

Entrepreneurship Education Comes of Age on Campus

The challenges and rewards of bringing
entrepreneurship to higher education



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■ Introduction

Entrepreneurship education—the teaching of skills and cultivation of talents that students need to start businesses, identify opportunities, manage risk, and innovate in the course of their careers—is now a staple of American higher education. As recently as the 1990s, that was far from true. Over the past decade or so, however, the university teaching of entrepreneurship has come of age.

History in brief

The idea of teaching entrepreneurship is not new. Longtime observers trace it back to 1947, when Harvard University is said to have offered a course in “new enterprises” for returning veterans. The field entered its start-up phase, so to speak, in the 1970s, began developing standardized curricular elements in the 1980s, and in the 1990s entered a period of rapid growth that has continued to this day.

Entrepreneurship, a Kauffman Foundation research report found in 2008, “is one of the fastest growing subjects in today’s undergraduate curricula.”¹ In 1975, colleges and universities in the United States offered a hundred or so formal programs (majors, minors, and certificates) in entrepreneurship. The number had more than quadrupled by 2006, reaching more than 500.² The number of entrepreneurship courses offered follows a similar trajectory; studies suggest that college campuses in the United States offered approximately 250 entrepreneurship courses in 1985. By 2008, more than 5,000 entrepreneurship courses were being offered in two-year and four-year institutions.³ Today, well over 400,000 students a year take courses in the subject, and almost 9,000 faculty members teach it.⁴ Meanwhile, universities have become correspondingly important to the nation’s start-up infrastructure, as central in the training of new generations of entrepreneurs as they were in training earlier generations of professionals. Of the 1,250 or so business incubators in the United States, about one-third are based at universities, up from one-fifth in 2006.⁵

In short, entrepreneurship education’s days as an upstart, or a startup, are over. The teaching of entrepreneurship has moved from the margins of higher education closer to the mainstream. Metaphorically speaking, it has reached early adulthood, firmly established but still developing rapidly. A number of developments conspired to change the game for entrepreneurship education. One was the rise of the dot-com economy in the 1990s, which brought a rush of new capital and energy to the world of technology startups. At least as important, the dot-com era and the rapid expansion of the information economy opened new pathways for those to whom a payroll job at a bureaucratic corporation seemed unappealing or unattainable, while heightening young people’s interest in independent and unconventional careers.

The recent economic downturn only encouraged this perspective. Many young people saw their parents being laid off and their peers having trouble launching traditional careers. Partly out of necessity, today’s students increasingly look to their own talents and “personal brands,” not to corporate paychecks, as the basis for a sturdy future. Conventional employment no longer looks as secure as it once did, nor entrepreneurship as comparatively risky. Among young people, the word has gone out that those without self-starting skills may be at a permanent disadvantage.⁶

While changes in the economy and student interest and demand certainly played a part in the rise of entrepreneurship education on college campuses, schools also may have been inspired by the 2003 launch of the Kauffman Campuses Initiative (KCI). As part of a larger effort to encourage new, interdisciplinary, campuswide entrepreneurship programs at American colleges and universities, the Ewing Marion Kauffman Foundation awarded grants to eight universities to make entrepreneurship education available across their campuses. In 2006, five more universities and five Northeast Ohio colleges (in partnership with the Burton D. Morgan

Foundation) were selected for the KCI program, for a total of eighteen universities.

Purpose and methodology of this paper

As the Kauffman Campus Initiative reaches its conclusion, we at the Foundation see an opportunity to take a first cut at distilling the lessons learned from the widespread, but variegated, adoption of entrepreneurship education. As part of this effort, we solicited the views of academics and administrators at sixteen institutions with notable entrepreneurship education programs—some of them “Kauffman Campuses,” some not—to discuss common practices and challenges. (Participating people and institutions are listed in appendix I.) In addition to gathering written submissions, we spent a day in four sessions of

directed conversation about what is going well and not so well in their worlds. The themes, questions, and choices they discussed, plus the judgments and analysis of Foundation staff and others who were consulted along the way, are distilled here.

This paper’s methodology is deliberately qualitative. We make no effort to conduct a statistical census or a comprehensive survey of the field (which would be a formidable undertaking). The goal of this paper is simply to lay groundwork for a discussion of the state of entrepreneurship education as it leaves adolescence, so to speak, and enters its prime. We seek to clarify choices; to reflect on emerging norms and on successes and failures; to provide guidance for new entrants; and, above all, to spark a conversation about the next phase.

■ Education as Ecosystem

Variation as norm

Anyone setting out to map the terrain of contemporary entrepreneurship education immediately faces a challenge: the task is much more like biology than cartography.

If someone says she teaches in a university math department or nursing school, one might have a good idea what her program and academic environment look like, even without knowing where she teaches. The subject matter is a mostly canonized curriculum, and the faculty draws upon a pool of professionals trained in more or less the same way.

Entrepreneurship education is less cut and dried. To succeed for students, it must interact with its community, outside as well as inside the university; to staff its programs, it must draw not on a single pool of credentialed academics but on teachers in a wide variety of disciplines, from business to music, and on mentors, employers, and investors who hail from outside the academy altogether.

As a result, no single approach works everywhere. Inherently, there is no “one best way” that can be cloned and transplanted across institutions. As one member of our consultative group said, “Each institution is its own ecosystem. Things that work on one campus don’t translate to another, not because they’re bad but because they don’t fit the environment. Whatever works, works. There’s no norm.”

