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Building the Intentional University

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1 Why We Need a New Kind of Higher Education

Stephen M. Kosslyn and Ben Nelson

Minerva was born out of the intersection of two core beliefs. The first is that we are facing a dire, cross-sector, global shortage of effective leaders. The second is that education, and specifically higher education, must play a critical role in solving this problem. It is almost a cliché that education is crucial to the future of humanity. However, public discourse, government programs, philanthropy, and entrepreneurial efforts that bear on higher education center on expanding the percentage of the population that receives a college education—preferably one that is accessible, affordable, and demonstrates high rates of completion. This is fine as far as it goes, but it doesn't go far enough. The question of what should constitute a college education is not nearly as prominent as it should be. Unless that question is answered, solving the other problems facing higher education could easily lead to a poor curriculum, flawed pedagogy, and low standards.

Minerva's journey began with an open-ended version of that simple question: If you could reinvent higher education for the twenty-first century, what would it look like? Several observers of higher education have addressed this question, but these authors typically focused on the potential of a reengineered existing institution instead of specifying the goals of higher education and then presenting a conception of the educational process that could achieve those goals (e.g., Carey, 2015; Craig, 2015; Selingo, 2013). Although such proposals typically are based on thoughtful analyses and extrapolations, they are only partial glimpses into a possible future—and it is difficult to evaluate them without having a more complete picture of how they would fit into the emergent whole. Moreover, there is no way to know whether these ideas would actually work as hoped; they often sound good on paper but have not been tested, let alone implemented.

Minerva has done something different: we have rethought the system of higher education from the ground up, using student outcomes as the

lodestar in redesigning the institution. But Minerva isn't simply a rethinking exercise; we took our ideas and implemented them, too. To do so, we raised tens of millions of dollars; assembled a first-rate team; built an entirely new curriculum, pedagogy, and education delivery system; recruited an extraordinary faculty; selected some of the highest-potential students in the world; and implemented a globally immersive student experience never before seen in higher education. We have built a new university program from the ground up. Our goal is not simply to rival the best existing programs but to demonstrate that higher education can take a critical and significant step forward.

Minerva has now been in operation for three years, and we have learned a great deal about ways to reshape all facets of higher education. This book summarizes those learnings. Minerva is nothing if not ambitious; we aim not only to educate an international body of superb students who will work together to make the world a better place but also to demonstrate a host of best practices that will change higher education, writ large. The goal of this book is twofold: to present one evidence-based model for a future of higher education and to challenge all institutions of higher education either to adopt our system or to devise something better that we at Minerva should adopt.

What Problems Need to Be Solved?

Minerva is a response to problems that all institutions of higher education confront. Specifically, higher education currently is facing four overarching problems. First, higher education is not fulfilling its promise: students are leaving college woefully unprepared for life after graduation. They do not receive or develop the cognitive tools they need to succeed personally and professionally in a highly complex world (Bok, 2013; Bowen & McPherson, 2016).

Second, college is too expensive, and most students leave it with debt—which isn't ideal for their earning potential, not to mention the great costs borne by government (i.e., taxpayers) and private entities in the form of subsidies, grants, endowment allocations, and so on (Kelly & Carey, 2013). In fact, in 2015 the average American student graduated owing $30,100 (Institute for College Access and Success, 2016). In some ways this debt burden adds injury to insult: if college prepared students to succeed after they graduated, the cost might be defensible.

Third, more than half of students don't graduate (Bowen & McPherson, 2016). And even when they do, they have often been intellectually absent

during much of their time in college: Many don't even bother to attend class, let alone pay attention and think about what is being discussed.

Finally, many qualified students around the world do not have access to a first-rate college education (Craig, 2017; Watkins, 2013). American universities, for example, typically have quotas on how many non-American students they will take. For instance, Harvard University typically accepts, on average, only slightly more than a dozen students from China in a class of some 1650 students (Harvard University, 2017). Does this really make sense?

We designed Minerva from the start to address these large problems. First, unlike comparable institutions' curricula, Minerva's curriculum focuses on what Benjamin Franklin, Thomas Jefferson, and other founders of the United States described as "useful knowledge." We have shaped this idea into what we call "practical knowledge." Our aim is not to teach knowledge and skills for their own sake; rather we equip our students with intellectual tools they can use to adapt to a changing world and achieve their goals. To be clear: we do not offer only a vocational or preprofessional program. We don't train students to succeed at specific jobs, and we don't offer only programs that prepare students to enter any specific profession. Rather, we provide a very broad liberal arts education, giving students intellectual tools that will help them adapt to a changing world. We want our students to be able to succeed at jobs that don't exist yet.

Second, regarding cost: Minerva's tuition and fees are less than a third of what peer institutions charge, despite being the only highly selective undergraduate program in the United States where 100 percent of classes have fewer than twenty students per class. How is this possible? Simple: attending Minerva merely requires living in a leased residence hall and buying a computer. We have no stadiums, no lawns, no gyms, not even a climbing wall. Thus we are not saddled by construction costs, maintenance costs, or the administrative overhead associated with either. Moreover, we employ no secretaries, we have no overstaffed divisions—in fact, we have no academic departments and thus no department heads, no department staffs, and so on.

Third, regarding lack of engagement, which results in either a large dropout rate or head-spinning grade inflation: the Minerva program is designed in every respect to give personalized attention to every student. Our program ensures that each student is engaged with the curriculum and the community on a daily basis. All of our classes are seminars; we have no lectures at all. Thus students not only bond with each other, they also develop

personal connections with the faculty. Moreover, all of our seminars rely exclusively on active learning: all students are expected to be actively involved in every class. Thus, no student can get lost—faculty not only know every one of their students' names but are also aware of how students are doing in class and provide regular feedback. This, in combination with the strong bonding among students that comes from traveling the world together, greatly increases engagement and reduces dropout rates.

Fourth, Minerva is accessible to all qualified students—in fact, we accept *all* qualified applicants. We have no quotas and do not attempt to "balance" classes based on gender, country of origin, age, or any other demographic variable. Moreover, we are need-blind; students who cannot afford even our low costs receive a combination of work-study, modest loans, and grants.

By starting from scratch, with no legacy systems and no entrenched stakeholder interests, we were able to implement sweeping innovations. We have created a new curriculum; we have developed new pedagogies, grounded in the science of learning; we have used technology in novel ways to deliver small seminars in real time and to assess student and faculty performance; we have devised ways to use the city as a campus, relying on local resources instead of duplicating them; and we have developed an international hybrid residential model whereby students take classes on their computer but live together, rotating through different cities around the world.

Minerva has created and utilizes the first university program built for the twenty-first century. In setting up this program, we had to confront the realities of all aspects of higher education, from admissions through instruction, to career development, to building a brand.[1] In the rest of this chapter we provide a brief overview of what we have done and sketch out the reasons why we have taken this approach. The chapters that follow go deeper into each of these topics, providing details on exactly what we have done and how we intend to develop further.

What We Teach and Why

Virtually every American university curriculum has three components (Bok, 2013): general education, the major, and electives. General education courses are supposed to provide breadth, preparing students for life after college, but often they comprise merely a set of distribution requirements that are neither designed with any particular goal in mind nor are part of a coherent program. The academic major is supposed to provide depth in one area but typically is of little or no use to students after graduation. (How

many literature majors become English professors? How many art history majors become art historians?) The electives are supposed to allow students to focus on topics they are interested in, but typically elective courses are just whatever happens to interest the faculty, with little thought given to what is useful for students.

Minerva has redesigned each of these three components.

• First, our general education curriculum consists of four yearlong courses, which are tightly coordinated to provide a wide range of "practical knowledge"—knowledge students can *use* to adapt to a changing world, allowing them to achieve their goals (see chapter 2). Students take these four courses during their first year, which provides them with intellectual tools that will help them develop into leaders, be innovators, be broad, adaptive learners, and adopt a global perspective. To address these aims, we focus on four core competencies: critical thinking, creative thinking, effective communication, and effective interactions. And we do not simply pay lip service to helping the students learn these competencies: the entire year revolves around introducing about one hundred specific learning objectives, each of which focuses explicitly on an aspect of one of the four core competencies. This material is at the foreground of what students concentrate on in class.

• Second, our majors do not rely on traditional organizations of disciplines, nor are they centered on today's (or yesterday's) trendy topics (e.g., anything with "studies" after an adjective). Rather, our majors center on fields that will help students in their lives after college. Each of our majors has two components. Students first take three or four (depending on the major) "major core" courses, which provide foundational knowledge and orient students to the major as a whole. After taking these courses, students then select a set of courses that are organized into distinct "concentrations." Concentrations often investigate topics at different levels of analysis (e.g., in the natural sciences such concentrations are molecules and atoms, cells and organisms, and earth's systems) or are associated with distinct research approaches (e.g., data-intensive, theoretical, or applications-oriented approaches). Students can double major and have up to three concentrations.

• Third, electives—both those within and outside the major—at Minerva are very student-centered. We offer three kinds of electives: (1) All students take a two-year capstone course in a topic they select. They design a research project under the guidance of a faculty advisor and—if necessary—a content expert. (2) In their senior year, students will identify four topics of

interest that stem from their concentration(s). We then will identify three students with overlapping interests and pair them with an appropriate professor. The four of them will then design a syllabus, and the students take the course. Depending on their major(s), students may take up to four such courses. (3) Finally, students may select major core or concentration courses outside their major and take these courses as electives, which ensures that exploration outside a main area of interest will be in seminal ideas of a field as opposed to fringe pursuits (see chapter 3).

The Minerva curriculum is unique in how it is structured. As students move through the curriculum, they have increasingly more choice in what they take. In the first year, when students take the general education program, they have no choice at all. Rather, all students receive the same broad foundation, acquiring intellectual tools that will serve them for the rest of their lives. In the second year, students choose major core courses, now selecting between six and eight courses from sixteen alternatives. They then select a major. In the third year they take concentration courses within a major (or majors, if they choose more than one) and begin their capstone project. And in the fourth year, they will take the bulk of their elective courses, complete their capstone courses, and typically design at least two (and up to four) senior tutorials, which directly address student interests. Finally, in a monthlong special session after the fourth year called Manifest, we will require all students to present their capstone projects and revise them after receiving feedback.[2]

Thus, as students progress through the curriculum and gain the appropriate foundations for what they will do next, they increasingly personalize their studies to achieve their own goals. By the end of the curriculum they are poised to move on to the next chapter of their lives.

How We Teach

Two separate domains came together at Minerva to shape how we teach: the science of learning and twenty-first-century technology.

Minerva is the only school (of any sort) that systematically uses the science of learning in every session of every one of its courses. The science of learning is not new; research on this topic has been published for more than a century. The science of learning addresses ways in which humans perceive, organize, and store information and then subsequently retrieve that information from memory. A trove of useful discoveries is freely available in professional journals, and many books have been written that distill

this knowledge. We have organized this literature into sixteen distinct principles (described in chapter 11), which are drawn upon in each class we offer. We have organized these principles into two broad maxims. The first encompasses principles that rely on the finding that the more people process ("think through") information, the more likely they are to remember it—whether or not they try to do so. The second maxim encompasses principles that rely on the finding that we understand, retain and later recall material best when we use associations to organize it and then associate it with what we already know.

Our efforts to apply systematically the principles of the science of learning have led us to offer only active-learning seminars. The literature is crystal clear in showing that students learn best when they have to use the material, not simply sit passively and hear it described (e.g., Freeman et al., 2014).

Because we did not need to replace legacy practices or negotiate with stakeholders to modify traditional practices, we were able to draw on what is known about the science of learning and use this information systematically in every session of every course.

But more than that, we developed a new kind of pedagogy, which allows us to use the science of learning effectively (see chapter 12). We call this pedagogy *fully active learning*. Fully active learning requires that 100 percent of the students are engaged at least 75 percent of the time and relies on using a "radically flipped classroom." That is, in a typical university course, lectures occur during class time and students do homework outside of class time. In a flipped classroom, homework is done in class (where the teacher and other students are available as resources) and lectures are provided before class. In Minerva's radically flipped classroom we moved both the homework and the knowledge dissemination to before class and reserved class time for using the information in various ways (e.g., solving problems, role playing, debating). The in-class activities rely on fully active learning and require students to use information acquired through readings and pre-class video viewings, in the service of mastering critical thinking, creative thinking, effective communication, and effective interaction. Class sessions at Minerva do not focus on information transmission but rather on learning to use information in different ways. To ensure that students are fully engaged, we have developed special engagement techniques that require students to pay attention. For example, we warn students at the outset of an activity that they will be expected at the end to compare and contrast the different positions that were discussed (see chapter 12).

To facilitate this sort of teaching and learning, all classes at Minerva are taught using a cloud-based software program we have developed, called the Active Learning Forum (ALF) (see chapter 15). We use this software for two main reasons. First, the ALF enables us to use fully active learning in ways that are very difficult or cost-prohibitive in an offline setting. The ALF incorporates tools—such as polls, voting, collaborative editing, and the ability quickly to compose breakout groups in various ways—that are difficult to duplicate in a traditional classroom. Second, because the ALF collects a massive amount of data on each student's performance, it allows us to personalize the intellectual development path for each student— which is simply impossible to do via any other education medium, online or offline. In short, the ALF allows us to teach more effectively and helps students learn more effectively.

As a beneficial side effect, the ALF allows students to take classes, and faculty to teach classes, anywhere in the world. This means the following: (1) We can be flexible about where students reside during term time. This not only allows students to travel when necessary or desirable (for personal or educational reasons) but also facilitates students' living and working together in cities around the world. (2) Students living in different cities around the world can be in the same seminar, which allows them to bring their experiences into class for compare-and-contrast exercises. (3) We can recruit first-rate faculty from all over the world without requiring them to uproot their lives to join Minerva.

The real power of our approach to pedagogy flows from the fact that we built the ALF with the science of learning and fully active learning in mind from the start. The ALF incorporates tools that are explicitly designed to facilitate our pedagogy, as well as to enable long-term educational outcomes that are simply not possible without it. Moreover, the ALF facilitates our creating and revising the curriculum, and, because each session is recorded, it helps us assess (and coach, when appropriate) the faculty. The whole has emerged to be much more than the sum of its parts.

An American International Model

Minerva's international orientation has led to one of the most distinctive but also one of the most easily replicated aspects of the Minerva model. Universities often target specific kinds of students, and this is very much an institutional choice; we do not suggest that other institutions adopt Minerva's approach to admissions (which is entirely egalitarian, with no attempt to balance students according to different criteria or even limit the number

of students). Similarly, universities typically provide their education primarily in the location where they have existing infrastructure. We also recognize that Minerva's global rotation program is not well suited to all or even most entering first-year students. Nevertheless, it is useful to explain the philosophies that underlie both the composition of the Minerva student body and our global immersion program. In so doing, we outline the benefits of our approaches to the intellectual development of students.

Many citizens of a given country believe that universities should help their country compete on the world stage. Universities fulfill this part of their mission in two ways. First, they educate professionals who are needed to meet the needs of society, such as dentists, social workers, accountants, and architects. Second, universities educate decision makers who are expected to lead the country to a better future, such as politicians, business people, journalists, scientists, and inventors. Clearly, the emphasis on education for these two groups, those working toward meeting the needs of society and those working toward roles as future leaders, should be different. One can imagine a highly effective dentist who may not have great facility with thinking through generalizable second-order effects (although that skill would probably be useful). However, most of us would not be excited by the prospect of a nation's president or a company's CEO who lacked these analytical skills. In an increasingly globalized world, such decision makers not only shape local society but also have a broader societal impact, despite their often considering only the small sliver of society that they believe their actions will affect.

