MOOC and Online Strategy Advisory Committee

Report for 2016-2017

Introduction

The MOOC and Online Strategy Advisory Committee was charged by Interim Provost Edward Feser in December, 2016 to review current campus activities and recent developments in the online space, describe our current online strategy, and lay the groundwork for shaping our future strategy.

Specific deliverables requested were:

1) A short report describing the current strategy of online educational programs at the University of Illinois at Urbana-Champaign
2) A strategic thought paper identifying the main threats and opportunities—either existing or emerging—in online education, with any preliminary ideas on how the campus might address the threats and capitalize on the opportunities

The committee met five times: on January 19, February 16, March 16, April 20, and June 20, 2017.

Membership in the committee included:

Charles Tucker, Office of the Provost, Co-Chair
Linda Smith, Information Sciences, Co-Chair
Nicholas Burbules, Education
Raj Echambadi, Business
Kim Kidwell, ACES
Randy McCarthy, LAS
Rob Rutenbar, Engineering
Tracy Tolliver, Technology Services
Adam Fein, Office of the Provost, *ex officio*

Professor Vikram Adve, College of Engineering, joined the committee meeting on June 20 in Rob Rutenbar's absence.

This report is organized into two sections, corresponding to the two deliverables listed above.

Part 1. Current Activities and Strategy

The University of Illinois at Urbana-Champaign has a long and rich history of providing high-quality online education. For twenty-two years, online efforts have assisted the Urbana campus in furthering the university's land grant mission and providing education to those who might be geographically bound or unable to take residency in central Illinois. Increasingly, these opportunities are benefiting on-campus students as well.

Today, Illinois has 50 online degree programs and an additional 42 online certificate programs[1]. In AY16, our campus had 524 different online courses offering 1,261 sections. Online enrollment has risen 85% in the past five years, from 24,697 in AY12 to AY16 when there were 42,122 enrollments in online courses at the undergraduate and graduate level, including both residential and off-campus students (see Figure 1). 20,687 students took at least one online course, and on average, each student took two. These enrollments produced over $23 million in tuition revenues[2].

Figure 1: Online Enrollment and Headcount AY12 – AY16
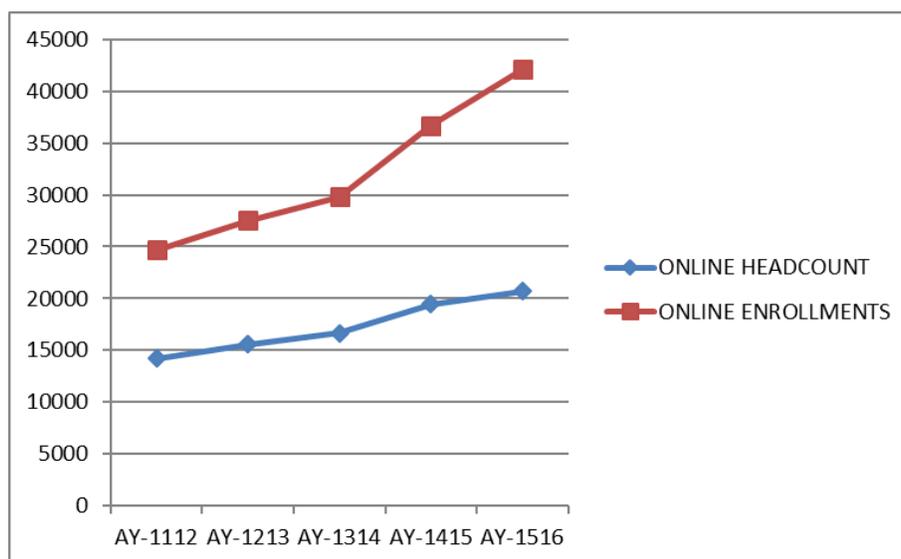
There are three primary areas of current focus for our campus in the online space: (1) graduate traditional online programs, (2) MOOCs and MOOC-based degrees, and (3) Summer and Winter Session online, which are largely undergraduate.

Graduate Traditional Online Programs

Forty-six of the 47 traditional (i.e., non-MOOC) online degree programs offered on the Urbana-Champaign campus are at the graduate level. Ten different academic units offer at least one graduate online degree, including the colleges and schools of Business, Engineering, ACES, Education, LAS, LER,

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[1] http://online.illinois.edu/online-programs.
[2] This tuition income includes Summer and Winter Online for undergraduates. It does not include any portion of the range tuition for Fall/Spring online undergraduate courses taken by our residential students.

