To: Beverly Wendland and Ed Schlesinger, Co-Chairs of the CUE2
From: Gabe Paquette (Provost’s Fellow on the CUE2) and Janet Schreck (Assistant Vice Provost for Education)
Re: Digest of the Reports on Undergraduate Education undertaken by Peer Institutions
Date: July 17, 2017

The Office of the Provost collected more than a dozen reports from peer institutions that resulted from strategic planning processes akin to our CUE2. As you are aware, these reports are available from the shared CUE2 file. There is a great deal of variation to be found in the reports: some are long and detailed while others are short and briefly state core principles to guide curricular change. We have attempted to distill the reports into a short memo for your use. We have not ventured beyond the reports, and we largely take them at face value, merely relaying their contents in condensed form. It is possible that some of programs described in the reports have been discontinued or now exist in significantly revised form. For example, the implementation of the respective Stanford and Georgetown undergraduate planning processes have been reported on in the Chronicle. Indeed, Stanford has gone well beyond its initial report: its new “Stanford 2025” website offers an exciting discussion of “Open Loop”, “Paced Education”, and “Axis Flip”, clusters of themes of great relevance to the CUE2. We also do not address several peer institutions that we will want to examine closely (e.g. Yale, Dartmouth, Princeton) since they have not produced reports in the past decade (to the best of our knowledge). In any case, even after taking into account these caveats, we hope that this memorandum will be of use to you and, if you deem fit, to the other members of the Commission.

What should graduates know/be able to do? Competences (“that are needed and valued in the world” [Brown]), “Habits of Mind”, “Sensibilities”, “Capacities” and other Learning Outcomes

Our peer institutions are grappling with whether the undergraduate experience that each of them offers, including the curriculum itself, produces graduates with the skills/competences/abilities that are required to be “successful” (broadly conceived) in non-academic settings upon graduation. The disquietude that is found in numerous reports results from several factors that are difficult to disentangle, including: the connection between liberal arts education and vocational/pre-professional training; concern that the “open” curriculum has become a frivolous hodgepodge; and (conversely) concern that a highly-structured “core” curriculum has become rigid and is not as nimble as it must be in this current age of acceleration and disruption.

The first concern, regarding the connection between liberal arts education and the skills needed for professional success, may be approached in several ways (and we will touch on some of these obliquely in subsequent sections of this memo). Georgetown is wary of what is perceives as a “false dichotomy that pits … holistic education against a more pragmatic preparation for workplace success”. Instead, the university avers, “education designed for the whole person … prepares students for a lifetime of success in a rapidly changing, complex, and uncertain world”. As discussed later, this is merely one of several possible responses.

The question of curricular change is something that most of our peer institutions have addressed explicitly. Columbia has begun to question the structure of the its famed core curriculum: “Are
what some have called the “containers” of our undergraduate curriculum appropriately sized? We probably agree that a strong undergraduate curriculum should include general education (our core), specialist education (our majors) and opportunities for exploration (electives). Do we provide ample opportunity for all three of these goals? Are there adjustments that might be made …?” Stanford has asked whether the intellectual breadth of a more “open” curriculum serves its undergraduates well. “Few people question the value of intellectual breadth … [but is ‘sampling’] the optimal way of fostering true breadth in an age like ours, in which the boundaries of different fields are increasingly blurred?”

Stanford’s answer is that instead of “prescribing courses in particular disciplinary areas, our new model promises the acquisition and development of 7 essential capacities, which we term ‘ways of thinking, ways of doing’’. These are Aesthetic and Interpretive Inquiry; Social Inquiry; Scientific Analysis; Formal and Quantitative Reasoning; Engaging Difference; Moral and Ethical Reasoning; and Creative Expression. Stanford has started to implement this shift in approach by establishing a first-year curriculum experience called “Thinking Matters”. It seeks to inculcate an orientation to academic study applicable broadly/universally instead of substantive, disciplinary (and presumably narrower) forms of knowledge. Stanford’s aim is to “develop a sense of what a genuine question or problem is, and what it means to think about an important idea with the sort of disciplinary, creative and critical reasoning characteristic of a university-trained mind”.