Clearly, a purely local orientation to education does not serve the country or these particular students well, especially during the undergraduate years, when students can develop along many trajectories and hence need a broad background of knowledge and skills. Even the most international education systems, however, are remarkably provincial. For example, in Australian universities—which probably have the most internationally oriented student body of any major university system in the world—only 21 percent of entering bachelor's degree students in 2015 came from outside Australia (Australian Government, 2016). American universities have far fewer slots reserved for international students. In 2015, U.S. colleges and universities hosted 1.13 million foreign students (U.S. Immigration and Customs Enforcement, 2015) out of a total of 20.5 million students (National Center for Education Statistics, 2015). Moreover, only about 10 percent of American undergraduates study abroad (NAFSA, 2016). But even this figure is misleading because many study abroad programs do not provide cultural immersion; instead, American students live with and spend

most of their days with other native English speakers, often from their home country. Neither statistic supports claims by elite institutions that they train globally minded leaders.

Minerva's approach is markedly different. We have designed our curriculum, student experience, pedagogical model, and institutional structure specifically to help our students have a broad societal impact (as opposed to focusing on more narrow professions). But more than this, we have designed Minerva to help our students create, run, or influence major institutions—especially institutions with a broad global reach.

This focus also shapes our admissions philosophy. If we find an applicant who has the clear potential to become a transformational leader or innovator, how could we justify rejecting that person because of a lack of space? Similarly, even if applicants are intelligent or have impressive backgrounds, if they do not have the level of potential of those for whom we designed the program, how could we justify admitting them? Unlike all of our peer institutions, we accept *all and only* students who are qualified, regardless of country of origin, age, gender, wealth, family prominence, or other demographic characteristics.

Minerva is deeply international, both because we do not have quotas for regions or other characteristics and because we know that talent is broadly distributed around the world, and hence we spread our outreach efforts accordingly. Fewer than one quarter of Minerva students are American, and no single group constitutes a majority. We take seriously our responsibility to provide these exceptional students with the international experience they will need to be successful; thus we ensure that they benefit from being in the most diverse undergraduate student body in the world and that they get the most out of living and studying in cities located in seven different countries during their four-year tenure—San Francisco, Seoul, Hyderabad, Berlin, Buenos Aires, Taipei and London. Minerva leases at least one residence hall in each city, where students live together; students use the residence as a base, from which they take advantage of programs that immerse them in the culture of each location.

Why do we encourage our students to travel the world? Three main reasons: first, we believe that the future is increasingly international (Friedman, 2005), and that leaders and innovators in the twenty-first century should be comfortable interacting with people from many different cultures. And there's no better way to foster such an orientation than by actually living and interacting with people on their home turf. Second, we treat the city as a campus and use its resources both in our required curriculum and in optional cocurricular activities. As part of our focus on practical

knowledge, every course includes at least one location-based activity that requires students to apply what they have learned in class to a situation in their city of residence. In addition, we offer a wide range of optional cocurricular activities that also draw on what the students have learned in class. Lastly, deep learning of conceptual frameworks can only occur when those frameworks are applied in multiple, varied contexts. And what better way for our students to master the learning objectives we teach them than to apply them to day to day living in cultures as radically different as India and Argentina?

However, we must underscore that Minerva is a deeply American institution. Not only do we adhere to the structure of an American education, offering a four-year, liberal arts education leading to a bachelor's degree, we also bring a distinctly American attitude to education: We believe that education is the great equalizer, that it can open up opportunities for everyone. In fact, our emphasis on practical knowledge is deeply rooted in American traditions that reach back to our founders and were strengthened by John Dewey and other members of the late nineteenth-century functionalist movement (e.g., Dewey, 1913/1969; Hook, 1939).

A Lifelong Experience

We have taken to heart the idea that college should be a springboard for a successful, productive and meaningful life. We not only have designed the curriculum to help students thrive after graduation but also have built mechanisms and institutions to help students develop their careers. At most universities, graduating students can expect help in preparing their résumés, but little else. We have taken a different approach.

First, we assign students a career coach during their first year. Rather than waiting to call on a professional coach when careers hit roadblocks, we provide expert guidance during the first year to avoid many potential roadblocks. Having started such support early, we continue to provide it throughout our students' four years at Minerva and even after graduation— we provide such support throughout a Minervan's career.

Second, we have instituted a "talent agency" that actively helps students find appropriate summer internships during their school years and then will help them find positions after graduation. This talent agency helps students according to their individualized goals, not simply by curating a short list of employers that come to the university. This service will not stop when the student has his or her first job: we allow students to access the service for the rest of their lives. We take seriously our commitment to student

success. We pair this with lifelong publicity services to help our students amplify their work in the popular press.

Finally, we provide the social and emotional infrastructure to help students succeed. Minerva provides a higher ratio of mental health providers to students than any university, with a strong emphasis on proactive resiliency education. Moreover, we explicitly teach students life skills, ranging from basic cooking techniques to time management. Our goal is to provide students with fishing rods, not fish.

At Minerva, we recognize that we need to educate the whole person, and we have set up processes and procedures to help the students help themselves. We don't take this commonly stated goal as something that is "nice to have" but rather as something that is critical for the sake of the world.

Conclusion

Because Minerva was created from scratch, we were able to take a step back and consider our long-term goals. We had the extraordinarily rare opportunity to be principled in all respects—to have good reasons for doing what we do. But more than that, we were able to design all aspects of the university experience not only to address our goals but also to ensure that the various aspects of the program work together when doing so. We designed the curriculum, the pedagogy, the technology, the global orientation, and the student services systems to promote students' intellectual, social, and emotional well-being, with only a single overarching goal in mind: the success of our students. Ultimately, this is the only metric that matters.

Notes

1. Academics sometimes cringe at the word "brand," but that's what it is: To succeed, a university must develop a reputation for having specific qualities and characteristics—and its name and any identifying logos and marks must become associated with these qualities and characteristics. In other words, it must develop a brand.

2. We also offer an optional master's degree in applied arts and sciences, which students can take concurrently with their undergraduate studies. Students in this program take additional, graduate-level courses and conduct a team master's project, with their report of one component of this project serving as a master's thesis.

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Building the Intentional University

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➡ For additional information about this book

12 Fully Active Learning

Joshua Fost, Rena Levitt, and Stephen M. Kosslyn

Minerva is faced with a unique challenge because all classes are taught in real time, as synchronous seminars delivered on the computer. We are competing against all the distractions the Internet has to offer: Twitter, Facebook, texting, e-mail, and their electronic cousins. No one is looking over the shoulders of our students, and many temptations tug at them to drift off to other pursuits during class. Thus we needed to develop new teaching methods that would induce students to stay engaged.

In this chapter we summarize a host of new methods we have developed and adapted to keep students engaged during class—not just interested and stimulated but involved in the sorts of cognitive processing that promote learning and facilitate far transfer. Many of these engagement methods draw on features of the Active Learning Forum (ALF), and we have learned a lot about which techniques are more or less effective.

Key Terms and Associated Concepts

At the outset, we need to clarify a few key terms and associated concepts and to put our approach in a broader context. Let's begin with the concept of *active learning*. Freeman and co-workers' (2014) consensus definition is that active learning "engages students in the process of learning through activities and/or discussion in class, as opposed to passively listening to an expert. It emphasizes higher-order thinking and often involves group work" (pp. 8413–8414). They also cite Bonwell and Eison (1991), whose definition of active learning is "instructional activities involving students in doing things and thinking about what they are doing" (p. iii). We have no quarrel with either of these definitions but believe they can be sharper. We propose the following:

Definition: Learning is *active* to the extent that it engages the cognitive processes associated with comprehension, reasoning, memory, and pattern perception.

These cognitive processes are discussed in chapter 11, which summarizes a set of principles that describe how these processes function in learning. As stated there, these principles can be subsumed under the two overarching maxims "Think it through" and "Make and use associations."

Fully active learning

As we use the term, *fully active learning* requires all students to be engaged at least 75 percent of the time while in class. That is, rather than just professors inviting students to be involved in discussions, fully active learning hinges on activities and exercises that require students to engage in the sorts of cognitive processing that engender learning—namely, those processes mentioned above.

Freeman and co-workers mention that for many educators, active learning often involves group work. Other authors agree, and sometimes combine active learning and collaborative learning—which requires students to work in small groups toward a common goal—into a single category, at least for the purposes of assessing high-impact pedagogical practices. For example, Kuh (2003), reporting on findings from the 2006 National Survey on Student Engagement (NSSE), refers to the "active and collaborative learning movement." Part of the motivation for combining the two practices may be the observation that collaborative learning is likely to be active because members of a group cannot passively receive information. At least there is no "continuous exposition" from an authoritative teacher, to borrow another of Freeman and co-workers' (2014) terms.

Contrasting pedagogies

Kilgo, Sheets, and Pascarella (2015) also combine the active and collaborative learning categories and strongly endorse their efficacy above and beyond most other high-impact practices, writing that "active and collaborative learning and undergraduate research were consistently significant, positive predictors for nearly all of the liberal arts educational outcomes" (p. 521). The combination of active and collaborative learning proved more effective than service learning, first-year seminars, and learning communities, among other methods.

At Minerva, we distinguish between active learning and collaborative learning. More specifically, we see collaborative learning as a special type of active learning. All of our classes are active in the sense that students "do meaningful learning activities and think about what they are doing," rather than passively receive information from the instructor (Prince, 2004).

However, only some of our activities are collaborative in the way that most authors use the term.

Our most frequent use of collaborative learning occurs in "breakout group" activities. In these, our small seminar (maximum of nineteen students) subdivides into groups that typically range in size from two to five students. The breakout groups typically work together privately for ten to fifteen minutes, and then the whole class reconvenes for a debrief, such as a collective sharing of a solution, a critique, and so forth. Collaborative learning at Minerva also occurs when group assignments are completed out of class. This kind of work constitutes approximately 10 to 15 percent of the assignments in our first-year curriculum. Overall, collaborative learning is a common feature of our in-class and out-of-class pedagogy, but it is by no means the only form of active learning that we use.

Another sense of the term active learning extant in the literature concerns student-centered learning (SCL). Lee and Hannafin (2016), citing Jonassen (1991), position SCL as one of the paradigmatic forms of active learning. A comparison of its characteristics with Minerva's pedagogical techniques, however, reveals that the two are not the same—and in some ways are actually opposed. For Lee and Hannafin, when students engage in SCL they analyze ill-defined content that they themselves select, to achieve learning goals that they themselves negotiate. Some implementations of problem-based learning take this approach. For most Minerva classes (the exception being senior tutorials, described in chapter 9), the *base* content for a class session—that is, the material that forms the core of the activities—is selected by the course designers (often not the instructors, and certainly not the students), as are the learning objectives and the lines of inquiry meant to help students master them. Students are encouraged to supplement the required preparation with self-directed research. Indeed, we regard this as so vital to student success that we introduce it as an HC, #selflearning, in the first week of our general education courses. (HCs are habits of mind and foundational concepts, described in chapter 2 and appendix A.)

But such self-selected *and* self-directed inquiry only occasionally forms the basis for a class. It does appear from time to time in assignments done out of class, such as the heavily weighted final projects in our first-year curriculum and the capstone projects in the third and fourth years of study. Overall, however, SCL embraces a much greater level of student autonomy over what is to be learned than does our pedagogy, and SCL has a much smaller level of precision of the predefined learning objectives than is found in Minerva's curriculum.

However, some elements of SCL do parallel our methods. For example, SCL and Minerva's fully active learning both see the instructor primarily as a facilitator rather than as the source of knowledge, and both typically see students as active builders of knowledge rather than receivers. We are all constructivists in this sense; we agree that knowledge cannot merely be received. Instead, it must be examined, critiqued, contextualized, applied, and synthesized with other knowledge—and students are the ones who must do this work (Deslauriers, Schelew, & Wieman, 2011). As noted earlier, the most important reasons for adopting this view are the principles from the science of learning.

In short, we distinguish active learning from collaborative learning and also from student-centered learning. We always use active learning, sometimes use collaborative learning, and sometimes use elements of SCL.

Most of the rest of this chapter is dedicated to explaining in more detail the specific techniques we use to craft active learning activities in the sense defined above.

Pedagogical Tools

Fully active learning relies on specific pedagogical techniques we have developed and tools built into the ALF. The heart of each lesson plan is its set of activities, which build on preclass assignments (described in chapter 14). We established a set of design practices that maximize the amount of active learning in each activity. Our guiding question is, "What is everybody else doing?" That is, for each activity, we focus not just on what the current speaker or actor (e.g., someone solving an equation) is doing but also on what the rest of the class is doing: we don't want students ever to sit passively and listen to what others are saying or doing. Rather, we want all students to be as engaged as possible for as much of the time as possible.

In the service of reaching this goal, we designed two practices: The first is to be deliberate and explicit about our pedagogical technique, and the second is to include as often as possible an explicit "engagement prompt" that tells all students what they should be doing when they are not actively producing a work product (e.g., speaking, writing, or otherwise acting). Both practices are described in detail below.

Varied activity types
People habituate after they do the same thing over and over—and either stop doing it or stop paying attention to what they are doing. Thus, if we require students to do the same sort of activity repeatedly, engagement will

flag and they will tune out. Effective active learning therefore must include a wide variety of types of activities. The prototype activities in our initial lesson plans drew from various approaches in active learning (Barr, 2013), including peer instruction (Mazur, 1997a; Mazur, 1997b; Crouch & Mazur, 2001), collaborative work in small breakouts (Macpherson, 2015), debates (Kennedy, 2007), Socratic method discussion (Faust & Paulson, 1998), task- or problem-based learning (Allen & Tanner, 2007), role-playing (Deneve & Heppner, 1997), and game-based activities (Lepper & Cordova, 1992).

Using the prototype activities as a base, we developed and characterized approximately twenty-five different types of activities and in-class work products, each of which has a distinct "tag." One set of tags is used to track the student work product or output for an activity. Examples include *writing, speaking, presenting, diagramming, math,* and (computer) *code*. A second, larger set of tags tracks the type of activity—or, in many cases, a pedagogically relevant facet of it. Some of these are self-explanatory: *discussion, debate,* and *brainstorming,* for example. Other activity types are less obvious but proved to be recurring and useful ways to ensure that every student be actively engaged at least 75 percent of every class session. Examples of these include *focus questions*, which are written at the time the lesson plan is crafted to address particular material in that lesson (these questions are sufficiently difficult and nuanced that after one student responds, others typically are called on to add to or modify the response); *synthesis*, in which students must bring several lines of inquiry into a single coherent view; and *evaluation*, in which students provide and defend a holistic appraisal of a target view or work. Each activity typically is tagged in more than one way. Below is an example from one of the sophomore courses in our College of Natural Sciences. The tags are flagged with an "@" sign, in italics, right after the name of each step in the activity.

ACTIVITY: HC Use in Gould and Lewontin (1979)

1. **Introduction *@infotransfer* (2 minutes) (SLIDE).** In your breakout group, discuss the central arguments that Gould and Lewontin (1979) make about the adaptationist program. In bullet point form, identify the three to five most important arguments and describe how the authors employ specific HCs to support the arguments you identify.

2. **Breakout groups *@discussion @analysis @writing* (10 minutes).** [Students follow the instructions provided in the slide above.]

3. **Debrief *@discussion @synthesis @focusquestions @speaking @presenting* (15 minutes).** The instructor should call on students at random, asking them to add an argument to the shared document. The

student who presented the argument should then call on another member of his or her group to discuss how a specific HC was used to support the argument. Gould and Lewontin may or may not have used the HC well, and once the member of the group has described how the authors used a specific HC to support an argument, the class should be asked to use the mastery rubric to grade the authors' use of the HC in the chat.