Information Sciences, AHS, Social Work and Media. In academic year 2016 there were 6,623 graduate enrollments, the vast majority of these from off-campus degree students. These programs accrued $11.7 million in revenue and have been hovering around the $11 million mark for the past three years.

Historically, these programs have been the core of our activities in online learning. However, as the market for online programs has become increasingly competitive, enrollments and revenues from these programs have flattened. Our MOOC-based graduate degrees (discussed below) are one response to this lack of growth, and with these programs we expect graduate online program enrollment to begin rising again.

MOOCs and MOOC-based degrees

In the summer of 2012, Illinois entered a partnership with Coursera, the world's largest MOOC provider. What began as a few experimental massive open online courses has transformed into a completely new approach to quality teaching and learning at scale. Some might say we have hit the higher education trifecta, providing not only quality and scale, but also affordability, with degrees priced at one half to one quarter of the normal cost. As of April, 2017, 2.7 million learners had participated at some level in at least one of Illinois' 80-plus MOOCs. Today, we offer ten specializations and three MOOC-based degree programs. Specializations are groupings of courses around a particular career-focused topic area that can be pursued non-credit or, if connected to one of our degrees, for credit. In addition to the College of Engineering's Master of Computer Science in Data Science, the College of Business has added a Master of Accountancy to its already highly successful iMBA program.

One of the most innovative features of these MOOC degrees is that their courses can be "stacked" to provide additional credentials for the students if they so desire.   Specializations play a significant bridge-like role, as learners can take multiple specializations and decide later if they want to apply for one of the full degrees. Each of our MOOC-based degrees has six stackable entry pathways, which allows Illinois to meet our students' professional goals. No matter where they are in their careers, students never need to take or pay for more than they need (see Figure 2).

Our MOOC-based programs and courses have also started to produce a significant amount of revenue. Our non-credit efforts alone grossed just under $1 million in the first quarter of 2017, with the university receiving 50% of that income[3]. FY18 revenue to the university for our three MOOC-based degree programs could be over $8 million.

Accreditation of Online Programs

Accreditation is a significant issue for MOOC-based degree programs, because of the open, stackable content, and the time needed to secure accreditation for a new program.

The Higher Learning Commission (HLC) is our regional accreditor. They accredit the entire university and all of its degree programs. Accreditation is important, in part because it enables students to receive federal financial aid. Even though we offer little, if any, institutional aid to our online students, some of them depend on federal loans to finance their studies.

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[3] For MOOCs sponsored by academic units, the unit receives 70% of the university's share and the campus retains 30%.

Figure 2: iMBA Stackable Pathways

iMBA

College of Business at Illinois · coursera

WHICH IS RIGHT FOR YOU?
ARE YOU A LEARNER WHO WOULD LIKE TO...

- TAKE FREE COURSES JUST FOR KNOWLEDGE
- EXPAND KNOWLEDGE AT OWN PACE AND AT NO COST

- EXPAND YOUR KNOWLEDGE
- EARN AN AFFORDABLE, VERIFIED CREDENTIAL FROM COURSERA

- EXPAND YOUR KNOWLEDGE
- EARN GRADUATE CREDIT FROM ILLINOIS
- OPTION TO APPLY CREDIT TOWARD CERTIFICATE OR IMBA
- EXPLORE IMBA COURSES

- EXPAND YOUR KNOWLEDGE
- ENHANCE CREDENTIALS AT A LOW COST
- CONSIDER THE OPTION OF PURSING THE IMBA DEGREE IN THE FUTURE

- EXPAND YOUR KNOWLEDGE
- ENHANCE CREDENTIALS
- EARN GRADUATE CREDIT FROM ILLINOIS
- CONSIDER THE OPTION OF PURSING THE IMBA DEGREE (IF ADMITTED)
- ESTABLISH ACADEMIC HISTORY/BOLSTER IMBA APPLICATION

- EXPAND YOUR KNOWLEDGE
- INTERESTED IN EARNING MBA DEGREE
- WANT TO ENSURE PROGRAM ACCEPTANCE PRIOR TO BEGINNING COURSEWORK

OPTION 1 Try Free Coursera courses — coursera

OPTION 2 Take some Verified Coursera courses — coursera

OPTION 3 Explore taking courses for Illinois Credit — ILLINOIS

OPTION 4 Consider earning a Coursera Specialization Certificate to share your success with the world! — coursera

OPTION 5 Enhance your credentials with an Illinois Certificate and transcriptable graduate credit with option to apply toward the IMBA degree (if admitted) — ILLINOIS

OPTION 6 Pursue an Illinois IMBA degree. Learn executive leadership skills with an accredited degree in an affordable and flexible online package — ILLINOIS

A key factor for online strategy is the lead time to launch a new program. HLC requires prior approval of any new program in a category where the institution does not already have at least two programs approved. If the institution has two or more accredited programs in a category then the institution can launch the program without prior approval[4], and HLC will review that program at its regular 10-year review of the entire institution.