Other universities, notably UC-Berkeley, have issued similar statements: its graduates should possess 4 core “competences” and 4 “dispositions”. Graduates should be literate, numerate, creative, and investigative (competences) and also open-minded, worldly, engaged, and disciplined (dispositions). UC-Berkeley invokes vocational pressures in justifying its new approach: “students must prepare for fluid careers in a future where what you know is less important than how you think, learn and discover on your own”. UC-Berkeley believes one way to achieve its goals is to “bring greater meaning and coherence to core requirements”. New technology may facilitate pursuit of this goal. For example, the university is now using a planning tool called “Course Threads”, which helps students (with faculty supervision) chart a “logically connected sequence of breadth courses”.

Like Stanford and Berkeley, Washington University acknowledges the importance of articulating the essential skills and competences the university wishes its graduates to possess, but it emphasizes the even greater need to cultivate “metacognitive skills and attitudes”. These include: an ability to think and act creatively; an ability to engage in both individual and collaborative research; an understanding of how knowledge is created and transmitted; the ability to integrate knowledge from several domains; resilience and the ability to adapt to change; intellectual curiosity; practical insight; and “a facility for making normative assessments as well as with establishing matters of fact”. The challenge is how to take these somewhat abstract goals and “operationalize them”, instantiating them in the curriculum. American University, for example, is tackling “quantitative literacy, writing, and information literacy training” by creating a variation on the core curriculum. It is putting in place a 5-course sequence emphasizing skill/competency-oriented learning (e.g. “Quantitative Literacy I”). This is supplemented with an optional set of 1-credit professional skills modules.
How should the undergraduate academic experience be (re-)designed in order to best develop the desired competences/capacities?

A. Mentored Research and Capstone Experiences

Northwestern makes the importance of mentored research explicit: “the long-term satisfaction of undergraduates tends to be high among those who have had the chance to cultivate lasting bonds with faculty members …”. Rice justifies the expansion of undergraduate research opportunities on the following intellectual and professional grounds: “the range of complex challenges facing our world will be solved by students who are educated to understand the limits of the knowledge they are given in the classroom, who are capable of applying bodies of knowledge to new areas in search of creative solutions, and who can tackle open ended and ambiguous problems that require original thought and analysis”. For this reason, and along similar lines, Georgetown seeks to develop “programs of study that shift from predominantly formal coursework to a substantially different balance of coursework and credit bearing mentored immersive learning through independent and collaborative projects”. Georgetown maintains that while mentored research has long been among the most expensive modes of instruction, the landscape has changed and “the ubiquity of technology, the explosion of communication tools that enable collaboration at a distance, and the rise of adaptive learning environments all make it possible to revisit the conditions for mentored learning and research over time and distance”.

Some institutions emphasize a more capacious understanding of what constitutes a “capstone” experience, one which might but might not entail mentored research. Stanford suggests that a mentored, well-designed capstone experience is more important than mentored research per se: “the crucial priority is not the duration or format, but the result: to ensure that every senior at Stanford has a culminating intellectual experience designed to foster synthesis and reflection”. Vanderbilt places even less emphasis on encouraging students to undertake a traditional, research-based thesis. In its “Immersion Vanderbilt” program, it encourages students to pursue creative and/or independent projects, which is “inherently flexible to allow the student to work closely with a faculty mentor on a project that provides a depth of experience”. It should be noted that even institutions that do not privilege a research-based capstone still emphasize the indispensability of faculty mentoring.

B. Learning beyond the Classroom: Extra-Curricular, Co-Curricular, and Experiential Modes of Learning

Several leading writers on the future of undergraduate education have noted that we find ourselves on the brink of a “post-course era”; that is, universities can no longer assume that “the formal curriculum—composed of bounded, self-contained courses—is the primary place where the most significant learning takes place”.¹ Numerous peer institutions are grappling with how the worldly commitments and pursuits of their undergraduates can be merged harmoniously with academic study. Brown, through its Swearer Center for Public Service, has created a series of

---

concentrations that integrate community-based learning (CBL), entrepreneurial activities, and professional internship experiences into the curriculum. Students who pursue this route end up with a concentration on their transcript called “engaged scholarship”. The concentration culminates in a “thesis or capstone that demonstrates the relevance of academic work to external audiences”. In addition to the academic concentration, through a new Center for Entrepreneurship Education, Brown has created “Breakthrough Labs [“B-Labs”]”, which serve as a venture accelerator (including for social enterprises). The B-Lab is an eight-week (summer) program that provides students with tools, concepts and experience to undertake ventures. While not credit-bearing, this experience and training helps to develop some of the core skills/competences that Brown hopes that its students will develop prior to graduation.