4. **Activity Summary** *@synthesis @speaking* **(3 minutes).** Ask a random or quiet student: "How did your use of HCs in this activity help you to understand the learning objective for this session?"

A few aspects of this example are worth calling out specifically. First, the *@infotransfer* tag in the activity introduction means "information transfer." In some situations the instructor must provide information to students so that they know what is being asked of them, but this is kept to an absolute minimum; a Minerva class is about learning to *use* information, not about memorization. The "(SLIDE)" notation in this step shows the content that will appear on-screen for students to preview.

A second point concerns what is *not* seen here, namely, the ALF configuration that accompanies each of the three steps within the activity. How the ALF facilitates active learning is discussed in the next section; for now it is sufficient to note that although the lesson plan author is relatively unconstrained in how he or she uses the technology to support instruction, there are some typical patterns. In step 2, for instance, the ALF breakout tool will segment students into groups of a specified size and give each group a "private room" and a blank document to capture their work.

In addition, step 3, the debrief, is important for fully active learning: Students know this is coming and that they can be called on, and this motivates them to pay attention. The ALF configuration for this step would probably display the group notes, two or three of the group members, and a few other students from other groups. Lesson plan designers wield these and other configurations with great precision to optimize the number of opportunities for each student to demonstrate active learning.

These tagging practices have an important application that complements pedagogical efficacy, and that is programmatic assessment. We are laying a foundation of structured data that will allow us to study systematically the types of techniques that work best in various circumstances. Those studies could include an inquiry into whether, for example, written synthesis activities work well (i.e., increase student mastery of the learning objectives) at the end of class (we suspect they do) or whether problem

solving works better in groups of two, three, or four students (we do not have a hypothesis about this).

Explicit engagement prompts

A socially reserved student's learning experience can easily be neglected. Even a conscientious professor may end up involving just three or four extroverted students or relying on those perceived to be reliable contributors. This concentrated attention is undoubtedly educational for those few, but whatever it may be for the rest, it is not active learning. Certain features of the ALF help us avoid such problems, but we do not rely solely on them. As soon as an activity work product is defined, we immediately ask ourselves, "What is everyone else doing?" To help lesson plan authors create fully active learning exercises in which all students are engaged at least 75 percent of the time, we created more than two dozen engagement prompts that work for almost any discipline or subject and can be combined with each of our activity types.

We divide engagement prompts into two types: rolling and summative. Rolling prompts require students to pay attention because they will need to respond immediately to another student's contribution. These prompts can appear at any point in a discussion. A few examples are shown in table 12.1.

By priming the class at the beginning of an activity to be prepared to respond to these prompts, we increase the likelihood that a student will engage the cognitive processes that we know are associated with learning.

However, we have noticed a drawback to the use of these rolling engagement techniques. Even though we sample with replacement (i.e., the same

Table 12.1

Sample "Rolling" Engagement Prompts

Representing the view of a prominent figure	Explain what a specific prominent figure might contribute to the discussion. Sample prompt: "When I call on you, be ready to explain what Kahneman [2011] would say about the point made by the previous student."
Sharpest critic	Regardless of your personal view, articulate what the sharpest critic of the view just expressed would say.
Conjunction ("and/but") relay	Extend the previous student's idea by extending it (when prompted with "and") or disputing it (when prompted with "but").

Table 12.2
Sample "Summative" Engagement Prompts

Selecting the "best" response and explaining why it is the best	Which breakout group produced the best product? Which comment was most compelling? Which example was most useful? Explain why your selection was better than all of the others.
Summarizing key points	Summarize the key points made throughout the activity.
Characterizing underlying dimensions	Explain how the points raised varied along a specific dimension. What was that dimension? Illustrate the variation along it by providing several examples.

student can be called on repeatedly), students quickly learn that, on average, once they have been called on it is unlikely that they will be called on again soon. Thus they remain alert and engaged until they are called on, and then are less alert and engaged during the period afterward. Pairing rolling prompts with summative prompts, described next, mitigates this fall-off in attention.

Summative engagement prompts require students to attend throughout the activity in order to prepare for a response at the end. These responses require students to integrate the prior discussion and typically write down their analyses, and hence they must pay attention throughout. Table 12.2 presents some examples.

After students write their responses (which only the instructor can see), the instructor calls on several students to explain and expand upon what they wrote. The instructor often calls on a student who wrote a poor response and then one who wrote an excellent response. This verbal debrief is necessary because the social pressure inherent in the possibility of presenting their reply plays a role in ensuring that they pay attention, taking in what transpires so that they later can write a reasonable response. Furthermore, presenting and correcting a weak response is a means of clarifying potentially common confusions with the full class.

The main drawback we have found with such summative techniques is that they require a fair amount of time. Students often require three to five minutes to write reasonable responses, and then the verbal debrief requires another five minutes or so, which adds up to a noticeable fraction of a ninety-minute class. Nevertheless, the pedagogical value of such practices is clear, and so we view this time as well spent.

Technological Tools

All Minerva classes are computer-based virtual seminars held on the ALF. Some features of the ALF were designed specifically to facilitate fully active learning and complement the pedagogical techniques described in the previous section. Some of these features were designed to counteract computer-based distractions (e.g., the Internet, Twitter, Facebook, e-mail); others were designed to engage quiet students who might be overlooked in traditional classrooms. For example, the ALF includes a "talk-time" feature, a "feature quiet student" tool, and several types of polls, and it facilitates configuring and implementing flexible and highly reconfigurable breakout groups, as described below.

Equal access to participation for all students
Physical classrooms cannot provide equal access for all participants— access, that is, in the sense of seeing and hearing, and being seen and heard by, everyone else. Even in an intimate seminar, with ten students sitting around a table, no one person can see all of the others at the same time; no matter how you crane your head or twist your body, you will see some but not others. And in a lecture hall, students are oriented toward the front of the classroom, so for most of them to see others' faces, they have to turn to the side or completely around. Indeed, most of the time, most students in a lecture hall see the backs of their classmates' heads and only the professor's face, perhaps from some distance. The professor, meanwhile, may see only a few rows clearly.

Such lack of access is worth noting because interacting with others often is a prerequisite for full cognitive engagement and active learning. And to interact with someone, you need information about how he or she reacts to your comments and behavior, and vice versa. If you cannot see everyone all the time, by definition you are not receiving full information about such reactions. In contrast, the ALF provides equal access in ways that no traditional classroom could ever do. All faces are present in a row across the top of the screen, fully visible. Everyone, students and professor alike, is in the front row and equally visible and audible to everyone else.

Talk-time feature
The talk-time feature, triggered when the instructor presses the "t" key, superimposes a colored tint onto each student's video in the row across the top of the screen. Only the instructor sees this overlay. A green tint indicates that the student has spoken comparatively less than other students

and should therefore, all else being equal, be called on soon to ensure that he or she has opportunities for active learning. A red tint signifies that the student has spoken comparatively more than others, and a yellow tint indicates approximately average levels of contribution. The feature is data-driven, updating in real time based on the total duration of the audio stream from each student. It does not force the professor's hand, but offers a fairer and more objective basis for calling on students than a professor's unaided memory could provide.

"Feature quiet students" tool

The talk time feature is triggered manually, but the ALF also features a more automatic way to engage students with lower than average participation. This tool is set up when the lesson plan is being written and is used in class. It is the "feature quiet student" tool. When a lesson plan author is designing an activity, he or she specifies when students should be asked questions or engaged in discussion. One option is to have the computer automatically select a quiet student (determined by the amount of recorded talk time) or a group of such students. Alternatively, the author can specify that the computer either selects students randomly or leaves it up to the instructor to select specific students on the spot. Typically the lesson plan author updates the ALF configuration at the beginning of each step within an activity, and hence can repeatedly feature quiet or randomly chosen students.

By automating this process and basing it on real-time data, the ALF allows the instructor to dedicate more attention to facilitating the activity—to listening carefully to the students, to thinking ahead, and to being strategic about asking questions and nudging the discussion in useful directions. Moreover, essentially for free, we help reduce the risk of favoring some students over others, which can arise from the understandable tendency to call repeatedly on reliable contributors.

Free response polls

The ALF also helps keep students engaged by requiring them to write responses. Most often, such responses take the form of "free response polls." The ALF interface presents a poll with a short prompt (such as a question they must answer, a comparison they should make, or a choice they must make and justify), and students write their responses in a text entry field. Typically these polls last three to five minutes, and the students write a few sentences.

We use two types of free response polls in virtually every class. First, at the outset of every class session, students respond to a *preparatory assessment* poll. Such polls are necessary because we use a type of flipped classroom, in which information acquisition (readings, watching videos, etc.) takes place primarily before class and class time is devoted to learning to use the information in various ways. Because the class activities rely on the students' having acquired the requisite background, we must provide incentives for students to do the work. These polls are one such incentive. In this case, the polls contain questions that can only be answered well if students have done the assigned reading and viewing and thought carefully about how the learning objectives apply to them. Before each class session students receive a study guide that suggests active learning exercises to complete as they read or watch a video; this guide also explains why we have assigned the reading or video and often tells the students how the material will be used in class. Thus the demands of the poll are not wholly unexpected, but neither are they easy.

The professor can see each answer as it is posted and can decide, once all students have finished writing, whether to spend a few minutes discussing the poll further. Whatever the decision, all responses are graded (using a rubric) after class and figure into each student's class grade. This grading serves as a spur to ensure that students arrive at class prepared and, equally important, that they know that active engagement with the assigned reading and videos is essential. The polls also lead to timely feedback for the students: professors often complete the grading within a day of the class session's conclusion, and the grades are posted immediately on each student's ALF assessment dashboard.

The second form of free response poll that appears in every class is a *reflection poll,* which is based on the "one-minute paper" technique (Angelo & Cross, 1993). These polls are administered at the end of class, typically in the last five minutes, and pose questions that can only be answered well if the students have been thinking actively throughout the session. Examples of poll prompts include "What was the most challenging concept focused on during this class session? Why? Make sure to reference one specific moment," and "Compare and contrast the way the new HC was used in the activities. What common threads did you see, and what was different?" Answering such questions well requires more than recall: students also must compare and contrast different moments in class and make a defensible evaluation, which in turn requires having paid attention. But more than that, such polls enhance learning by drawing on well-documented principles from the science of learning (discussed in chapter 11), such as

the generation effect and the use of appropriate examples. Answers to these polls are also graded, using an appropriate rubric. In addition to grading both polls in each class session, professors have the option to attach comments to poll responses. This practice provides students with daily formative feedback.

Breakout groups

Breakout groups play a role in fully active learning in part because students cannot easily hide from their peers and there is social pressure not to be a "free rider." This is especially the case when the groups are small, with as few as two to three students per group. Such groups facilitate learning even when none of the group members has a solid grip on the material at the outset (Smith et al., 2009).

The ALF allows us to define breakout groups in three ways: (1) by assigning students randomly, as determined by the computer; (2) by assigning students as the professor sees fit; and (3) according to specific criteria (e.g., responses to a poll). In the future, we plan to include past performance (e.g., relevant HC scores) as an additional option, so that students with similar (or perhaps disparate) levels of mastery can be grouped together. Breakout groups can be defined in advance or on the spot. Moreover, students can be moved from one breakout group to another with the swipe of a mouse.

A huge advantage of the virtual classroom, and the ALF specifically, is that breakout groups can be created by the press of a button: students don't need to get up, drag chairs to corners of the room, and get resettled. Moreover, an enormous range of digital assets can be moved into breakout groups, ranging from notes and slides to computer simulation models. Furthermore, the professor can view and listen to each group—and the students may not be aware of when this is happening. And the professor can very rapidly cycle through the groups and only interrupt when necessary. Thus the ALF provides a level of accountability that is not possible in traditional classrooms.

Conclusion

Fully active learning takes good advantage of the principles of the science of learning: It ensures that students process material deeply, induces the generation effect, relies on spaced practice, and so on (see chapter 11). Moreover, fully active learning ensures that all students—not just the outgoing few who love to talk—have a chance to participate. In addition, fully

active learning sets up structures (such as those provided by the ALF) and incentives (such as not wanting to look bad in front of one's peers) that keep students from drifting off or engaging in other activities (such as reading Twitter or the like).

Although our technology has been developed with fully active learning in mind from the start, one need not use our technology to benefit from many of these techniques. However, these techniques will not help lecturers encourage students to pay attention during their lectures—to benefit from fully active learning, one needs to use active learning!

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Building the Intentional University

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18　Building a New Brand

Ayo Seligman and Robin B. Goldberg

As the lunch hour approached on January 21, 2013, the office was almost empty and uncharacteristically quiet. Although we were still a small team at that point, lunchtime was typically spent exuberantly discussing the grand vision we were working to realize. The near-emptiness could be attributed to the fact that it was a holiday—the day we celebrate the life and contributions of Dr. Martin Luther King, Jr.—but the hush was the result of deep thought.

Moments earlier, our founder had posed a question: How did we plan to notify our first group of prospective students that they had been admitted to Minerva? Although the question may seem trivial and perhaps to have an obvious answer—the big envelope for admits—it led to a deeply engaging discussion and a solution that reveals much about how we operate and what we value. At this fledgling institution, the concept of innovation was already deeply ingrained in its DNA.

After a quick trip to the food trucks that were assembled on San Francisco's UN Plaza and glasses of wine poured from the founder's reserve, we gathered on the balcony overlooking the Civic Center to ponder potential approaches.

"What if they receive a mysterious key in the mail?" one team member suggested.

That idea spurred a four-hour discussion, followed by an intensive prototyping and design refinement process that yielded an extraordinary final result.

Two months later, in mid-March, the entire organization assembled: "Put on these white gloves; there cannot be a single fingerprint! Remember to hide the tape in the seams of the gift paper. Every detail sends a message, and we want to make sure each package looks perfect."

The admissions committee had just finished reviewing more than 2,500 applications, selecting a mere 2.8 percent of prospective students to receive

an invitation to join the founding class. The invitations themselves had to signal a number of important qualities. They had to demonstrate acute attention to detail and a commitment to each student as an individual, they had to suggest the layers of meaning and depth of understanding at the heart of the educational experience, and they had to feel magical, hinting at the challenging journey that lay ahead. Above all, we wanted the students receiving these packages to respond emotionally, appreciating both the unique opportunity and the tremendous responsibility that joining the founding class at a first-of-its-kind institution represented.

By creating "the box"—a hinged walnut case emblazoned with the word "curiosity" that was custom-built to house an Apple iPad Mini and its various components—and the sequence of interactive steps recipients were guided to follow, we sought to eliminate any doubt from the minds of these first pioneering students about attending Minerva. In the process, we exhibited the core principles that have come to define the organization.

When Minerva was still a conceptual vision, summarized in a deck of PowerPoint slides, potential investors often asked how we planned to impart the kind of meaning and prestige to the Minerva brand that other university brands had taken many years to acquire. Those who were experienced in building institutional value understood the importance of name recognition and reputation in a competitive (or saturated) marketplace. For many, however, use of the word "brand" in connection with an educational institution still seemed anathema. The immediate perception among many in academia is that any institution that concerns itself with its brand will inevitably put financial—or, worse, commercial—interests above those of its students or some idealized version of higher learning. But when one considers the power of such names as Harvard, Stanford, and Cambridge and the weight of those names in student and parent decision making, it becomes clear that these universities are indeed brands as well. In fact, even the appellation "Ivy League" can be considered a brand: graduating from one of these elite institutions endows a halo effect for life. Branding in academia is real.