The relevant categories for accreditation depend on two factors: how student progress is measured, and how the program is delivered. The main ways to measure student progress are

- by credit hours (the traditional method, used for most programs),
- by direct assessment of competencies (the most widely used form of competency based education, or CBE), or
- through competencies that are tracked using credit hours (credit-hour CBE, a less common mode).

Program delivery options are:

- traditional face-to-face teaching,
- distance education (can be online, but requires a structured timetable for the course and instructor-student interactions initiated by the instructor), or
- correspondence education (can also be online, but is usually self-paced and the student initiates interactions with the instructor).

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[4] All direct-assessment CBE programs must receive prior approval, even if the institution already has two or more such programs accredited.

The federal financial aid rules for correspondence education are different compared to the other two delivery options: a student in a correspondence program cannot receive aid for living expenses. Thus, the delivery mode for an online program is important for both financial aid and accreditation purposes.

The university's traditional online programs track progress by credit hours and are delivered by distance education, and we have many such programs. Strategically, this means that we do not need any prior approval from HLC for new programs in this category. Of course, shared governance processes and State of Illinois requirements still apply.

Our MOOC-related degree programs are different, and during the 2015-2016 and 2016-2017 academic years we worked with HLC around accreditation for these programs. The accreditation challenge comes from the open content for these courses (the MOOC portion) and the "stacking" of that content. Learners can complete the open content for some courses before being admitted to the degree program, and subsequently earn credit for those courses by completing the credit-only portion of each course, without necessarily re-doing the open content[5]. HLC's view is that the open content portion takes place outside of the realm of accredited degree programs, so these programs are not tracking student learning by traditional credit hours.

To resolve this issue, the university applied for its first two MOOC-related degrees (the iMBA and the MCS-DS) to be credit-hour CBE programs, delivered by distance education. Those applications were approved by HLC in March, 2017, formalizing the accreditation status of these programs. Strategically, because we have two programs in this category accredited by HLC, the university can now launch any new programs that use this same model *without* seeking prior approval from HLC.

Note that in some subject areas the university's degrees are also accredited by a disciplinary accreditor. In those cases it is important to determine whether any prior approval by the disciplinary accreditor is required.

Summer and Winter Session Online

Five years ago, 95% of online revenue was collected from our graduate, off-campus efforts. Around 2010, the demand from our residential undergraduate students for online courses was rising as was the number of credits students were transferring in from other institutions. Advisors started noticing that the courses their students were taking from other institutions were not properly preparing the students for subsequent Illinois courses, particularly in rapidly changing fields such as the life sciences. In an effort to reverse this trend and respond to student preferences, the College of LAS began converting high quality, high demand, (largely) general education courses to an 8-week online format to be offered in the Summer and in the Fall and Spring second-8-week slots. Other academic units followed suit and the courses were instantly popular, helping students stay on track for graduation, providing both pedagogical variety and scheduling flexibility. In AY16 there were 8,062 enrollments in Illinois online Summer courses amounting to $9.2 million in tuition collected.

Building on the success of Summer session online, in 2014-2015 we began a three-year pilot of a fully-online, 4-week Winter Session. Similar to Summer Session, Winter Session was immensely popular with students, with 84% of Illinois winter online students sharing that the quality of interaction they had with

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[5] For pedagogical reasons, Illinois students in these programs always have access to the open content while they are taking the credit-bearing course.

their instructors was the same as or better than that in most face-to-face courses they have taken. 82% of Winter Session students rated the overall quality of Winter Session courses as good or excellent. At the end of the three-year pilot, just under 4,000 students had taken a Winter Session course, and campus had collected $5.8 million in tuition. In addition, transfer credits from other institutions for courses offered in Summer and Winter online were down. We believe that our undergraduate students are benefitting from Winter Session by staying on track for timely degree completion, and by being better prepared for subsequent courses because they took their winter course from us rather than another institution. In March 2017, Winter Session was approved by the Senate as a permanent part of the university's academic calendar.