Vanderbilt does not go as far as Brown in creating a concentration/minor based on extramural engagement, but it is devising “a more flexible model of credit that rewards and recognizes the learning involves as students pursue experiences that enrich their understanding of the world”. Duke has created a “Bass Connections” program that “enables students to connect their classroom learning with complex societal challenges through problem focused educational pathways”. Small groups of students and faculty work together on one of several themes (e.g. “Brain and Society”, “Energy”) over the course of an academic year. Duke also runs a “Winter Forum”, where hundreds of students return to campus 3 days before Spring classes commence to explore a single pressing global issue from a range of perspectives. Faculty participate plus invited leaders from industry, finance, government etc.

Stanford helpfully refers to this sort of fusion of academic training and extramural, non-academic experience as “adaptive learning”, defined as “the capacity to integrate new and old experience, to adapt knowledge and skills to novel circumstances, that protects our students from professional obsolescence and prepares them for the unpredictable challenges facing them”. This forms part of its “determination to breach the silos of students’ lives”.

C. Small (and intensive) is beautiful: immersion programs, residential colleges, and small-scale, cross-disciplinary learning communities

The merits and demerits of residential colleges and “houses” on the Yale/ Harvard model have been debated for more than a century. Some US universities have embraced the model well after their founding. Vanderbilt, for example, invested heavily to establish a residential college system from scratch in the early 2000s. Its 10 colleges are guided by residential faculty and each of them serves as a “dining-activity complex intended to foster a sense of community”. The exact connection between the learning outcomes sought and the residential college system eludes us, but charitably it might be said that a close-knit community of scholars and students generates conditions conducive to the acquisition and development of the competences/habits of mind considered desirable.

Other universities have sought to gain the benefits of a tight-knit intellectual community without a bricks-and-mortar residential college system. “Duke Immerse”, for example, is a cohort model in which students spend an entire semester exploring a single “issue” (e.g. Uprooted/Re-routed: the Ethical Challenges of Displacement”) from an array of disciplinary perspectives. It is “delivered as one cohesive whole occupying the entirety of a student’s academic work for a
given semester”. It involves “daily interaction” with faculty members and a collaborative/group project. About 4 such programs run each semester. UC-Berkeley has established a similar program on a pilot basis (The “Chernin Fellows Program”, based in the English Department), which it intends to scale up. It provides “personalized education in the context of a research university”, involving one-on-one interaction with faculty, discussion groups, events designed for other Chernin Fellows etc.

D. Addressing differences in high school preparation among admitted/incoming students

Of course, if all graduates are meant to develop the same competences/skills/sensibilities prior to graduation, differences in preparation must be addressed. Amherst claims that students from low-income and otherwise disadvantaged backgrounds benefit especially from “early opportunities for undergraduate research, project and field based learning, civic engagement, internships, theses and other capstone projects”. Preparing and retaining students from under-represented groups for certain fields of study has been prioritized by some institutions. For example, Brown has “Catalyst”, a summer bridge program, chiefly for STEM fields.

Centers for Teaching and Learning (CTLs) & Faculty Engagement with New Technologies and Pedagogies

Many of our peer institutions have established, or intend to establish, CTLs. Among the CTLs established by non-peer institutions, Notre Dame’s CTL has received numerous plaudits. Brown has created the Sheridan Center to bring its “Writing Center, Science Center and Tutoring Services under one roof”. It has invested in increasing support for “writing, research, data analysis, problem solving and communication skills”. Amherst established a CTL in order to “introduce, support and coordinate pedagogical developments that promote student success”. This effort goes beyond training faculty in new classroom technologies, invaluable as those are. Rather, among other goals, it “provides support to develop and implement introductory course sequences that make explicit the intellectual abilities fundamental to specific fields and to interdisciplinary approaches”.