Defining a Brand

The term brand is difficult to define. A common misperception is that a brand refers to a corporate name and logo (e.g., Mercedes-Benz and its classic three-pointed star trademark). More critically, a brand is the sum of a corporation's legally protected assets and the ideas they stand for, ideas reflected in such things as the name and trademark. In practice, a brand is

the suite of impressions awakened in a subject's mind on hearing the name or seeing the logo.

For Mercedes, its name and marks summon a collection of perceptions about the company, its products, and its services. These perceptions include shared beliefs about quality, reputation, product personality, cultural significance, heritage, and other associations. The Mercedes name, badge, and "trade dress," together with these shared associations, make up its brand. Although intangible, a brand is immensely valuable: the Mercedes brand is valued at $43.5 billion by global brand consultancy Interbrand (2016).

Because of the brand's importance to any organization, defining a brand should not begin with a name and logo design. Instead it should be the result of carefully considering what the brand should represent in the world, what it would mean for people.

Brand Value in Higher Education

According to the multinational advertising agency Young & Rubicam (Rainey, 2001), a brand's strength is defined along four dimensions: its differentiation from others in the category, its relevance to its audiences, the knowledge those audiences have of the brand, and the esteem in which they collectively hold it. In the private sector, global companies spend billions of dollars annually on brand-related efforts. Through activities ranging from broadcast advertising to product portfolio management, firms focus enormous resources on building, reinforcing, or repairing their brand equity.

Universities, by contrast, rarely have more than a communications office dedicated to public relations and crisis management. In the event of a student protest, these institutions may be well prepared, but when it comes to addressing other threats to the brand, they are less so. Also, because universities have, generally speaking, grown their brand equity organically and over long periods of time, they have not given much thought to differentiation or relevance, relying instead on only the public's knowledge and accumulated esteem. Although the Harvard, Yale, and Princeton brands are all highly regarded, it is difficult to articulate their differences. Further, it seems apparent that the educational experiences they offer lag the pace of change under way in the world. Owing to this lack of a clearly differentiated offering, an increasingly questioned relevance to student success, and numerous entrenched institutional norms, there is room for other institutions to enter the market and provide a stronger brand proposition than the incumbents.

Building a Foundation for Prestige

Although it is not common for universities to focus on building their brands, this is crucial for a new entrant in the crowded higher education category. Because we at Minerva are appealing to exceptionally bright, curious, motivated, and globally minded students, we are competing with top-ranked schools all over the world. To quickly establish a reputation for excellence at this level, we needed to ensure we could break through and reinforce Minerva as deeply innovative and highly selective, yet globally accessible.

To define this strategy, we knew we would need to articulate the essence of our brand—what makes it different and meaningful—and convey this essence coherently to internal and external audiences. A cogent brand framework, including our central promise and value proposition, would give us a basis for communicating the core tenets and behavioral norms of the institution. By defining who we are, how we operate, and how we engage with the world, we would be able to align all parts of the organization and ensure that our interactions with students, parents, counselors, and partner organizations, as well as with investors and the media, would be of a consistently high quality. Although Minerva is not perfect for all students, it does need to be recognized as ideal for the *right* students.

Determining Minerva's Position in the Category

The process of defining the Minerva brand began with clarifying exactly what we were seeking to accomplish, why, and how, and with gaining a deep understanding of the higher education landscape—including how top universities present themselves—and our intended audiences, primarily top students around the world. In this way we related the brand strategy directly to the operational strategy. However, an effective brand framework includes further articulation of these considerations. Gaining that level of depth demanded extensive discussion, research, and analysis.

To develop a brand framework, we first conducted a series of work sessions, which included everyone in the organization. Participants gathered in a room whose walls were covered with oversized Post-It notes. We delved into numerous topics, both internally and externally focused, starting with high-level questions: What key challenges were we trying to solve? Why was Minerva best positioned to solve them? Why hadn't anyone else tried to do so? (Or, if others had tried, why did they not succeed?) Why should our audiences care about Minerva? As these sessions progressed, our questions

became both more specific—What about students who need remedial support? Should we seek to reach masses of students or be more targeted?—and more conceptual: What if Minerva were a person? What would he or she be like? Because strategy demands sacrifice, we also sought to determine what we would *not* do and how we would *not* present ourselves. Our ultimate goal was to distill and crystallize our mission, our vision for the future, our institutional values, and the concepts that would influence how we expressed the brand to our audiences.

Understanding the Target Audience

We then set out to understand key characteristics of the types of students we sought to attract. During a series of in-depth interviews with university-age students in multiple regions, we investigated how they would evaluate various university options to arrive at a first choice. We wanted to understand what factors were important to them, what aspects of higher education were exciting, and what parts of the decision-making process they dreaded.

Following the interview phase, we considered other audiences and their perspectives. We were particularly interested in those who would have a high degree of influence during the decision-making process—parents and counselors. Additionally, we reviewed a broad collection of communications materials from top universities, analyzing the language and imagery they used to present themselves. This helped us determine how successful institutions attract students, and, more important, how we might distinguish ourselves from other institutions in search of smart, motivated students.

Articulating Our Mission and Promise

With pages of notes in hand, we got to work refining the various components of our brand's strategic framework. On a fundamental level, our mission statement would provide a rallying cry for the organization through a concise expression of our long-term objectives. The statement needed to convey the impact we aspired to have in the future, but also the vision we would act on every day. It had to be simple and bold, an encapsulation of everything we stood for, in a single line. After dozens of proposed phrases, we rallied around the shared commitment that Minerva existed to make the world better by making its students wiser. This idea was honed to a

succinct, nine-word statement: "Nurturing critical wisdom for the sake of the world."

This single phrase expresses the warmth of our student-centric approach to education, our core belief that imparting knowledge alone is not sufficient, and our expectation that equipping the world's brightest minds with powerful cognitive skills will lead to an improved future for us all. Moreover—and this was particularly important—it also does not restrict our influence to only those students educated at Minerva. Our mission captures our hope and belief that other institutions and organizations will adopt our best practices and curricular innovations (possibly licensing our curriculum, pedagogy, and platform, or using it as a model when creating their own) to impart critical wisdom to a wider population.

Although our mission statement conveys the organization's long-term, overarching reason for being, we also needed to define our central promise, a description of whom we are serving and what our specific commitment is to them. We deliberately chose to focus on the brightest, most motivated students because we believe they are most likely to become the next generation of leaders and have the highest potential to develop the kind of meaningful innovations needed to bring about positive global change. We aim to provide them with educational experiences that will accelerate their growth, as well as the skills needed to devise effective solutions to difficult systemic problems. After many rounds of refinement, we arrived at a clear promise:

We will equip the most exceptional students in the world to fulfill their enormous potential to solve the most complex challenges of our time.

Distilling Our Essence

With these fundamental elements in place, we turned our attention to distilling the essence of the brand. It was clear from the start that what we were undertaking was incredibly bold and innovative, but it was becoming increasingly evident that the level of excellence we were working toward was equally remarkable. We were doing something so different and comprehensive, and our points of distinction from traditional top universities were so numerous, that our positioning could focus on one central truth: Minerva is working toward *Achieving Extraordinary*.

By intentionally including the gerund form of the verb and eliminating a definite article, we sought to convey the ongoing nature of our efforts to work toward an idealized destination. The organization eagerly embraced

this continuous drive toward apotheosis, the elusive point at which a great work is transformed into something sublime. In fact, the phrase quickly became shorthand for our entire endeavor.

Establishing Our Guiding Principles

As "Achieving Extraordinary" was becoming a touchstone for the organization, we realized we needed a way to communicate the nuances embedded in this simple catchphrase. By explicitly stating what we stood for and how we would evaluate what was right for both the institution and the brand, we sought to provide clear guidance for our collective behavior and decision making. After further detailing our organizational beliefs and philosophy, with input and agreement from the full executive team, we arrived at a set of seven guiding principles that describe how we approach our work: *being unconventional, being human, being confident, being thoughtful, being selective, being authentic,* and *being driven* (see appendix B).

Collectively the principles invoke everything to which we hold ourselves accountable; there are no superfluous concepts, nor is anything missing from the set. We then defined each principle in depth, including a clear description and related attributes, and, because each principle can be considered as existing on a spectrum, we also outlined the extremes to be avoided. For example, being too unconventional becomes quirky or eccentric; being too confident makes one arrogant.

From Principles to Practices

Next, each principle was translated into associated practices—specific behaviors for the organization to adopt—including the actions we take, the language we use, and the way we design. When we discuss a direction we want to take or a major decision to be made, we rely on the guiding principles as the common organizational language used to weigh various options. We ask ourselves, which among these is most aligned with our principles? Similarly, we use the principles to steer specific initiatives. When developing the program for our admitted students weekend, we pushed to make it extraordinary by ensuring that it was *unconventional*—no mere campus tour here—and deeply *human*, with numerous *thoughtful* details. The name of the annual event itself, Ascent, reflects the *driven* principle and is part of a progressive metaphor used for the major milestone events in each city.

By using the guiding principles as a decision-making tool, we are able to move efficiently from idea to action. Whereas most universities,

especially those with vested interests in the status quo, incorporate new ideas very slowly (if at all), Minerva is constantly looking for opportunities to improve. In another example, our pre-arrival guide for students is a purposeful departure from the typical printed leaflet with its basic information on the campus, a directory of services, and information on how to move into the dormitory. Instead we saw an opportunity to engage and inspire our incoming freshmen. In addition to the practical information, we incorporated philosophical content related to the process of departing and arriving; an interactive map of the city, indicating nearby services as well as exciting points of interest; and even helpful advice on cultural integration. The point is that something as simple as a student guidebook is held to the same standard as major institutional decisions.

Equally important, the guiding principles help us decide when we should say no. When considering opportunities for partnerships, for instance, we utilize the guiding principles as a checklist to assess whether the partner organization is suitably selective, unconventional, thoughtful, authentic, confident, and so on. The right partners help us identify the right students, but the wrong ones could damage our reputation among this key audience, negatively affecting our positioning or, worse, calling into question our judgment regarding student well-being.

Expressing the Brand

In tandem with defining our brand's strategic framework, we developed visual and verbal systems for communicating with our audiences. Our "Achieving Extraordinary" positioning demanded a suitably distinctive—and nuanced—visual and verbal identity for Minerva. These systems needed to convey a depth of meaning, be expansive enough to adapt to various media, and, crucially, reinforce our brand attributes.

After countless rounds of exploration and refinement we settled on a symbol, rich with meaning, as well as a custom wordmark. The symbol is an artistic representation of a Möbius strip, executed by a master Japanese calligrapher and incorporating three twists. By blending the precision of mathematical geometry with the organic quality of calligraphic brush strokes—Eastern artistic tradition married to Western scientific innovation—we realized an elegant balance of contrasting ideas. Additionally, the negative space is shaped like the shields in Ivy League schools' crests, suggesting our movement beyond existing models in elite higher education.

With our symbol and wordmark designed, we created a suite of logo configurations, a flexible color palette, custom iconography, and a robust approach to imagery and typographic design. We then applied the visual identity system to a variety of communication tools, from business cards to outreach presentations to the school's website. To illustrate how seriously we take the representation of the Minerva brand, it took nearly three years from the first day of work until the first business card was printed.

The visual identity is complemented by a distinctive "voice" for the brand. Once we decided to appeal to only the highest-caliber students, our verbal expressions had to be suitably sophisticated, yet approachable enough to engage millennial students. Our verbal identity includes word choices and sentence lengths typically found at the graduate school level but utilizes pacing and other structural techniques that keep writing consumable. Also, despite our core audience's global nature, we communicate almost exclusively in English because it is the language in which all classes are taught. This counterintuitive tactic acts as a minimal barrier to entry for prospective students, reducing the likelihood of unsuitable candidates in the applicant pool. Our language intentionally challenges readers, thereby signaling both the rigor of the academic curriculum and the demands of global cultural immersion.

Conclusion

Though we have accomplished a great deal in a very short time, having established Minerva as an attractive, highly sought-after alternative to traditional elite universities, we still have a tremendous amount of work ahead. After admitting four rounds of incoming freshmen, as well as two small master's classes, the organization is now more than ten times the size it was when we began and now has personnel in every major geographic location. This rapid growth, while necessary, brings additional challenges for managing our brand.

How can we ensure that new faculty and staff adopt the same level of meticulous attention to detail as the founding team? How can we continue to consistently implement our principles and the application of our visual and verbal identity across the organization? How should we handle new initiatives, or extensions of the brand into different categories of education?

In addition to these questions, we are also continually incorporating input from our students and staff, as well as responding to new information and opportunities, to increase awareness, relevance, and esteem for Minerva. We endeavor to strike and maintain the crucial balance between

consistency and flexibility, speed and quality, and vision and reality; the organization continues to grow, learning to understand and integrate the lessons in the guiding principles. If we are to continue "Achieving Extraordinary," this movement will proceed for decades—even centuries—to come.

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OUR UNIVERSITY CONTEXT

In the spring of 2012, soon after the edX partnership was announced, Harvard University's provost, Alan Garber, began reaching out to the eleven different schools within Harvard and to faculty members.

Along with MIT provost L. Rafael Reif, Garber had been instrumental in forging the edX partnership. The vision for Harvard centered on three objectives. First, online offerings could dramatically increase the university's reach and impact. For centuries Harvard had restricted access to the select few chosen to come on campus. Now we could—and should—offer access to anyone who wanted it.

The second objective involved possibilities for new research, an activity that underpins the elite status of institutions like Harvard. Large amounts of data were becoming available through online user clickstreams. Parsing them could yield significant insights about learning and pedagogy.

The third objective was to use online learning to improve residential learning and teaching. But how? By the end of 2011, it was becoming clear that YouTube videos and online courses didn't just have the potential to benefit online learners. They had the potential to impact the residential learner, too. After all, if an online learner could watch a professor's classroom videos on his or her own time, so could that professor's on-campus students. And that in turn would impact classroom teaching. Lectures that ate up an hour or more of classroom time could be relegated online, freeing up valuable time for intimate, value-added in-class conversations between students and faculty.

In 2000, three economics professors coined the term *inverted classroom* to describe technology's potential to reverse the traditional teaching process. By 2012, the idea of inverted, or "flipped," classrooms had become part of the online vernacular and was being embraced by a growing number of schools and universities. Garber reasoned that on-campus students

could not only leverage online materials, but also benefit from follow-on small-group conversations with their professors in the classroom. *That* was the real benefit of online education for residential students at Harvard.

Garber's first two objectives struck a deep chord with many of us at HBS. We had a harder time with the third. I didn't immediately know why at first; it hit me later: We'd been flipping the classroom for a hundred years at HBS.

OUR STARTING POINT: LEARNING BY DISCOVERY

HBS is known around the world for its research on business practices and management. It's even better known for its teaching approach—the case method. Rather than learn management from textbooks or theory, students grapple with the real-world problems that managers encounter and the decisions they must make—all captured in ten- to fifteen-page "case studies" written by faculty members.

The case method isn't the most efficient approach to teaching and learning. Quite the opposite: It can be frustrating for both student and teacher. Students might yearn for "the answer" but instead are encouraged to engage in reflection and conversation with their peers. Faculty might yearn to give "the answer," especially when student discussions veer onto a wrong path, but are committed to let students try to discover it on their own. Despite all this, the experience is often deeply engaging for students (Sal Khan recently referred to the HBS classroom as more engaging than "any traditional classroom I've ever been a part of"). Why? Students are almost always alert and prepared, in part because they need to be—the instructor might ask them at any time to speak (the dreaded "cold call"). Excellence was rewarded not only for mastery on exams but for daily contributions in class. Daily attendance almost always exceeds 95 percent—not just because absenteeism compromises students' grades, but because students (dare one say it?) enjoy the learning process. Students learn not only from the instructor but just as frequently from one another. They are challenged to think, often on their feet. They learn by discovery and through mistakes. The case method is a modern-day Socratic approach.