Current Strategy

With the information above, we can now summarize our current strategy.

Audiences

For many years the main audience for our online degree programs has been individuals who want to earn a graduate or professional degree, but who do not live near our campus. Frequently, these students also continue in their careers while they are studying.

With LAS Online, and then with Winter Session, we appealed strongly to another audience: undergraduate students who want to make progress in their baccalaureate studies, either from home or from a summer job. This has been a growth area for us over the last five years or so. However, since almost all of the students in these courses are our own degree-seeking residential undergraduates, further growth in this area will be limited.

Our MOOCs exposed us to a new audience: non-credit learners. This audience includes learners who are pursuing their own professional development, as well as enrichment learners who are taking courses for the pleasure of learning new things. Learners who take our MOOCs are also potential students for our MOOC-related degree programs. MOOCs function at scale (i.e., with large enrollments), so they work best when technology can be used to teach large numbers of students with minimal human intervention. Subjects and pedagogical approaches that involve frequent, personal student/instructor or student/teaching assistant interactions do not scale well, and do not work well as MOOCs.

Students in our MOOC-related degrees are very much like our traditional online graduate students in terms of their life situations and motivations. The difference with this group is not the type of student we are reaching, but the fact that we can now reach many more of them.

Program Initiation and Design

In our university, new online programs are almost always initiated by an academic unit. This is consistent with our decentralized style of operation, and it gives unit faculty a strong voice in selecting and designing new programs. At Illinois, regular faculty design and teach the courses in our online programs. This distinguishes us from institutions that outsource online course design and teaching.

The role of market research in a unit's decision around whether to launch a new program and how to shape that program has historically been modest, but is now growing steadily. CITL has used the services of the Educational Advisory Board (EAB) to provide some market analyses for units that are considering a new online program. Academic units are increasingly interested in this type of

information, and the provost's office is now piloting a tool from EMSI (www.economicmodeling.com) that can provide useful market analysis with a quicker turnaround. This shift of focus, from offering online versions of existing programs, to identifying market needs and opportunities and designing a custom/new version to reach new audiences, is an important shift, one we should continue to push.

One clear trend is the increasing number of academic units that are considering new online programs with an eye to revenue generation. ROI calculations are being done earlier and more frequently, and are an important part of a unit's decision to launch a new online program. A program that is mission-oriented and revenue-neutral can be considered, but programs that must be subsidized are rarely of interest.

Course Production

The design and production of online courses is supported centrally through CITL, which currently builds 80 or more new courses each year. CITL provides essential services such as: instructional design, instructional multimedia, program coordination, marketing, market/recruiting research, data analytics, non-degree registration and more in order to create support efficiencies across campus in areas difficult for some colleges to build infrastructure. Larger programs (notably Business and Engineering), have chosen to build the appropriate infrastructure internally and coordinate with CITL for specific cost-recovery services only.

There have been challenges in the last several years with the CITL production queue, and some units have had to wait longer than they wanted to get their online courses built. The 2016-2017 academic year saw some progress in this area, with a more structured approach from CITL to scheduling course production. This has provided more transparency to academic units, and taken better account of each college's priorities for course production.

The plan going forward, in conjunction with the new campus budget model, is to move CITL's new-course design and production, as well as program-specific marketing and data analytic services, to a fee-for-service model. Over the long run, program revenues to a unit should more than cover these costs. Units that need cash to get a program up and running could seek an advance against their revenues from the campus. This fee-for-service scheme should allow CITL to fund a staff that can meet the course-development needs of academic units, supported by the units that use those services. Other CITL services, including quality-control checks, copyright management, general university marketing, and student support, would continue to be centrally funded.

Future Activity

Our university is a leader in the online education space and we are primed to build on this momentum in the years to come.

First and foremost, our efforts must continue to be of the highest quality for our world-class students. The campus Center for Innovation in Teaching and Learning has developed a priority-track development process that is allowing supply to match demand for each college's highest priority initiatives. All of the online courses developed in conjunction with CITL now also receive a final compliance check which allows our campus to ensure each course is being delivered free from copyright, legal or accessibility (for our students with disabilities) concerns.