Our peer institutions have grappled with the issue of (re-)training faculty to integrate new technologies and research-led insights about learning outcomes into their teaching as well as the best incentives to induce faculty to embrace such (re-)training. For new faculty, whether tenure-track or already tenured, there are few obstacles. Northwestern has put in place a teaching training program for first-year faculty. At UC-Berkeley, all new faculty attend a mandatory sequence of “Teaching Excellence Workshops” organized by the university’s CTL. Participation

2 This subject is one that deserves much greater attention, yet Amherst’s report is the only one that explicitly mentions such “high impact practices”; that is, college experiences correlated with the most powerful leaving outcomes (and further correlated with high retention and persistence rates). The 2008 Survey of Student Engagement enumerates these and they are discussed in detail in George Kuh, High Impact Educational Practices (2008). A further 2013 report published by the AACU goes into further detail.
is linked to tenure and promotion: “we do not give tenure to mediocre teachers”. In addition to the mandatory workshops, UC-Berkeley is undertaking peer evaluation of teaching, instead of relying on student evaluations, in assessing teaching effectiveness.

But what about existing faculty members? How can they be encouraged to embrace new pedagogical practices and technologies? To some degree, our peer institutions recognize that a “culture shift” is needed. Stanford argues that the university must “enhance the visibility and recognition of teaching, build community around teaching, and share best practices”. Stanford notes that it is necessary to “provide incentives for faculty to acquire information, feedback and mentoring and to deploy good teaching practices”.

Several institutions have given serious thought to the matter of incentives. Northwestern will “initiate a Continuing HE Credits (CHEC) program to foster and reward faculty for commitment to high quality undergraduate teaching”, a scheme “loosely inspired by continuing medical education credits” model. “An indispensable component of such a program is that accumulated credits could be ‘cashed in’ in various ways that support the faculty member’s scholarship … CHECs [could be] a positive factor in salary decisions … the CHEC program may give faculty members tangible reasons to think that their time spent on teaching is valued”. UC-Berkeley has created ten “Collegium Chairs”. These are endowed chairs given to the university’s most renowned teachers. The holders of these chairs “meet and work as a group to think about, examine, and improve the overall quality of teaching, not only in their individual classrooms but throughout the university”.

Our peer institutions have recognized that some of the most innovative teaching emerges from cross-disciplinary and often cross-divisional collaborative (“team”) teaching. MIT intends to “create an ecosystem that promotes educational connections” across the university, highlighting new incentives to encourage faculty collaboration. Vanderbilt has inaugurated a “curriculum incubator that seeds faculty to develop new courses across the undergraduate and professional school boundaries”. Vanderbilt claims that it has removed (financial) barriers that discourage team teaching across schools and divisions. Washington University also has studied this issue and, in addition to resolving the ever-looming “tuition flow” problem, is working to remove other impediments to cross-school/divisional team teaching. These include: determining how such courses count toward teaching loads; different academic calendars and credit structures; and the principles governing the allocation of TAs.

Online and blended learning & “Modularity”

Interestingly, few of the reports that we read delved into the details of online and blended learning even though this is a challenge all institutions are compelled to address. It may be that the genre of the CUE-type report does lend itself to such detail. In any case, copious and excellent scholarship and material exists to fill in the gaps. Unsurprisingly, MIT’s report is an

---

3 UC-Berkeley is experimenting with “Big Ideas” courses taught by faculty from different disciplines (and usually across divisions/schools). So, a course on “Time”, for example, was taught by a philosopher and a string theorist whereas a course on “Origins” was co-taught by a paleontologist, an astrophysicist and a Biblical scholar.
exception. That institution hopes to “expand the use of diverse pedagogies and blended learning models”. The aim is to “infuse greater flexibility into the core undergraduate curriculum”. Offering courses for credit in hybrid or (entirely) online formats might provide students with schedule flexibility that might permit students to study abroad, pursue a non-academic project etc. The opportunities and perils of “modularity” also are discussed chiefly in MIT’s report, as greater modularity is a possible direction for its curriculum. MIT defines a module as “a self-contained unit comprising a set of outcomes. An outcome is what a student knows or is able to do as a result of a learning experience”. The university envisions two paths to greater modularity. In the “top-down” model, existing courses are “decomposed” into modules whereas in the “bottom up” model, the curriculum is “re-engineered” by first identifying the core concepts and then building modules/courses (and subsequently the curriculum) around them.