These are the fundamental differences between the case method approach and a traditional lecture-based one—between what many observ-

ers had come to characterize as "active learning" versus "passive learning." One might be excused for thinking that the difference in approaches boiled down to content or format—in one setting there was "the lecture," in the other, "the case." That couldn't be further from the truth. The difference in approach extended far beyond the content or format, to the learning process itself. At its heart, the case method was teaching centered on students and *how* they learned, not just what they learned. It was the flipped classroom.

While many institutions were aspiring to migrate toward a model of active learning, this was already our starting point. So when we looked at online education and the benefits it might offer students, the first question we asked ourselves was: *What is the problem we are trying to solve?*

WHY CHANGE?

Organizational change is invariably precipitated by fear. There is the fear of sticking to the status quo and becoming stale. There is the fear of being disrupted by new competitors or new technologies. And there is the fear that doing nothing might leave one ill-prepared to grab new opportunities as others march forward. These were among the reasons many universities were jumping into the online game.

At HBS in 2012, there was little dissatisfaction with the status quo: The case method approach was working well. Our existing programs were in fine shape, and our students were reporting high levels of satisfaction. There was little fear of impending disruption to the institution.

This last point was salient, coming as it did in the face of concerns voiced by one of our own colleagues, Clay Christensen. Christensen is perhaps the most famous theorist and scholar of disruption—and a vigorous proponent of the need for organizations to get out in front of it. He'd been bravely trying to rally our faculty for more than a decade, warning as early as 2001 of the dangers of the complacency that had beleaguered so many other sectors. He'd spoken articulately of the havoc online education would eventually wreak on our well-functioning operating model.

But, again, the effectiveness of our case-method-based active learning approach made us question whether online learning could possibly im-

prove the classroom experience. It also gave faculty confidence—perhaps false confidence—that what we offered on campus was unlikely to be disrupted any time soon.

These conditions—a strong core product, satisfaction with the status quo, no burning platform, and a lower-quality substitute—are often described as precisely the conditions that eventually lead incumbents into the abyss. But our conversations didn't stop there. Our dean, Nitin Nohria, had, until recently, been skeptical about online education ("Not in my lifetime," he'd replied to a question about when Harvard Business School would offer online courses). Now, he and many other faculty were still keen to do *something* online. Why? We saw it as a tremendous opportunity to learn about what was possible with digital technologies. Perhaps those learnings could better inform a decision about whether we wanted to invest in online education for the long haul. There was an aspiration, best articulated by our dean: HBS had made its mark in residential business education for more than a century; now could we carve out a leadership position in multi-platform education? And there was a concrete decision to make: whether or not to offer MOOC-style courses on edX. In hindsight, the bold move forward by our university parent to cocreate edX had activated internal conversations at HBS on how *we* wanted to approach this space. Absent that, we might not have moved as quickly as we did, or at all.

So the question became, what could we do in online education that would not only benefit learners, but would be right for the institution, and leverage our strengths? It was this question that ultimately turned us away from the "camera in the classroom." MOOC-style streamed video lectures had benefits for millions of online learners. But there was no reason why we'd be any better than anyone else at delivering them. Moreover, they didn't fit with our classroom pedagogy. To succeed online, we'd need to build on something we did well—to leverage our institutional DNA. That something was the case method approach. So as we began conversations about HBX—the name we would apply to the initiative, borrowing from the increasingly ubiquitous X suffixes in online education—we did so with a belief in the strength of our existing approach to teaching, rather than a mindset geared toward overcoming its shortcomings. And we did so with a desire to differentiate, to build our online offerings around our strengths, rather than follow what was for us, in any case, a path we couldn't follow without changing our pedagogical DNA.

WHO'S THE LEARNER?

Very quickly, we ruled one option out. We decided we would not offer our MBA courses fully online. The MBA program is the crown jewel of HBS, the reason that hundreds of students paid a lot of money to enroll. It was in no danger from online education—or at least that's how we felt then.

This was not an obvious decision. Many other major universities were jump-starting their online offerings with some of their best residential courses—Justice, at Harvard, by Michael Sandel; Circuits, at MIT, by Anant Agarwal; Artificial Intelligence, at Stanford, by Sebastian Thrun. Why, one might think, would these institutions risk undercutting their most desirable residential offerings by making them freely and universally available? One reason was a desire for greater reach. Another was a belief that online courses were unlikely to cannibalize demand for residential programs—and that even if they did, that it was the right move. "Cannibalize yourself" has become a familiar refrain in business; indeed, many of us at HBS had been preaching it to companies for years. It's a sensible prescription when the threat of disruption is real. But again, few of us believed this was the case for us. At some point we might be forced into offering our MBA courses online. But we weren't going to start there.

So we began instead by asking: Who should we offer online courses to? To answer this question, we began by considering those learners closest to home—our own MBA students. In doing so, we identified a problem with our MBA program that had nothing to do with the program once classes were in session. It was a problem that occurred *before* the sessions started.

Roughly 15 to 30 percent of Harvard MBA students matriculate with little or no background in the basic language of business: accounting, economics, data analysis. (Some might think they have the requisite knowledge, but often realize later that they don't.) But knowledge of these areas—knowing how to read accounting statements, leverage economic principles in decision making, and analyze data—was essential to preparedness for our program, starting on day one.

For years we had tried to meet this challenge by offering two-week residential courses—primers—mostly before the start of regular MBA coursework. Some, like Foundations, offered exposure to a broad range of topics (problem solving, business history, economics). Others, like Analytics, focused on quantitative skills, finance, and accounting, accompanied by some online tutorials. But by the end of 2011, certain gaps in student

preparedness were visible. Foundations had long been done away with; Analytics, despite its effectiveness, reached only roughly 15–20% of the students, and the program had been recently compressed further from two weeks to one. By now, several faculty members viewed our ability to fully prepare our students for the rigors of the MBA program as being somewhat compromised.

Now this presented a near-perfect opportunity to rework with an online version.

In December 2014, four of us—Youngme Moon (who as the chair of the MBA program had, along with our dean, initiated conversations about HBX), Janice Hammond and V. G. Narayanan (who together led Analytics), and I—gathered in a basement conference room on the HBS campus to explore whether our pre-MBA courses should make up HBS's first online offerings. It didn't take much debate—we were all in. We would create three online courses—Accounting, Business Analytics, and Economics—covering the fundamental concepts needed before embarking on an MBA program. They were the "basic language of business." This was the genesis of our first online program.

Our foray into online education had started with two seemingly uneventful decisions: We would not touch our existing product, and we would start with a new offering for our existing students *before they walked onto campus*. It was akin to a company's offering a new digital product to its existing customers before they entered the physical store. Crafting digital strategy by focusing on your existing customers is often regarded as a recipe for failure. It can lead to organizational myopia, where a focus on existing customers' needs leads you to overlook what most other customers want. But the distinction between products and customers is often misunderstood in these debates. Reinventing existing products can be hard because architectures are inflexible; creating new products to serve unmet needs of your existing customers is not. And often it's *those customers'* unmet needs that are not just ignored, but present the most valuable opportunities to differentiate on. So, rather than looking far—to "noncustomers," to those at the fringes of the market, to those far away from our own organization—we started by looking close to home.

This decision—to focus on the needs of our own MBA students—had two further implications. We soon realized that the potential demand for the materials we were creating might extend beyond our MBA student body. Other business schools might want to draw on the same preparatory online materials for their own MBA students. Employers might find it

useful to offer these courses to their incoming hires. And undergraduates—not just those planning on getting an MBA—might find these materials valuable as they prepared for their own entry into the workforce.

This last point was particularly salient in light of the broader debates swirling around undergraduate education. The liberal arts had long been the cornerstone of higher education in the United States, but in recent years many had come to regard them as a luxury. The debate was often framed as "learn for a job" versus "learn for life," or "acquire marketable skills" versus "acquire a way of thinking." The debates were becoming increasingly heated. And no one was ceding any ground.

Although our first online program was conceived to prepare our own students—many of them formerly liberal arts undergraduates—for our MBA program, perhaps, if extended to a summer program for undergraduates anywhere, it could afford other students a chance to acquire an understanding of the basic "language of business" while still pursuing their passions for art history or literature, philosophy or chemistry. They'd acquire the critical thinking and communication skills that were valuable in the longer run, but be better prepared for their first day at work as well. This logic eventually gave rise to the name we'd ascribe to our online program—HBX CORe, or Credential of Readiness.

This was the first set of unforeseen implications that came from deciding to focus on the needs of our own MBAs. The second was that, like it or not, the quality bar would necessarily need to be high. Whatever we did online for our incoming students, we would need to create a "wow" experience, something comparable to what they'd encounter in our residential classrooms after they arrived on campus. CORe, after all, would be their first learning experience through HBS. It wouldn't do for the experience to be anything less than what they'd get on campus.

This last aspiration appeared to be no easy one, perhaps even a fool's errand.

A DIGITAL-FIRST APPROACH

We quickly realized it would be impossible to simply mimic our residential experience online. If we tried, we'd probably fail. So we decided we had to go "digital-first." Whatever we created would need to offer something that *only* online platforms could bring to the learning experience.

This realization moved us even further away from the "flipped class-room" approach. As attractive as the flipped classroom was, irrespective of how HBS taught, it contained a basic challenge: It was "classroom-first." Moving online that part of classroom instruction that involved little inter-action was appealing for the *in-class* learner—but it also had dispiriting implications for the *online* learner. He or she, after all, would now become subject to the same lecture approach that classrooms were trying to get rid of. Even in the case of HBS, where in-class learning involved active dis-cussion, merely recording these conversations for online learners wouldn't be stimulating or inspiring, we felt.

Let's embrace the digital medium for what it can offer, we argued. Let's imagine new possibilities there, ones that would moreover elevate online learners to prime-time status.

"Digital-first" came from a belief that if we tried to merely copy what we did in the classroom, it wouldn't work. Instead, digital-first meant that we'd distill the case study approach down to the basic tenets that made it so powerful, and then reimagine how each of those tenets might be ex-pressed online. We'd be borrowing the principles, not the particulars. Ev-erything else, we would try to forget. "Forget and borrow" would become a familiar mnemonic in the subsequent evolution of HBX. It was inspired directly by the experience of media firms like Schibsted and others.

What were the core principles? We identified three: real-world problem solving, active learning, and peer learning. Real-world problems defined case method learning. As with traditional cases, we'd motivate the learn-ing of each concept with stories of managers confronting real dilemmas that brought the concepts to life. Active learning required students not just to read or hear material, but to immerse and engage, reflect and dis-cuss. Case learning was a "lean-forward" approach; we'd want to create the same experience online. Peer learning was central, too—students would learn from each other.

We spiritedly brainstormed ways that we might bring these principles to life online. We knew there were some things we couldn't do as well, online, as a classroom could. But the question was whether we do other things *better*. Ideas began flowing. Short, dynamic videos of managers nar-rating case stories could be more engaging than traditional textual narra-tives, for example. Interactive exercises or graphs could be a better way to learn a concept than just seeing a drawing on the blackboard or a written formula. Students could ask questions at any time, unlike in the class-room, where airtime was scarce. Each could be required to reflect on their

learnings before moving on. Those reflections could be shared instantaneously and widely. Students could slow down or speed up a video according to their needs. Several professors could be showcased in the same course or even in a single lesson, rather than having students exposed to a single voice only.

We came to realize that the digital medium itself wasn't an obstacle to creating a great online experience. Only our imagination was.

As we brainstormed ideas like these, we reached another sobering conclusion. There was no existing online learning platform that would let us create the experience we wanted. We'd need to build one ourselves, and fast.

We had no idea how to do this. It was no coincidence that all the major online education platforms had been built by computer science professors. We asked some colleagues from our information technology group to help us think through the possibilities. They did so enthusiastically, listening to our (we hoped) bursts of inspiration and sometimes (we suspected) outrageous ideas, letting us know what was feasible and what wasn't. As ideas were exchanged, something even more important was occurring: A continuous feedback loop between our content and technology teams was forming. This would be a pivotal point for us, and would create a culture that would anchor HBX in the months to come. If a faculty member had an idea, it could be implemented on the platform at very short notice.

FROM STRATEGY TO LAUNCH

QUESTIONS THAT MATTER

Our conversations were at times messy and chaotic—as conversations about product development or strategy often are. But beneath it all were two questions that formed a clear thread connecting everything we discussed. They were the two basic questions every strategist must ask: Where should we play? And how can we win there?

These aren't complicated questions. But it takes real effort to answer them. In our case it would have been easy to be seduced by the rhetoric surrounding online education. "Democratize education." "Flatten the world." "Embrace new technologies." These statements had undeniable merit, and they were motivating us too. But, while these statements might point generally to where the world of online education might end up, they weren't particularly useful in guiding any individual decision. The fundamental questions of strategy still mattered. Who's the learner? Where to differentiate? How to create a digital-first experience?

As universities or online platforms craft their online strategy and targets, a few axioms emerge time after time. "Have the broadest impact" is one. "Achieve maximum reach" is another. The means cited to reach these targets is also often the same: Offer great courses with star faculty, and learners will follow.

These aren't unreasonable approaches—until you realize that they offer little help in understanding who the learners are or what they actually care about. It's like offering a product in search of a customer, rather than the other way around. It would be taking a classic product-centered approach, rather than a user-centered one.

Starting with the simple question—"Who's the learner"—shifted us away from a bias toward content and faculty. And it mattered. Knowing our MBA learners, deeply, made it easier to know the range of materials they'd need in CORe to be equipped for our MBA program. It allowed us

to know exactly where they struggled, and what concepts were essential to cover. And it set for us a clear quality bar.

Another consequence of not knowing your learner has to do with the metrics so often cited: reach and access. Having 100,000 students register for your online course had come to be accepted as a marker of success. But completion rates were low, typically in the single digits. Naturally, these figures had come to fuel skepticism about the online education trend. *The New York Times*'s 2012 "Year of the MOOC" gave way the following year to NPR's "The Online Revolution Drifts Off Course."

Focusing on the individual learner meant that we focused—ruthlessly—on a single metric: engagement, not reach. If we could crack the code of engagement, we felt, reach would follow.

PRIORITIZATION VERSUS EXPERIMENTATION

By early March 2013, the CORe offering was on its way to being crystallized. At the same time, hordes of other opportunities began surfacing, ones that might naturally fall under the umbrella of "digital education" and HBX. Should we create a portal to connect aspiring entrepreneurs with advisers and investors? Should we create digital platforms to enhance our research efforts at HBS? Should we seek to maximize the number of our educational offerings or start narrow? Should we offer "how-to" tools for managers? Should we try to use digital technology to enhance our existing on-campus programs?

Strategists and entrepreneurs are often viewed as operating in different worlds. The world of strategy, it is argued, applies to big, mature organizations whose ways of competing and competitors are well known, and where competing priorities are a reality. The world of entrepreneurs is seen as messy, innovative, and unknown. There, the priority ought to be to grab every opportunity that comes along, since it's impossible to know which might resolve in your favor.

This distinction is a red herring. Mature organizations also need to innovate. Young organizations also need to prioritize. During the early days of HBX, while we were trying to innovate, we were also being forced to prioritize.