In addition to maintaining healthy traditional online graduate programs and robust summer and winter online sessions, the Illinois partnership with Coursera has great potential to launch us in new directions. Coursera has recently unveiled Coursera for Organizations, which includes corporate partnerships as well as government and non-profit relationships. In many of these cases, the diversification of our content and courses will require no additional expenses; they will simply reach more audiences. This strategy is a perfect match for the global expansion of our land-grant mission and need to expand our revenue generating possibilities.

One of the advantages of having three of the first five[6] of the world's MOOC-based degree programs is that we are already able to outline new pathways by combining the most popular specializations within these degrees. There are efforts underway between the College of Business, the College of Engineering and others to explore these high-demand opportunities, which will likely lead to additional enrollments and revenue, as we remain uniquely positioned to allow students to customize their learning experience. Our model for MOOC-based degrees works well for degrees that attract significant market interest, and that offer a clear payback to the student through enhanced professional opportunities. Degrees that do not meet these criteria may still do very well as traditional online programs. A residual benefit from being appropriately aggressive in this space is that we are being able to expand our research efforts. In the coming year alone, there are faculty plans to examine multimedia, curiosity, augmented and virtual reality and how each might affect learning performance.

One of the underappreciated aspects of our online activity is that the experience of redesigning courses to an online modality often migrates over into regular teaching. Rethinking course assignments and assessments, ways of presenting information to students, forms of classroom communication (teacher-student and student-student), often produces new ideas that can revitalize classroom teaching as well. Most people who teach online report this benefit. Sometimes it is just the experience of teaching online that can re-energize faculty who have settled into a curriculum and mode of instruction that have become comfortable and familiar. Sometimes it is actively incorporating online and blended elements into the traditional classroom. Technology-based reforms are not the only avenue for classroom innovation, but nor are they any longer the components of a separate (and for some, subsidiary) aspect of our instructional mission – online and blended instruction are core business now in most colleges on this campus.

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[6] We count the Georgia Tech OMS CS (with Udacity), Illinois' iMBA, MCS-DS and iMSA (with Coursera), and the Online Master in Innovation and Entrepreneurship from HEC Paris (with Coursera).

Part 2: Elements of an Online Strategy

In January 2017, President Timothy Killeen presented a strategic enrollment update to the University of Illinois Board of Trustees[7]. The growth strategy for Urbana focuses on graduate and professional programs, with an emphasis on online programs. This section outlines the motivations for pursuing and expanding our online education initiatives, the audiences we could reach, and potential risks and opportunities associated with our involvement in online education.

Motivation

The title to the university's 2009 self-study report for reaccreditation, *Excellence, Innovation, and Access[8]*, captures our aspirations for online education. As a university we have always pursued excellence in our academic programs, including online education. Illinois has long been an innovator in online education, starting from the PLATO project in the 1960s. And as we celebrate the 150th anniversary of the university, there is renewed consideration of our mission as a land-grant university to make a world-class education as accessible as possible.

Given the decline in and uncertainty of support from the State of Illinois, another motivation for expanding online education is to generate additional revenues. We do not seek revenue for revenue's sake, but to help sustain the many valuable things we do as an institution.

To provide a foundation for shaping the university's strategy in online education, we discuss risks, opportunities, and additional questions.

Risks

The committee identified a number of risks that need to be considered in our efforts to expand online offerings. We group these into four categories: market competitiveness, institutional agility, program sustainability, and use of educational technology.

Market Competitiveness

The online educational market is more overtly competitive than the market for residential, face-to-face programs we are so accustomed to. Studies suggest that competition in the online space is also rapidly increasing[9]. This means that we need to have distinctive offerings—providing quality content and an excellent student experience at a price prospective students can afford. Risks in this area include:

- Allowing our educational programs to become commodities, with no sense of uniqueness, quality, or special value. There is an increasing trend toward viewing higher education as a commodity, particularly in political and public discourse. While there may be institutions whose courses or degrees are interchangeable with those of another institution, that is not the market segment where Illinois resides. We have a reputation as a university that provides high-quality education, and we should make every effort to maintain both this reputation and the accompanying reality.

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[7] http://www.trustees.uillinois.edu/trustees/agenda/January-19-2017/p-1-Strategic-Framework-Enrollment.pdf.
[8] http://www.reaccreditation.illinois.edu/University_of_Illinois_Self-Study_2009.pdf.
[9] https://www.insidehighered.com/news/2017/05/22/reports-finds-rising-competition-online-education-market.

