How and by whom would the “assistant teachers” be hired? And whose labor practices would govern their contracts and working conditions?
- On the level of intellectual property, the SON contract posed a number of serious problems that could not be fully or properly resolved in the short time frame during which the SON initiative was implemented. We note that Northwestern is currently in the process of creating new copyright rules to deal with issues raised by online learning and strongly encourage the University to fully involve the faculty in this process.
- Finally, in terms of the bigger picture of the future of higher education, the SON business model with its consortium/school-affiliate school hierarchy was troubling to many faculty on a number of levels. First, it had the potential to weaken considerably the Northwestern brand. Second, it exacerbated concerns expressed by faculty at Northwestern and across the country about the impact of certain forms of online learning on the broader fabric of higher education in pedagogical as well as financial/institutional terms. The consortium-affiliate hierarchy redistributed funding from less affluent institutions to more affluent ones, replacing their curriculum with ours, with the potential to further accelerate the funding crisis at those institutions. The Affiliate schools recognized the dangers of this structure and refused to devote any part of their students’ tuition fees to the SON initiative. As students were unwilling to pay additional tuition to take SON courses, enrollments were incredibly low, and the initiative failed.

IV. Three proposals to support experimentation and innovation

The Northwestern community learned much about online instruction and digital technologies in the last two years, and developed or identified resources to support both its pilots, SON and Coursera MOOCs. Now, guided by the principles laid out in this report, we recommend to the provost that he invite faculty to think capaciously about how technologies for online instruction can enhance teaching and learning at Northwestern. More specifically, we propose a three-part funding initiative; its chief goal is to enable the university to respond nimbly to faculty ideas with the right kind and level of support.

Let a thousand flowers bloom...

The FDLW proposes to the provost that he launch a three-pronged initiative to encourage big-impact curricular innovation proposals from departments, programs, or faculty clusters; smaller experiments by individual faculty members, all of which involve digital technologies and incorporate some kind of online or blended instruction; and an active exchange of ideas related to online learning initiatives between faculty across traditional school boundaries. The three parts are:

- Robust seed grants for departments, programs or faculty clusters to develop and implement high-impact curricular innovations in online or blended learning through the use of digital technologies.
- Funding to expand resources needed to provide individual faculty with help and advice in creating online material that could be used to support and enhance their “brick and mortar” teaching activities.
- Development of an “incubator lab” to facilitate communication among and provide educational outreach to faculty and others across the university regarding digital technologies and distance learning opportunities.

These three proposals hew closely to the guiding principles of this report: pedagogical and curricular initiatives should be driven by the faculty, serve our students, and advance teaching and learning in the disciplines and sub-disciplines across Northwestern curricula.

Seed grants for high-impact curricular projects

Departments, programs, and clusters of faculty (by discipline, across discipline or departments, etc.) would be invited to submit high-impact curricular proposals. These proposals would develop innovative online and blended learning experiences that challenge our understanding of what's possible in online learning and that leverage emerging technologies and teaching strategies to promote deep learning experiences for learners at Northwestern.

Successful proposals will include a detailed description of the project, optimally tied to the

University's strategic plan and/or an individual school's strategic plan. They will have the endorsement of the appropriate dean or deans; the name of all faculty members involved; a well-developed plan with a timeline; a budget; and a robust assessment plan aligned to well-articulated learning goals.

Funding to support individual faculty initiatives

We recommend that the Provost fund five additional staff positions in areas of expertise needed to support faculty interested in developing online material that could be used to supplement and enrich their "brick and mortar" courses. Relevant areas of expertise might include, for example, instructional design, videography and copyright clearance. He should consult with the leadership in the appropriate University units to determine the details of such hires, including NUIT, the Library, and the Searle Center, as well as school specific units such as the School of Continuing Studies, Weinberg's Multi-Media Learning Center and the School of Communication's Multi-Media Learning Center.

The purpose of these positions would be to provide faculty with help and advice to create online material that could be used to support and enhance their regular "brick and mortar" teaching activities. In addition to making funds available for the salaries of staff in these positions, we recommend that some additional modest level of funding be made available to enable faculty to obtain licenses for relevant software necessary to produce the online material, and to fund the creation of modest production kits (containing items such as a microphone, camera, light and portable backdrop) that could be lent out to faculty working with instructional designers and others to create their own online material.

We believe that blended learning initiatives that involve supplementing regular "brick and mortar" classes with online material have the potential to significantly improve the education that Northwestern provides to its students. We believe that such a bottom-up approach that simply provides modest levels of assistance and support to faculty who want to experiment with adding some self-produced online material to their courses will pay high dividends for Northwestern by allowing our faculty to creatively explore different possible ways to incorporate online material into their teaching activities.

The Coordinated Service Center comprising NUIT's Academic Research and Technology Department, the Library, the School for Continuing Studies, the Searle Center, and the provost's office, came together as an ad hoc operational group to support Coursera MOOCs. As we add resources to help faculty exploit technology in teaching, we think that this loose federation of technology and knowledge experts might be studied as a possible model in the future for organized collaboration across units. There are complicated budget implications because of the different funding models of this collection of units that would have to be addressed for maximum efficiency and equity.

Development of an “Incubator Lab”

To enhance the effect of the first two proposals, we encourage the development of an “incubator lab” to facilitate communication among, and provide educational outreach to faculty and others across the university regarding digital technologies and distance learning opportunities that enhance the educational experience and/or outcomes. Our first two proposals endorse the principle of letting a thousand flowers bloom; the “incubator” provides a mechanism for productive cross-pollination. Conversations that cut across traditional School boundaries, that allow colleagues from different disciplines and methodologies to share, debate and synthesize ideas are essential to imagining and implementing the pedagogical and curricular initiatives that will most powerfully and successfully serve our students’ needs. The “incubator” would provide the forum for such exciting and necessary conversations, thus maximizing the impact of any resources dedicated to these efforts. The “incubator” might sit within the structure of the current CSC, might operate under the purview of the FDLW, or might exist as a separate entity, comprised of faculty and staff with relevant expertise and interest and led by an appropriate member of the faculty. The lab itself would be an experiment to be revisited and improved each year.

The time is now...

As the Semester Online experiment ends and the development of MOOCs continues, we should exploit the momentum created among faculty, even if some of the momentum was turbulent, to continue thinking about teaching and online technologies, now guided by the principles laid out in this report.

With the transition from Blackboard to Canvas over the next year, nearly all faculty members will actually be engaged in a teaching technologies project, albeit modest, as they convert their individual courses to Canvas. As a learning management system Canvas has a great deal of potential for more advanced uses of LMS technologies than just posting syllabi, collecting and returning work, etc. Both individual faculty members and entire schools should be encouraged to leverage this conversion to think innovatively about their fields and their pedagogical approaches.

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