Over the next few months, we got used to saying no. We decided to experiment with one more type of offering, short online courses for senior

executives (Clay Christensen agreed to create the first one on, ironically, Disruptive Strategy—his research area). We couldn't take on more projects because we didn't have the resources—time or money—to devote. We didn't need to have a thousand flowers bloom. We hoped only that what we created might improve online education in some way. It was a seemingly odd juxtaposition of the worlds of strategy and entrepreneurship. And it turned out to be best captured in an informal directive from our dean: "Be as creative and as entrepreneurial as possible. But failure is not an option."

As our conversations about portfolio strategy were getting clearer, another clarifying event would soon take place. The irony wasn't that it surprised me, but that given what I'd been writing about, it shouldn't have.

A CLARIFYING EVENT: USER CONNECTIONS AND SOCIAL LEARNING

By May 2013 we were rolling. We were building the platform, hiring videographers, making calls on pricing, and architecting the content for each course.

For that last activity, in addition to hiring course research assistants and engaging some of our doctoral students, we enlisted three outstanding second-year MBA students to offer their input. If we were going to create a compelling and engaging online offering for entering MBA students, who better to inform the content creation process than our own students?

We met regularly to brainstorm. Three months in, I realized the MBA students had been saying something we hadn't been hearing. We'd been discussing the principles that made in-classroom case discussions work for months now. But our students were describing ways in which learning occurred *outside* the classroom as well—things that we ought to think about re-creating online. They talked about pre-class study groups, post-class emails, corridor conversations, lunchroom debates, and dorm room arguments. Those seemingly accidental peer-to-peer interactions were as much a part of case method education as anything else, they said.

Social learning had been one of our anchoring principles. We knew that the case approach relied heavily on students listening to and learning from one another. But we had paid little attention to the full scope of what that

really meant. Instead we'd focused our efforts primarily around course architectures, platform design, and teaching quality—in other words, on delivering great content.

We were falling, remarkably, into the Content Trap.

It was a eureka moment. "We've spent 97% of our time on content creation and active learning, 3% on social learning," I wrote in a note to myself that month. "We need to dramatically reverse this emphasis: 97% social, 3% content." As it turned out, Moon was independently arriving at the same conclusion.

Over the next month, we focused on everything we could do to enhance the social learning features of our platform. Our faculty team had a series of meetings with our technology team. We threw out dozens of ideas. Nothing would be rejected offhand. Open the platform with a global map showing where students were at any moment, we envisioned. They'd know one another's identity: Anonymity and pseudonymity were out, profile pictures were in. Have students provide lots of information about themselves. Update interactive polls in real time to reflect everyone's answers. This seemingly small innovation could create a learning moment—the surprise that occurs right after you've answered a question, when you realize that many others answered it differently. Replace text-based answers with assignments that required students to upload photos that showed their understanding of concepts—and then make the images searchable. Prompt spontaneous virtual debates. Create study groups on the fly so that learners who'd reached the same point in the course could discuss a concept between themselves. Even try an online "cold call."

Cold calls are the most famous teaching technique in a case method classroom. An instructor might ask a question of any student at random, at any point during the class. The question could be simple or hard, conceptual or analytical. The instructor might move on quickly or probe the student for several more minutes. Cold calls are central to the Socratic approach. They are dreaded by students and often remembered for years afterward.

What makes the cold call so effective, we asked? It encourages preparation, of course—students have to be alert throughout class. It lets students learn from one another, and even from their mistakes—after all, rarely is a student's first instinct entirely right. And it can be terrifying because it's social: You have ninety students staring at you, in what often seems interminable silence, while you prepare to speak. It is, ultimately, the social pressure that makes cold calls so powerful. "We're far more afraid of embarrassing ourselves in front of our classmates than in front of

the professor," numerous students had told us over the years. Now, as we thought about social learning online, we wondered how to capture that power for HBX.

And just like that, we created the HBX cold call. The design was simple: A pop-up would randomly appear as a student progressed through material online. It would present a question that had to be answered within a minute—a clock was ticking on the side—in thirty words or less. And the answer would be visible to everyone in the cohort, along with the student's profile picture to boot. This would be one of many features on the HBX platform to combine active and social learning.

The social features we designed were intended not just so that students could engage one another; we wanted them to help one another, too. But how? Discussion boards were common in online education, but rarely effective. Fewer than 10 percent of students participated in them. One reason why most stayed away was that they could be tedious to navigate. They were normally set up as "sidebars" to online course pages, and learners could post questions on any topic, at any time—but that made searching hard. Another reason was that students often had had no incentive to answer other students' questions—the most popular online courses often had armies of teaching assistants ready to jump in and answer questions themselves. And, on top of all this, students needn't register under their real names.

To address these challenges, we started with a simple design: Course materials were broken down into discrete lesson pages, and discussion boards were "local" to every page on the platform. Questions on a page could be triggered only by that page's content. It was a small feature, but it encouraged peer interaction by making search easier.

Then, we added explicit incentives. "Gamification" had increasingly populated the online world. The idea there was to reward participants for particular behaviors. Sometimes incentives worked well; other times they seemed gimmicky. But online education had one advantage over gaming and media companies: Participants received grades. So we decided to tie grades to participation. Answer other learners' questions and your course grade will improve. We'd graded students in our residential courses this way for years.

During the previous decade, social networks had exploded, and so had the study of them. One question receiving attention had to do with why some social networks succeeded in encouraging certain behaviors, while others did not. For example, how did LinkedIn encourage participants to post work-related information, whereas Facebook postings were more per-

sonal? Why were users on Friendster interested in dating rather than building friendships, as its founders had intended?

One emerging and powerful insight was that success rested on attracting the "right" users, giving them the "right" incentives to participate, and providing the "right" tools to engage in certain behaviors—it wasn't about platform quality or social features per se. We'd been teaching those principles to others, and now we put them to work ourselves. For every social feature we ideated, we encouraged our team to ask: How can we ensure that we elicit the right behaviors, attract the right users, and give them the right incentives? Our rules should be simple enough to understand but not so transparent as to be easily gamed.

The conversations about social learning resulted in a shift in emphasis around our platform design—from making it merely interactive to making it social, too. Our design principles for HBX were crystallizing. In May 2014 we sketched a four-layered design around which we would center our pedagogical approach (see Figure 27). The layers corresponded to four forms of learning: passive, active, adaptive, and social. The central question guiding us was how to boost engagement through each form.
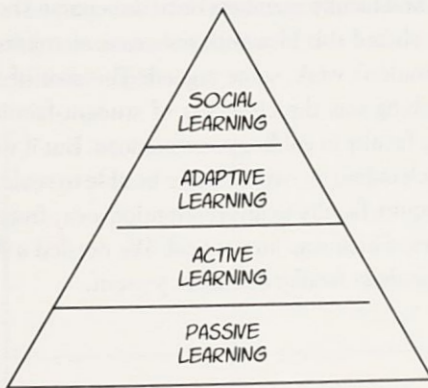
Figure 27: Four Layers of Learning

Passive learning was the simplest layer. Users could watch and listen without much effort. But it needn't be boring. Keeping videos short, enhancing the quality of animations, and grounding theoretical concepts in real-world examples were all ways to heighten interest.

Active learning was the second layer: Get users to do something. The principle of "trying and failing" underpins the case method in our class-

rooms; online, we would follow the same strategy, the key being getting students to try. Polls, reflections, cold calls, and interactive features were all examples of active learning. We would stick to a "three-to-five-minute rule"—learners couldn't go by for more than three to five minutes without doing something active in that time. This would differentiate even our video clips from typical MOOCs.

Next was adaptive learning: customizing learning to the needs of every individual. Online learning is by its very nature adaptive—learners can move through material at their own pace. But numerous other possibilities for customization existed. Get a question wrong, for example, and you could be given more until you got the answer right. Elementary and middle school kids were already learning math on platforms like IXL, which embodied this principle impressively. The problem was that the technologies needed for more sophisticated forms of adaptive learning weren't there yet. So we decided to focus on that later, and concentrate on optimizing other things for now.

Social learning was layer number four. This, as much as anything else, could differentiate our platform, we felt. We needed it to work well for another reason—namely, we weren't intending to have any live interaction between learners and faculty members once the course started.

When we first shared this idea with our team members, several were taken aback. It wouldn't work, some argued: The root of our success in case method teaching was the closeness of student-faculty interactions and the role of the faculty in guiding conversations. But if we pursued that classroom approach online, we would never be able to scale. Online learning would then require faculty to divert attention away from their residential responsibilities, which was impractical. We needed a learning model that worked well *without* faculty members present.

CAN QUALITY ONLINE EDUCATION SCALE?

The question of how organizations scale is crucial to most businesses. Thinking about it may require testing your assumptions about what's really important about what you're offering. The traditional circus industry is a case in point. Marvelous as the experience for circus-goers was, the industry had not succeeded in scaling for a hundred years. On any given day the circus performed in a single city; only when it was done there did it move on to another

location. This was because trained animals and their handlers (particularly lions and lion trainers), often the centerpiece of the circus experience, were extremely hard to come by. By the late 1990s, a relatively new industry player, Cirque du Soleil, had not only carved out its own unique position, but also scaled up impressively, simultaneously offering shows in multiple locations around the world. How did it do so? Not by finding more lions and lion trainers, but by getting rid of them. That had meant questioning an old assumption—that lions were necessary for a great circus experience.

By now, most online learning platforms were gravitating toward one of two alternatives. The first was designed to scale—lecture formats in MOOCs, for example, were easily broadcast to hundreds of thousands of learners. Where they were challenged was increasing individual learner engagement. The second, and opposite, route focused on "active learning"—creating a rich, personalized experience for every learner, typically with faculty participating in live, small-group discussions with ten to twenty students. The result was often a superb experience for each learner—but the model was hard to scale. Either one needed more faculty, or existing residential faculty had to do more work.

As we designed HBX, this was a major issue. We sought *both* engagement and scale. The only way to achieve that was to avoid any live interaction with a faculty member. During one of our early conversations, we captured this idea on a simple chart.
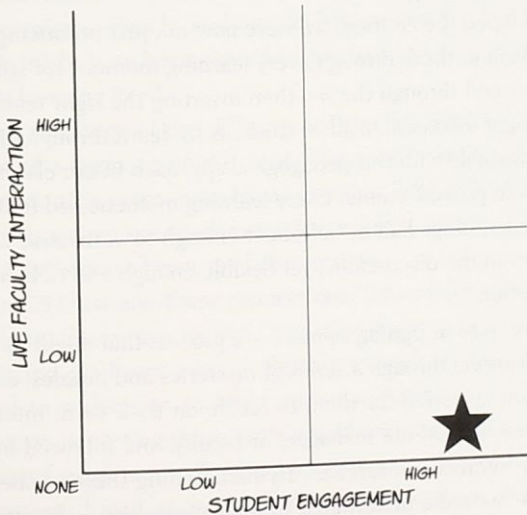

Figure 28: Scale Versus Engagement

Should we try this? Yes, we felt.

But how to achieve it? Few faculty members anywhere believe that one can have high learner engagement without live interaction with faculty members or teaching assistants. In fact, as online platforms sought ways to charge for a premium online learning experience, the dominant view was that faculty members should offer online office hours, live chats, and other kinds of interaction. We looked to reverse this approach.

To do so, we carefully thought through each part of the faculty role in the classroom, and how we might automate it. In class, faculty members guide the discussion when it veers off-topic. To achieve that online, we would allow for discussions at various points; then, anticipating how those would generally evolve on the basis of our classroom experience, we would inject prerecorded faculty videos at the appropriate moments to keep them on track. In class, faculty help generalize beyond the particulars of the case at hand. Online, we would insert questions that forced students to consider how concepts applied in different settings. In class, faculty members encourage students to reflect. Online, we'd insert "shared reflections" at key moments too. In class, faculty members ensure that students paid attention. Online, we would use the cold call. In class, faculty members answer questions. Online, that would have to rest on peer learning. This last feature meant that making social learning work wasn't just a luxury for us now; it was necessary if we were to scale. And it would test our faith in peer learning.

As we developed the courses, we were now not just producing the materials, but trying to think through every learning moment for students as they might proceed through them—then inserting the right teaching elements at the right moments to allow students to "learn through discovery." We were comfortable with this pedagogical approach in our classrooms. It was far harder to pull off online. Every learning moment had to be anticipated. Course learnings had to be robust enough to withstand variations and digressions in the discussions, yet flexible enough and rich enough to allow conversation.

In effect, we were designing a *process*—a process that might be thought of as guiding learners through a series of mysteries and puzzles, each time unlocking a new question for them to tackle on their own, interspersed with short videos of real-life managers or faculty, and followed by reflections, polls, or interactive exercises. By hard-coding these elements into the course flow we were determined to make ourselves as faculty redundant once the learning process began.

If we were successful in doing so, we felt we could reverse, for us, the economics of creating online courses. Traditional online offerings were relatively straightforward to create: Use a camera to record faculty lectures, stream them online, then add assessments. But while the up-front cost and effort might be fairly low, enhancing the student experience *after* the course started required ongoing faculty time and high ongoing effort. We intended to do the opposite: Our approach would demand a high up-front time commitment from our faculty but virtually no ongoing effort.

Could we succeed? We had no idea.

STRATEGY-SETTING AND FUNCTIONAL CONNECTIONS

By the end of the year, we had formulated an approach that differed from the "MOOC model" in many respects: selective versus open, proprietary platforms versus common ones, gated access versus flexible schedules, real identities versus virtual ones, paid versus free, and so on. To an outside observer, it could be tempting to ascribe these differences to different objectives: for example, that the paid model was a result of prioritizing monetization over access; or that the "platform build" decision resulted from an organizational preference for control. Our decision to eschew live faculty interaction might be viewed as an indication that we weren't taking online learning seriously, and our decision to restrict the release of new materials might have been viewed as puzzlingly at odds with the flexibility of online learning itself.

In fact the range of our differences from the MOOC approach didn't arise out of a desire to be different. They arose almost entirely from our different starting point: case-based learning. The philosophy of student-centered learning spawned every subsequent choice. Our differences from MOOCs arose because of connections.

Figure 29 illustrates these connections. "Learning by discovery" sparked ideas about interactive features and assessments—and the recognition that existing platforms weren't flexible enough to accommodate them. That led to a decision to build our own platform—in turn generating higher costs. Covering those costs would require a fee-based model. But fees created expectations for support, in turn further increasing costs. To then preserve broad access, we offered financial aid. And to verify aid need, we relied on college partnerships.