- Not regularly refreshing and re-energizing our online courses and programs. Developing online courses, especially courses with high production value, is a time-consuming and expensive proposition. While it is tempting to regard the resulting courses as long-term investments, in fact, courses do become stale fairly quickly as subject-matter knowledge, pedagogy, and educational technology advance. The more valuable a program is, the more important it is to periodically refresh, and even re-build, courses in the program. Any strategic plan for online education should set aside a portion of revenues for this and other forms of strategic reinvestment.

- Paying inadequate attention to the *non*-academic aspects of a program. Students shopping for an online program are choosing from a wealth of options, and may quickly pass over a program that does not provide clear information, is not responsive to their inquiries, or does not have a reputation for providing a great student experience. We need to ensure that the student experience with Illinois online programs, from the first contact through to graduation, has the same high quality as our course content and pedagogy. In response to feedback from the campus Online Learning Operations Advisory Committee (OLOAC), CITL is already moving to repurpose legacy services towards a new central campus student services group. Many of our academic colleges have expressed the need for support in this area as their current staff is at capacity serving on-campus students. For units that already have infrastructure in this area, CITL can provide optional supplementary support in collaboration with the offering unit. It is important that leadership across campus continue to work together to find the best balance of coaching and advising for our online students both centrally and within the academic units.

Institutional Agility

Online education is changing rapidly. We need to be able to respond to those changes promptly, and to act quickly on new opportunities. Risks in this area are:

- Having no excess capacity to produce new courses and mount new programs. While operating a service like CITL's course design and production team *at* capacity sounds efficient, such an operation has no flexibility to respond to a rapidly emerging opportunity. While we frequently speak of agility as a desirable quality the university should cultivate, an organization can only be agile if it has some ability to commit people and resources to a task on short notice. We must think carefully about areas where we should be building some capacity over and above our current needs, so that we are able to move into new areas on short notice.

- Not looking ahead for the next big developments in online education. What comes after MOOCs, or what do MOOCs morph into? Will some other technology (mobile devices, IoT (internet of things), . . .) foment another revolution in educational technology? We need an ongoing process for longer-term strategic visioning, so that we can spot the spaces where we need to be as a university, and move into them before others catch up.

- Becoming too focused on a single partnership with a third party. At present we have a substantial partnership with Coursera, and so far that arrangement has been very productive. Betting heavily on Coursera for the next few years might be a risk we decide to take, but our involvement with external partners should always be driven by our interests, not by corporate priorities, and should allow us to explore many ways to utilize MOOCs and other technologies.

Options for mitigating this risk include engaging with other external partners (i.e. EdX), or mounting and offering open-enrollment, non-credit courses (i.e., MOOCs) ourselves. This latter option should only be undertaken if we have analyzed all of the associated costs, including marketing to potential learners.

Program Sustainability

We have many great online programs, and will doubtless continue to create more. When a program benefits the university, our students, and society, we want it to be sustainable over time. When a program ceases to attract an adequate number of students or otherwise loses vitality, we should either revise or discontinue it. Risks in the area of program lifecycle may come from:

- Losing faculty involvement in courses and programs. Our university has a strong tradition of faculty leadership in academic matters, and a tradition that is important to the quality of our academic programs. That tradition has been maintained with our online courses and programs, and we should continue to keep faculty at the center of decisions about curricula, course content, and pedagogy[10].

- Not adequately supporting faculty who develop and teach online courses. Developing a high-quality online course requires considerable effort from the faculty member who teaches the course. It is important to support these faculty members with graduate teaching assistants and professional staff, so that the faculty member's time is devoted to the tasks only they can perform. Units will have difficulty sustaining excellence in their online programs if teaching online becomes too onerous, and faculty members lose interest.

- Not returning earnings to academic units in a way that is visible to faculty. Related to the point above, faculty enthusiasm for a program is easier to sustain when there are obvious benefits to the academic unit. Revenue must be used first and foremost for paying for expenses related to course delivery (i.e. instructor fees, TA support, video development, course build fees, supplies, etc.). Instructors should be acknowledged for their contributions by providing them with adequate resources to support course delivery, particularly if enrollment in the course is increasing and/or additional sections of the course must be delivered to meet demand. We need clear, transparent ground rules about where the money goes, and both the campus budget model and college budget policies should allocate revenues in a way that supports the units and faculty who teach the program.

- Not addressing programs whose enrollments don't grow as anticipated, or fall below a sustainable level. Units need to understand the costs of operating each online program, and, if program enrollment is below the level needed to cover costs, be willing to either improve marketing and recruiting or phase out the program. This might be a place where some campus policy would be useful.