Peer learning had a domino effect on other choices, too. Students would need a *shared* learning experience—otherwise conversations would be fragmented. Shared experiences required a restrictive approach to content release, so that students would work through the courses more or less in tandem. They also required a linear flow through material, rather than allowing students to jump around or mix content from different modules. And they meant that high continuation rates were essential—if large numbers of learners dropped out, peer conversations would be disjointed.
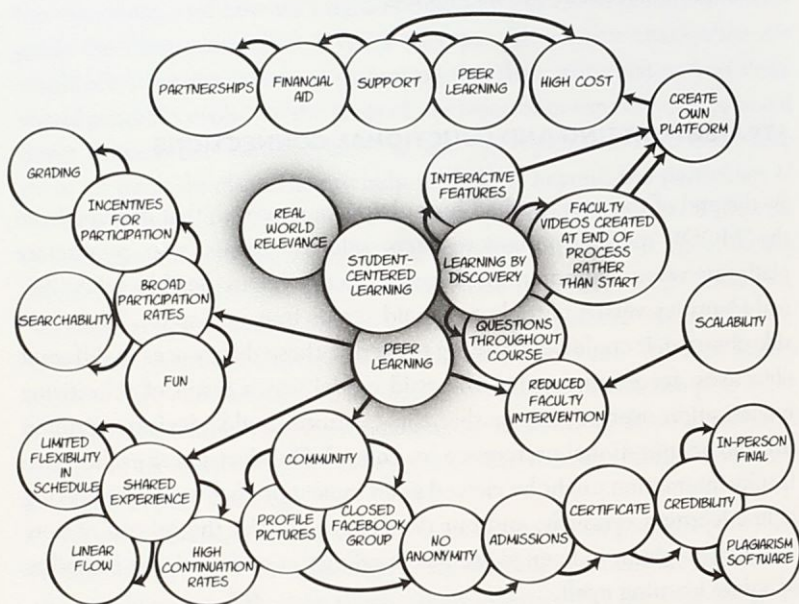

Figure 29: HBX: Elements of Strategy

Peer learning also required appropriate incentives—grades. It required that discussion forums be easily searchable. It required familiarity among participants. This led to our restricting the size of any single community of learners—larger waves would be divided into smaller cohorts. It was why we required participants to disclose their real identities and supply personal profile information, rather than be anonymous. It was why we created a closed Facebook group—to amplify social relationships. It was why we selected learners rather than letting anyone enroll. It was why we restrained content teams from intervening too often.

In other words, the differences between our model and the typical MOOC approach arose not as a series of coincidences, or from an innate

desire to depart from that model in every way. They arose because the decisions we were making around price, platform, support, grading, community, admissions, and partnerships were deeply connected to one another. These are the functional connections that underlie strategy. In effect, it was a reprise of Schibsted versus *The Economist*, Walmart versus Target, and Edward Jones versus, say, Merrill Lynch.

View the differences in approach through this lens and you'll see prescriptive implications for other online learning strategies and the "right" approach. It could be tempting to argue that launching online courses free, quick, and open—the MOOC approach—is the "right" model for online education. That would be incorrect. It could be equally tempting to conclude that building proprietary platforms, targeting existing learners, having little faculty interaction—our approach—is the right one to pursue. That, too, would be incorrect. Our approach was triggered both by *our* own needs and our strengths, even as it was inspired by the practices we were seeing elsewhere, including in the MOOC world.

This is the heart of differentiation and strategy. These are the sorts of differences that have played out in many industries, analog and digital, in recent years.

CHANGE—AND A WORD OF CAUTION

Confronted with technological change, organizations often fail. By now, we know many of the reasons why. An organization might be rigid and inflexible, tied into existing ways of doing things. Managers may not want to change—they might be unwilling to take on multi-year transformation efforts or to trade sure near-term bonuses for risky longer-term payoffs. They may not even see a threat coming, being too focused on existing customers and products.

Sometimes, perversely, organizations fail because they are successful: Winning strategies contain the seeds of their own destruction. Effective strategy, after all, requires tailoring everything you do around serving a certain set of customers. But, as we've seen, that requires coordination across all parts of your organization—functional connections. And although these connections bestow success, they are also hard to unravel and change easily.

These reasons for organizational failure have been understood for a

while. As we proceeded with our efforts, we were acutely aware of them. But, over the past decade, one idea had risen above all others in popular discourse: Clay Christensen's theory of disruptive innovation, generally regarded as one of the most influential ideas in management during the last decade.

Christensen himself had predicted the disruption of K–12 education ten years earlier in his book *Disrupting Class*. By now, analysts, entrepreneurs, and investors were warning about the impending disruption to higher education as well. So was the media: "Online Education: The Disruption to Come," noted *The Economist*; "Higher Education Is Now Ground Zero for Disruption," announced *Forbes*. What did it mean for us? More important, what did it mean for other institutions trying to carve out their own path? Disruption prescriptions—launch fast and free, to learners you've never served—were being followed by many institutions. They'd become a rallying cry, even a crutch, that many administrators were turning to for guidance on what to do. But there were reasons to exercise caution.

It's useful to first understand what the theory of disruptive innovation actually says.

Originally articulated in the mid-1990s by Christensen and his adviser, longtime HBS professor Joe Bower, the theory has been refined by others and applied to numerous technologies and industries. At its heart, though, are three simple and perhaps frightening observations.

First, incumbents get disrupted by new technologies not because they are unaware of them or unable to embrace them but because they rationally choose to ignore them. Why? New technologies often express themselves initially in products that are inferior in quality to existing ones. So firms focus on the needs of their current customers and rationally reject newer but lower-quality alternatives.

Beware of this, Christensen says: The behavior of customers on the periphery is often a harbinger of what's coming in your core business. This goes to his second observation: Things can change, sometimes quickly. Competitors who appear unthreatening today will migrate up a "quality spectrum" and become threatening tomorrow. In this sense, the theory warns against a static, once-and-for-all view of customer needs or competitor behaviors, and against ignoring those products or companies with ostensibly worse product quality today.

This leads to the third and related observation and prescription: Don't be too protective of your core. Eat your lunch today, or others will. The only chance of success, Christensen argues, lies in creating a separate

organization that disrupts or destroys your core. It's the only way to be free from both the shackles and the seductive riches of your existing one.

Christensen documented these concepts in the context of steel mills, showing how high-cost incumbents like US Steel ignored low-cost "mini mills"—and eventually saw much of their business destroyed. Low-end rebars, he noted, were ignored and willfully ceded by high-cost incumbents like US Steel to lower-cost entrants. The decision to do so seemed fully rational at the time. Fast-forward thirty years, however, and these very same entrants were making steel of comparable quality, at lower cost, destroying the business of erstwhile successful incumbents in the process. The quality migration over time was documented clearly by Christensen, and the pattern used to describe similar dynamics elsewhere.

As examples from other industries accumulated, the theory of disruption gained credence as an explanation for what was wrong with incumbent organizations and why they fail. It became a metaphor for what Silicon Valley represented. And it was applied to a broader and broader set of industries.

And this is where its Achilles' heel also surfaced. Disruptive theory began to be seen as applying everywhere and to everything. Only, it didn't.

Part of the reason was that the vernacular of disruption became increasingly divorced from the original theory. Popular use of the term had butchered the original idea, and far outdistanced Christensen's definition, much to his own chagrin. Over time *disruption* came to mean different things to different people, embraced—and often misused—by managers, investors, and entrepreneurs to marshal arguments that served their needs. But the theory itself had built-in limits.

To start, there was the question of empirical universality. Disruptive innovation is at its heart a story of certain *industry-level* trends—not a story of every industry or of every firm within disrupted ones. Christensen had recognized this a few years back. Hotels, he'd noted, were not being disrupted by new technology, because there was no common "technological core" spanning different hotels. The more general point was that disruption is hardly a law of nature, as so many observers had come to believe. It is merely a possibility.

In addition, "disruptive dynamics" in practice needn't always start with low-quality alternatives. They could come from the high end, too. Apple's was the most expensive smartphone in the market when it came out, in 2006—and the most "disruptive" innovation in the phone industry for thirty years.

More salient for content businesses, the real threat came from elsewhere. Most frightening to book publishers wasn't the rise of self-publishing. Nor were Hollywood studios terrified by YouTube videos, bestselling musicians by YouTube covers, or *The New York Times* by bloggers. In each case, the far more relevant threat came from a different source: aggregators, platforms, and networks. In other words, the threat wasn't from low- or high-quality content alternatives; it was from businesses that exploited user connections.

The relative importance of "network dynamics" over "quality dynamics" was increasingly relevant in education as well. Initially higher education institutions were probably not worried about Lynda.com—a company that had been offering moderate-quality short video tutorials for software and business professionals for a decade—and perhaps rightly so. But in 2015, when that firm was acquired by LinkedIn—a business rooted in network connections—they instantly were.

Disruption theory warned incumbents about being too focused on their current customers. But increasingly, organizations were falling into a different trap: focusing excessively on current products. Recording studios had missed the opportunity in concerts by focusing on CDs. Newspapers had missed the opportunity in classifieds by focusing on news. Cable companies were increasingly threatened by Netflix not because they were too focused on customers; rather, they had focused obsessively around their product—content and pipes. In each case, the needs of *current* customers were unmet. Customer-centricity wasn't deadly; product-centricity was.

And, even if disruption was evident, the solution offered to incumbents didn't always follow. "Separate your innovative organization as much as you can from your core." "Launch quickly, at the low end." "Learn and improve over time." These prescriptions had a certain appeal; indeed, some organizations would have done well to follow them more closely. But these prescriptions too assumed an uneasy air of universality over time, and they collided with a core principle of good strategy: the value of being different.

Disruption theory led to a mindset that framed new technologies as substitutes for existing ones, rather than recognizing their potential as complements. It might explain the failures of organizations like *Newsweek* but not the simultaneous success of ones like *The Economist*. It extolled the advantages of separating start-up efforts from the core but not of reintegration efforts like those that had worked at Schibsted. It emphasized

forgetting, not the virtues of forgetting *and* borrowing. Ultimately, it created a narrative centered on negative connections, rather than emboldening a focus on positive ones.

We were both informed and challenged by disruption theory in trying to figure out the right course for HBS, even if ultimately we did not follow many of its prescriptions. Trying to compete in online education by following the same approach as apparent "disruptors" at the other end would have made little sense. It wouldn't play to our strengths or leverage our existing capabilities. It might undermine some of our core assets, even the school's brand. Most important, it was not the only way forward. All of us involved in creating HBX became convinced that being "different" would be a virtue rather than a liability as we charted our course. We were confident, but far from certain. Things were evolving far too rapidly, and the behavior of online learners was far too unfamiliar, to warrant that.

LAUNCH AND RESULTS

Website Launch

We opened the HBX website on March 21, 2014. The site and everything about it—its tone, style, and content—were designed to convey three messages. First was our aspiration for online learning. We were embracing digital technology in a big way for the first time, and were trying to make online learning as engaging and powerful as the HBS classroom experience. Second, in order to do so, we were going to build directly on our strengths—the case method pedagogy. The primary screen shot on our website was not of an online learner but, seemingly counterintuitively, was of a traditional HBS classroom. We were signaling that we were approaching online with a distinctive teaching perspective in mind. Third, our approach would not be for everyone. We were looking for serious learners, not tourists; for active learners, not passive observers; for those committed to helping others, not just to learning on their own.

And there was the price. We would charge $1,500 for the first CORe program, lasting roughly ten weeks. But we'd provide financial aid to those who needed it. Our intention was clear: We would not restrict access on the basis of financial ability, only on the basis of motivation and commitment.

The price of CORe was a matter of internal debate. Like any such decision, it would be discussed by outsiders, too. HBS was not being ambitious enough about online learning, some might say, in prioritizing selectivity over scale. Others might worry about the opposite: By charging roughly one-thirtieth the cost of an MBA degree, we were making the brand too accessible and risked cheapening it.

If we attracted both views, some might say, then we were probably doing something right. But both views were, to our mind, incorrect. We didn't lack ambition or aspirations for reach and scale. But we had a degree of uncertainty, too—we would open up to more learners only *after* we knew the initial program worked. As for cheapening the brand, on an hour-by-hour basis the costs were roughly identical.

Charging for our online programs was intended to generate revenue and increase our odds of making the enterprise sustainable. Most other online platforms were struggling with sustainability. But our reason for charging was rooted in another belief, too. Offer a course for free and anyone will sign up—including those without motivation, ability, or commitment. That would be fine, we felt, for a solitary learning experience. But peer learning was central to our approach. To rely on social learning, you need to attract the right learners. Unmotivated learners might otherwise undermine the experience of those who were motivated. We couldn't afford to have 90 percent of learners withdraw—the typical dropout rate for MOOCs. Non-completers would have a negative externality on those who stayed in. Price could serve as a signal of motivation: Anyone who dared to pay $1,500 for an online program they'd never heard of should be committed to it.

Choosing paid versus free, in other words, wasn't only about generating revenue. It was about being consistent with the learning principles on which we were building HBX.

In early April, we presented HBX to our faculty colleagues. Until then, we'd operated in relative obscurity—separating the HBX project from the day-to-day rhythms of other campus programs and operations, with the exception of the faculty (who'd continued their regular campus assignments) and key staff hires (our executive director and a few staff members were "borrowed" from our MBA program, though many were hired afresh from the outside). The HBX team was located less than one-quarter of a mile from the main campus—close enough to tie in with the parent as necessary, yet far enough to confer a license to be different. Both the faculty dean and head of HBS staff had been involved in conversations

throughout. Now, two months before program launch, we shared HBX in full detail with the rest of the faculty. The reaction was very encouraging. The dominant sentiment was that if we were going to do anything online, this was the way we ought to proceed. Now we could only hope it worked.

Will Anyone Enroll?

On April 11 we opened our website for applications to the CORe program, engaging in what I good-humoredly referred to as "silent marketing." HBS is not used to marketing its MBA program. When we open our website to MBA applications every fall, hundreds of applications stream in during the first few days alone. But who knew about HBX and CORe? Who would be willing to pay $1,500 for an online program no one had ever experienced?

A day later, the first application came in. There was a cautious cheer within the HBX team—until we realized the applicant was ineligible: He was from a college in California.

We had imposed a Massachusetts-only restriction. Why, when in principle online businesses are designed to break geographic boundaries? It reflected caution—we needed to learn on a small scale before rolling out everywhere. Local students could be more easily engaged for follow-on feedback and surveys, and having learners in the same time zone would make it easier for our technology and support team.

The first applicant from the Bay State came on the third day. Other applications trickled in. We informed our own undergraduates about the program, and alumni, too, in case their children or grandchildren were interested. We distributed flyers to other local colleges. By the time we were ready to start the program, we'd admitted just over 600 students.

Program Launch

At noon on June 11, with excitement and nervousness, we launched CORe to our first set of learners, whom we later affectionately dubbed the "pioneer" cohort. Within minutes, participants began uploading their profile pictures and personal information—over the next nine hours more than 300 participants did so. More astonishing still, there were more than 13,000 profile views on the first day alone—an average of more than forty

views per participant. It was striking to see the online learners simply wanting to "check one another" out—and the first vindication of our belief in social connections and community.

The HBX team was glued to a big screen that day, tracking participants' activities. Some learners logged in, spent a few minutes registering, and logged out. Others dove right into the course content. The typical learner spent about thirty minutes on their first foray into the platform.

That evening we noticed something remarkable. One participant, Layla Siraj, completed the first module of all three courses by 9 P.M. We had designed this work to be spread across a week and a half and to take roughly fifteen hours. She had done it in one nine-hour stretch on the very first day.

Siraj was a rising junior at Harvard College, majoring in organismic and evolutionary biology. Her astonishing speed forced us to ask ourselves: Did we pace the program right? Is it too easy? Was Siraj simply too smart? Around the same time, I received an email from Siraj, unexpectedly. "I'm so excited to be starting HBX CORe," she wrote. "I am absolutely loving the program—it is so hard to tear myself away from the modules. Thank you for creating such an amazing experience."

Perhaps HBX would work after all.

The first day brought many emotions for our entire HBX team. There was satisfaction—we'd created the first online program at HBS. There was relief, and burnout—we'd met a tough deadline, after spending months of sleepless nights and with little time for our families. And there was a great deal of pride.

Over the next few weeks messages from other students appeared. One user posted on Facebook, "This is the most collaborative learning experience I have had in my entire life." We tracked the conversations between students and saw them gain momentum. As questions began popping up, our content teams monitored the boards, ready to intervene—but only if answers didn't appear, or if the wrong ones did.

For the first three weeks, the number of times our content teams intervened on the peer help forums was exactly zero. Nearly every question a student asked was answered correctly and precisely by some peer. Social learning was working better than we could have imagined. It was also slightly unnerving: Given the right incentives, platform, content, and curation, students could do without us.