- Allowing enrollments to grow beyond our ability to provide a quality educational experience. Our committee has no sense that any existing Illinois program is too big, but some of our programs have the potential for substantial growth. As we scale up a program, we need to

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[10] This does not preclude the teaching of established courses by, for example, specialized or adjunct faculty.

continually monitor students' learning and the quality of their experience, and ensure that we are providing an Illinois-quality experience to all students in the program. This is a topic that needs further, detailed discussion, perhaps in MSAC for 2017-2018.

- Allowing academic units to depend too much on revenues from online programs, especially in times when the program is growing rapidly. The danger is that the unit will use online revenues to cover long-term, recurring costs (e.g., tenure-stream faculty salaries), and then lose that revenue when the online market shifts. A safer strategy is to use online revenues to cover items that do not have long-term commitments, such as facility renovations or graduate fellowships. Such a strategy might seem at odds with the view that online programs should be regarded as a regular element of our portfolio of educational activities. However, the point here is that we should assess the volatility of any online program and its revenue, and the associated financial risks, and plan accordingly.

Use of Educational Technology

The growth in online education has been driven by developments in technology. We need to be responsive as technologies for learning change, and as students' expectations around the technology they will see and use also change. Risk here include:

- Going too far toward technology, with not enough face-to-face learning, *and* not making the best use of technology, and thus appearing backward and outdated. We need to strike a balance among online, blended, and face-to-face instruction. That balance should be guided by pedagogical effectiveness.

- Not investing in research and development, and so not maintaining our position as leaders in online education. While much of our recent focus has been on expanding the scale of our online activities, we need some involvement in R&D to ensure that we are always near the forefront in online education. This could involve research in online pedagogy, in new educational technologies, or even in new programmatic forms on online education, like the iMBA.

Opportunities

The committee identified a number of opportunities for expansion of our online programs and activities. We group these into two categories: new audiences and programs, and new learning technologies and pedagogies.

Audiences and Programs

- Non-traditional baccalaureate students. Our undergraduate programs have long been focused on full-time residential students, especially those who start as freshmen immediately after high school. While we have expanded online activities with this audience with summer and winter courses, further growth at the baccalaureate level would require targeting a new audience. The opportunity here is non-traditional baccalaureate students. Usually these students are older, may be working full or part time, and have some college education. Reaching out to this audience and offering them a chance to earn an Illinois degree would be a major departure for our campus, but one that is consistent with our mission as a land grant university.

- Pre-college pipeline or bridge programs. Our ability to enroll undergraduate students from underrepresented groups is highly impacted by socio-economic disparities in K-12 education. Underrepresented students are more likely to have lower family incomes, and to attend K-12 schools that are not well resourced. The university has some pre-college programs to help these students be more competitive for admissions and better prepared for college[11]. It is worth exploring how our expertise in online education could help this situation. That might include providing content for AP-level or Dual Credit courses for students whose high schools cannot offer these courses, or using online technology to deliver "summer bridge" programs that help admitted students get ready for the academic level and pace of study on our campus. These activities are well aligned with our university's mission, but are unlikely to be significant revenue generators.

- University to university (U2U) content and course sharing. Given the cost of developing top-quality online content, it makes sense to explore ways to share content among universities. Already, some US-based business schools have advised their MBA students to take one or two courses from our iMBA program[12], taking advantage of Illinois faculty expertise in an area where the student's home school is not well staffed. While consortia of universities or other structures to support content sharing have not yet emerged, we should continue to explore this area, both as a content provider and as a content consumer.

- University to business (U2B) content and course sharing is an area with sizeable potential for growth. In this market, the university typically contracts with a business to provide courses and content to a group of the business's employees. These are often non-credit courses, though schemes like the company paying for a number of their employees to earn a master's degree are also possible. U2B activity is attractive because it offers a new market for content that we have already developed for other uses. Expanding in this area would require some focused investment in marketing and sales, as well as staff who can provide service to the business to help manage the learning in their enterprise. Some companies also want courses and content to be tailored to their needs. Faculty who do this should be compensated appropriately, and we should recognize that tailoring non-credit content for a customer is quite different from altering credit-bearing courses or degree curricula, and does not require the same type of shared governance.

- Providing Illinois alumni with lifelong opportunities for professional development and individual enrichment. Our online platforms and MOOC partnerships can readily reach our many alumni across the globe. Opportunities here include marketing our regular for-credit and non-credit programs to alumni, or creating exclusive online events, lectures or courses just for alumni.

Learning Technology and Pedagogy

- Explore opportunities for ubiquitous learning utilizing mobile devices (smartphones, podcasts, etc.). A large and increasing portion of our students own mobile devices, and use them as a primary tool for consuming content. Ensuring that our online courses can usefully be studied on

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[11] For example, the Principal's Scholars Program, http://nano-cemms.illinois.edu/programs/high_school/principal_s_scholars.html.
[12] These students are registered as credit-earning non-degree graduate students.

a mobile device, and even creating content specially for mobile users, can keep our online content relevant and maintain our presence with a critically important audience.

- Target residential students, especially undergraduates, aggressively promoting summer and winter online courses, and offering blended courses in the residence halls. Another dimension of ubiquitous learning is when and where students consume content, including residential students. There is still room for growth in our summer and winter online enrollments. We should analyze student data to see which courses students most often need to keep on track for a timely graduation, and prioritize these courses as we develop summer and winter offerings. Another option is to blend online and face-to-face content for on-campus students, but to provide some of that face-to-face content in the residence halls.

- Utilize lecture capture and video captioning as ways to support on-campus students. Some units on campus regularly capture both video and audio from on-campus lectures, and it is substantially less expensive to do this than to record the lecture in a studio. Capturing lectures, particularly if they could be captioned and searchable, would provide all students with a ready tool for study and review.

- Modularize digital course content, and allow students to re-visit that content at other times and in other courses. This idea acknowledges that the uses for any given course content may span multiple courses, and that students frequently re-visit, refresh, and re-learn some of this content. As an example, consider an engineering course that requires students to use mathematics they learned in a pre-requisite course. If the math content had been digitized and broken into appropriate modules, students in the engineering course could return to the relevant math topics on demand, and review those concepts in the same form in which they first learned the material. In this way, pre-requisites could "come back to life" in the sequent course. As rapidly as information is being updated today, modularizing the content also benefits faculty and designers by allowing them to refresh the relevant portions of the course without having to redesign en masse.

- Develop adaptive learning/customized instruction. Many researchers have developed online systems that adapt to each individual student's learning progress. In the simplest form, students take frequent, short, formative assessments, and are presented with a next lesson based on that assessment. Students who acquire the material readily can move through the course quickly, and students who need more practice or need to improve underlying skills are directed to lessons that provide that. Computer systems for adaptive learning are still likely to be experimental tools rather than mature commercial products, but this should not deter us from exploring this area. An excellent target for adaptive learning would be foundational undergraduate courses in mathematics and science. These courses have large enrollments, students frequently struggle in them, and there are clear revenue benefits if students learn better in these courses and persist at the university.

- Building on the two previous points, explore competency-based models for learning, and other structures that step outside the traditional whole-semester-course/credit-hour model. There would be substantial regulatory and accreditation challenges with any such scheme, but these ideas are worth exploring and discussing, and elements of our long-term future.

Other Questions

We have argued that growth in our online activities depends on the initiative of academic units, support from faculty, and allocation of resources at the department, college, and university levels.   Some issues that remain to be investigated in developing and refining an online strategy for the campus include:

1) How to support departments and colleges in understanding the role of online courses and programs in their overall offerings, and making good decisions about initiating or closing online programs. In the past year, the Assistant Provost for Educational Innovation has been tasked with this role, and is assembling a tool kit (e.g. program revenue modeling tables, market data reports, real-time program data dashboard, etc) for colleges and departments that are considering new online programs. What other support is needed?

2) How to expand engagement to parts of the campus where there may be skepticism/resistance. This is especially important where these programs can generate new revenues that could support all the activities of the offering units.

3) How to leverage some units' experience with innovations in instructional technology and instructional design, e.g. through more systematic sharing of information across campus. For example, might we form collaborative programs that could pair more experienced units with less experienced units?

4) How to adapt our student services infrastructure, which was designed for residential students, to meet the needs and expectations of online students.

5) How to combine agility in responding to new opportunities with sustainability in ensuring that established programs continue to thrive.

The University of Illinois has been a leader in online education for many decades. At the same time, the growing competitiveness of the online market makes it a higher risk/higher reward activity than face-to-face programs. If we can understand this "New World" of education deeply and we are willing to rethink our practices and priorities accordingly, and if we pay attention to the risks, opportunities, and other factors discussed in this report, we can continue our leadership role for many years to come.