We were seeing the power of user connections, in real time.

Learnings and Surprises

When the first program ended, in September, we tracked outcomes. The completion rate of the first cohort was 86 percent. Engagement scores were comparable to the ratings in our residential programs: more than 90 percent of participants rated the program a 4 or 5 out of 5. Student feedback was remarkable: "One of the greatest learning experiences I have had in my entire life," and, "This is the best proxy for any classroom experience that I have seen so far." One student wrote: "It felt personal." We had never met this student.

This was our first conclusion: Online learning can be highly engaging for some of the most demanding learners from elite institutions—even in a fully automated experience, without any live faculty interaction. We had created the conditions for scaling HBX.

Students found the program demanding and rigorous, a view that would be shared by subsequent cohorts. Yet the pioneer cohort performed impressively—perhaps not surprising for students drawn from some of the best colleges and universities in Massachusetts, including Harvard, MIT, Amherst, Williams, Wellesley, Northeastern, and Tufts. Six months later we opened CORe to learners around the world, admitting more than 900. The diversity of the second cohort was extraordinary. A few weeks after the program started, one learner noted on a LinkedIn post:

> Remember when I said my expectation was to meet American undergrads? Well, there are definitely some of them in our cohort. But there are many other people, and their path to HBX is something you would usually find in the beginning of a Tom Hanks movie. We have a Navy captain, a bomb defuser, a Portuguese oncologist, a German engineer, a Canadian psychologist, an Argentinean brand manager, a South-African Master's student, and a rehab center financial manager from Texas. We have a couple of guys working in Wall Street. An Australian school director. Four Brazilian lawyers. A bunch of MBA students, a couple of economists, and many, many others. The diversity of this group is, without a doubt, its most valuable asset, and the different perspectives each student brings to the table in every discussion we have is what makes HBX truly unique.

We had expected the vast majority of CORe learners to be undergraduates or recent graduates, those just entering the workforce. Here again we were surprised. The age distribution spread wide: Half the CORe learners

rience. By the time it launched, we had run nearly seventy pilot sessions with faculty members and different groups of learners. Subsequently, we ran virtual reunions for our alumni, a live research seminar with faculty from nineteen universities, a pilot series titled "The Global Philosopher" with BBC Radio and Harvard colleague Michael Sandel, and we were starting to design entirely virtual executive programs. Our efforts to create engaging learning experiences on the online platform continued, too: With the launch of CORe and Disruptive Strategy behind us, more faculty colleagues began to create courses there, we were envisioning shorter-form content, and we'd started to design a mobile platform.

Where will this all lead? We aren't sure yet. But by creating two digital platforms through which we could now deliver learning experiences comparable to our residential classrooms, we were ready to envision a different future—combining residential and online learning experiences to create a true multi-platform education.

EDUCATION: WHAT LIES AHEAD

Online education efforts are proceeding in earnest. Yet we are still closer to the starting point than the finish line. As I reflect on the many efforts currently ongoing, it's clear that what we've learned about digital transformation, whether in media or elsewhere, over two decades, are not only relevant to a field like education; they are relevant in ways that even I did not fully understand or appreciate when I first joined our digital efforts.

By now three questions are central.

First, how does one offer the best content online, and the broadest selection of it, to reach the maximum number of learners? All the major platforms launched during the past few years—Coursera, Udacity, edX—have carved out strategies around this idea.

Second, will online education eventually be better than, or even displace, the traditional classroom? Pick up any article or listen to any debate about online education and this is the lens through which its promise and problems are seen. "Will MOOCs Kill Universities?" headlined *The Economist* recently; *Time, Fortune, The New Republic,* and scores of others have taken similar tacks. An equal number of commentators asked, "Is online learning a fad?"

Third, how can one get universities to move faster in their online efforts? With new platforms and ventures launched every few weeks, and new investors and business models introduced just as fast, the cost of not moving quickly is often said to be irrelevance.

These three ideas are now so commonplace that they've taken on an air of inevitability. Yet I would argue that they are all misplaced. And they reflect a line of thinking similar to what we've seen in other settings—the many industries described in the rest of this book. They exemplify the Content Trap.

The first question reflects a bias toward content rather than learning, toward a faculty-centered model rather than a student-centered one. The

bias comes from missing the role of users and the power of user connections.

The second question falls into the trap of seeing traditional and digital forms of education as substitutes rather than complements. It falls into the trap of distressing about the future of the traditional classroom rather than seeing how technology might augment it. It misses opportunities and product connections.

The third idea provokes organizations to follow the herd rather than figure out what's right for themselves. For universities, more than ever, thinking about the future of education calls for creativity, imagination, and courage. It's about strategy and being different rather than me-too. It's about context and functional connections.

Flip these questions around—much as classrooms are being flipped—and you might see opportunities you've never thought of. You might see ways to deepen relationships among students online, rather than believing that ties will inevitably be weakened. You might see the power of "digital-first" approaches in creating new and distinctive modes of teaching, rather than assuming that online education is destined to be inferior and commoditized. You might see ways to carve out unique strengths for your organization, rather than entering a race where you're likely to fall short.

You might see connections.

Recognizing and respecting these connections was ultimately at the center of our efforts at HBX. Positive connections are what spur new ideas in many other parts of digital education. They will be central to the future and the promise of online learning.

When classroom teaching is at its best, the reason isn't that it's in-person, but that it focuses on student learning. Conversely, most of the time that classroom teaching is passive, uninspiring, or unengaging, the reason isn't that the content is inadequate, but that the student experience is being neglected.

The surprising part about digital education is not that it's so different from classroom education in these respects, but how profoundly similar it has looked so far. The first wave of online courses was built around sixty-minute lecture videos from faculty. They aspired to reach millions of learners rather than understand the individual motivation of any one learner. They centered on content rather than experience.

These courses were transformative in moving online education forward, but they weren't necessarily a transformative experience for the learner. They were in many cases the same old classroom experience sim-

ply delivered through a new medium. It will take more than that to transform learning.

Where online education does work, it shifts the center of attention from faculty to student, from enrollment to engagement, from content to experience. The material in Sal Khan's academy isn't considered breathtaking in its delivery, platform, or content. But it's effective because it offers something profoundly valuable to students when they need it most: brief, no-frills explanations of useful concepts. Southern New Hampshire University has one of the fastest-growing online programs not because it has figured out how to teach masterful courses with dynamic new content but because it is masterful in keeping students engaged amid everything else going on in their lives by supporting them through a nattily branded army of "Sherpas." 2U offers effective online programs through university partnerships not because by doing so it can create the best courses but because it focuses on what else students need—brand credibility, degrees, and, above all, attention. And the Minerva Project, a two-year-old enterprise offering a four-year online liberal arts degree, is drawing high-quality students from across the world not because it's cheap or free, but because it focuses entirely on small-group discussions and critical thinking rather than lectures.

Viewed this way, the challenges traditional classrooms face actually have nothing to do with digital technologies. They're a result of focusing primarily on content rather than learning. That's something we don't need digital technologies to fix.

But to focus on learners, you need to understand learners—their motivations, abilities, incentives, and problems. It's surprising how easy it can be to ignore these things, and how little attention is often paid to them. Create the content, offer the best courses, make them accessible, and the rest will take care of itself: That's exactly the Content Trap.

What I and my colleagues realized after looking further into the minds of learners is that effective learning is not just about content; it's about purpose. It's about students taking ownership of what they need to learn. It's about students having the will to ask questions and the courage to try to answer them. It's about students taking responsibility for setting the right tone in the learning environment, for teaching others, and for learning from others, too.

That's where learning and delivery, content and classroom, student and faculty, come together. To allow students to do all this, you need to give them tools. You need to give them not just the right content but the right

platform. You need to give them materials not just to learn but to engage and inspire. You need to give them ways to interact with one another. You need to create the right tone and encourage the right norms. Above all, you need to trust that they'll enhance all these things on their own. You need to leave it to them to do more than you ever envisioned they could.

That's the responsibility of students *and* educators. It always has been. And it has little to do with classroom versus online.

AFTERWORD

When I began writing this book, I knew that many things around us would change by the time I had finished it. They did, and in predictably unpredictable ways.

Who would have thought, even a few months ago, that an app whose content vanishes almost as soon as users create it would be worth billions? Or that you could learn from unknown drivers three miles ahead of you that a cop is waiting on the side of the road? Or that investment bankers would moonlight as drivers? These kinds of things are not even rare; they are commonplace, happening every day.

It's clichéd but true: Our world is changing faster than ever. In this book I've tried to provide a snapshot of a world in which even as *things* change, certain ideas don't.

Here's the concept at its core: The process of creating content has not changed much in some domains (like writing a book or performing in a concert), while it has changed radically in others (see above). But in every case, *managing* content couldn't be more different than it was even a few years ago. The reason is connections.

We can connect with others today in ways not possible before—that's obvious. So is our craving for experiences that connect products more closely and in new ways. But connections aren't always obvious, and taking advantage of them requires recognizing them in the first place.

Succeeding now also requires more courage than before—the courage to be different. Follow others and chances are you'll be too late, too similar, or too misaligned. Are Facebook, BuzzFeed, or Tencent the only routes to follow? No. Is the *New York Times* paywall the only approach to success in news? Surely not. Is HBX a model with universal applicability? Hardly. We can learn a lot from these stories. But the most successful organizations don't mimic successful others; they do what's right for *them*.

The potential for success today is enormous. In a connected world, it's not merely large or well-funded organizations that succeed—and you don't need to be an entrepreneur or a CEO to do so, either. Virtually any idea,

from any source, has the potential for huge impact. Every person, from seasoned veterans to middle managers to new hires, has the ability to light a spark that spreads. Like Yellowstone in 1988, digital forests are dry, and the trigger can come from anywhere.

Media is far from dead. As this book goes to press, e-book growth has flattened. Concerts are still thriving. Paid news subscriptions to *The New York Times* have increased. Television cord-cutting has slowed. Cable bundles haven't unraveled. Movie box office receipts have grown.

But many media businesses remain challenged. It's not because their content is getting worse. It's because of fixed cost structures. It's because of competing networks and platforms. It's because of the fragility of being someone else's complement. The challenges come from connections.

Strategies themselves can connect. As we speak, Schibsted is trying *New York Times*–type paywalls; the *Times* is embracing Schibsted's digital-first approach. Content businesses like *The Washington Post* are pivoting toward platform thinking, even as platforms including Tencent, Amazon, and Netflix are investing in their key complement—content. TV Everywhere—a model that adapts *Times*-style bundling to television—appears primed to grow.

And connected change isn't confined to what we read, watch, or listen to. A fitness group consisting only of people who get together to work out for free has spread, almost like a grassroots movement, to seventeen cities. A mobile app that allows free exchanges of money between users saw $7.5 billion in transfers in 2015, as friends use it to split restaurant bills and roommates share rent.

Political campaigns, too, are experiencing the force of connections. Jon Miller was part of the team that helped seed the social media campaign of Barack Obama in 2008. Miller was an experienced businessman but a political neophyte; his noteworthy experience had been in leading digital ventures at USA Networks and AOL. "When we started," he told me, "we knew we had no chance of competing for big donations, super PACs, and traditional media. We knew we had to be different. So we looked to social media. We had little idea of its eventual power. After we won Iowa, all of us on the team looked at one another and thought—maybe we can win this thing." Eight years later the trend toward "connected campaigns" would continue on both sides of the political spectrum. One presidential candidate, Bernie Sanders, raised more money per month and in total

through $27 donations from people connected through social media than rivals who took in the $2,700 maximum per-person donation. Donald Trump didn't wait for news outlets to cover him—*he* called *them,* and tweeted at a prodigious rate. Sanders's donations exceeded $200 million; Trump's earned-media coverage exceeded $4 billion. Both candidates relied exclusively on connected media as the trigger.

This book has described changes in the worlds of information goods. Similar changes are occurring in "hard" goods, too. Thermostats, refrigerators, lightbulbs, door locks, and cars are becoming "smart"—the term used to describe products that contain sensors and software to relay information, all belonging to the "Internet of Things" (or, IoT). Hard goods are beginning to resemble information goods. Manufacturing is becoming media.

But if traditional content businesses teach us anything, it's that the smart products that win will be the ones that figure out connections.

Some already are. Smart homes allow refrigerators to turn off lights and lock doors. Smart farms tie irrigation systems to weather information and crop prices. Smart cars connect hardware performance to service calls. Experts call these trends "product systems," or "systems of systems."

The benefits of connectivity go beyond products. More accrue when information is shared directly among users—as in the case of traffic (Waze), video cameras (GoPro), fitness bands (FitBit), and weather (Weathermob). Some possibilities are even more audacious—for example, the idea of using excess solar energy from one house to help power others close by. Connected users and products, not just smarter products—that's where the biggest benefits of the emerging IoT lie.

The forces we've seen for more than two decades in content businesses are playing out in these new arenas, too. Companies with hundred-year histories of making "product"—engines, thermostats, lightbulbs, refrigerators—are seeing new players such as Amazon, Apple, and Google enter their domains by introducing products that don't require traditional manufacturing competencies. They are entering to connect.

The same questions about strategy that content businesses have been forced to confront are in play even among traditional manufacturing companies. Car companies are used to investing in engines and transmissions, looking to grab differentiation there. But some of them, including BMW, have begun licensing their technologies to others. Their reasoning? That superiority in hardware will be short-lived, even superfluous, as the shift toward electric cars (inspired by Tesla), self-driving cars (inspired by

Google), and ride sharing (inspired by Uber) shifts the locus of differentiation toward sensors, controls, and software. It's a familiar story: As competition moves from products to connected portfolios, it pays to know whose complement you are—or, to put it another way, which business you are really in. Define your business as engines and power trains, and you might just hear the whispers of the recording studios in your ear. It's CDs and concerts, all over again.

We tend to describe these kinds of changes in terms of technology. We'd do better to describe them in terms of ideas. Yes, technology is the trigger, but ideas are the cause—ideas ultimately rooted in how we connect.

My own world, the world of education, continues to change, too. As I walk on the Harvard Business School campus nowadays, I not only marvel at the beauty and spring colors as students graduate to head off into the world. I also think about those who are now impacted by our programs without ever setting foot on campus.

As I was completing this book, the worlds of HBS and HBX met.

Earlier this year we noticed that peer learning—one of the anchor "connecting" principles of HBX—had gone far beyond what we'd envisioned. Online interactions had given rise to physical meet-ups between learners, to social projects, to spontaneous conversations that jump-started business ventures. In March we decided to nurture these relationships by inviting HBX learners to campus for the first time to engage in a day of community building and interaction.

Nearly five hundred learners came on May 7—from Australia, Kenya, India, Qatar, Ecuador, Colombia, Denmark, and elsewhere. Participants expressed gratitude for what they'd learned. Many described how the program had touched their lives. A pastor spoke of wanting to leverage a similar approach to connect churchgoers more meaningfully. A student with learning disabilities noted that he'd struggled all his life with traditional modes of instruction, and that the short bursts of content and peer conversations online had renewed his desire to learn. A young woman talked about how the knowledge she'd gained gave her the confidence to make decisions for her family and its fledgling business. The stories were moving and inspiring. They originated in peer learning and community. They originated in connections.

Create to connect. Expand to preserve. Dare to not mimic. These are

simple ideas. Yet so often we fall into the trap of doing exactly the opposite.

These are the ideas I first set out to write about, not knowing they would shape my own world before I was done. These are the ideas I hope you might take with you in whatever you do, using them to find success wherever you are.