The notion of the *ecosystem*, in this context, is no mere metaphor. Practitioners of entrepreneurship education actively use it as an organizing concept in building their programs and understanding what they are doing. An ecosystem is a self-shaping system of intricately interrelating agents who respond to each other and to local conditions in a way that is dynamic. Rather than being able to “set it and forget it,” the manager of an academic ecosystem needs to respond to a changing balance of forces: the mix of students and their aspirations, the needs of the community, the shape of the economy, and the

SYRACUSE'S ECOSYSTEM

Syracuse University provides an example of the range and diversity of programs that interact dynamically with each other, the university as a whole, and the larger community to form an ecosystem. As one university official writes, "The ecosystem is a free-forming, open environment with programs that can start or end as needed, not fixed like a fishbowl." More than 7,500 students a year take eighty-five or more different courses infused with entrepreneurship each semester. About 100 new student ventures are launched every year. A list of activities, far from exhaustive, includes:

- The Department of Entrepreneurship and Emerging Enterprises, in the Whitman School of Management, is a formal academic department, offering undergraduate major and minor programs and master's and doctoral degrees.
- The Raymond von Dran Innovation and Disruptive Entrepreneurship Accelerator (RvD IDEA), is a partnership between the university and the Tech Garden in downtown Syracuse. Open to student entrepreneurs from colleges and universities in Upstate New York, it offers courses and workshops, support services, seed funding, a student group, and sandbox and incubator programs.
- Innovation in clean and renewable energy and the environment is supported by The Syracuse Center of Excellence, which provides space and funding for new ventures with green technologies that can be commercialized.
- Students in The New York State Science & Technology Law Center work on business plans for the protection and commercialization of intellectual property from new technologies created by startup and existing companies in New York State.
- The Falcone Center for Entrepreneurship, working in conjunction with the Department of Entrepreneurship and Emerging enterprises, is the department's outreach arm and facilitates entrepreneurship both on campus and in the community. Its many activities include a business plan competition, three student entrepreneurship clubs, an entrepreneurship learning community, an internship program, and more.
- COLAB is an interdisciplinary initiative based in the College of Visual and Performing Arts. Housed in the same downtown building as Syracuse's design department, it encourages students and faculty to work with outside groups and organizations to solve real-world problems.
- The School of Information Studies, Bandier Program in Music Industry, departments of sport management, industrial design, fashion design, and others infuse various courses with entrepreneurship. For instance, "Introduction to Information Technology" requires students to create a hypothetical venture and use IT tools in their business. "Spring Break in Silicon Valley" provides students with a one-week exposure to technology startups.
- The Center for Digital Media Entrepreneurship, within the Newhouse School of Public Communications, offers a "home" for students starting new media ventures. The Center sponsors an annual business plan competition at the South by Southwest festival.
- Located in a former warehouse, the South Side Innovation Center is a business incubator offering space and equipment, coaching and consulting, and services to community entrepreneurs.
- Specialized Startup Weekends, combining students with an industry partner, are offered by the College of Engineering and Computer Science.
- The Institute for Veterans and Military Families coordinates eight universities in offering an entrepreneurship bootcamp for veterans with disabilities. It also offers programs for family members of disabled veterans.
- The Near West Side Small Business Development Program provides a business association, micro-financing program, workshops, counseling services, and other programs to support community entrepreneurs.

availability and nature of resources from inside and outside the institution. This is both an administrative challenge and a source of vitality and creativity.

Common programmatic elements

Within the “ecosystem” frame, we do see the emergence of common elements and approaches—amino acids, figuratively speaking, or building blocks, mixed and weighted in various ways. Those include (but are not limited to):

- supervised coursework in the classroom, at undergraduate and graduate levels;
- supervised “co-curricular” learning programs, such as internships, lectures, and clubs, based outside the classroom, with or without academic credit;
- immersive programs, such as business incubators and accelerators, targeted to students who have exceptional interest in and prospects of establishing businesses;
- business plan competitions and idea-gathering events, designed to stimulate interest in entrepreneurship and publicize university programs;
- networking and connecting programs designed to connect entrepreneurial students with mentors, team members, and potential investors;
- internships and other experiential placements, bridging university life with the start of an outside career; and
- scholarships and other incentive programs to attract and identify entrepreneurial talent.

Not every university utilizes every element, and no two universities use any element in exactly the same way—and many universities create new elements or adapt old ones on the fly, in response to conditions they encounter on the ground.

For example, an Arizona State University entrepreneurship leader told us:

At Arizona, the ecosystem is very fragmented. We found that the coder community, the developer community, the engineering community, the start-up community, the corporate community, and the student community weren’t always in the same room at the same time. So we put together an event called Techiepalooza. The idea was to bring all of those elements to the same place at the same time, because they weren’t talking to each other and we felt that that seriously affected all parts of the ecosystem. I thought 150 to 200 people would show up; we had 600. It went on for ten hours; we had to ask people to leave. And so we’re replicating it again. We’re going to run it every six months.

This sort of real-time adaptation and program development is itself a form of entrepreneurship in action, and it is characteristic of the dynamism of entrepreneurship education as practiced. Catalog listings of courses and degrees capture only a fraction of the story. As a result, generalizing about entrepreneurship education programs can be difficult.

We do, however, find common practices and challenges. In the next five sections, we explore them in turn, under five headings:

- defining the constituency of entrepreneurship education;
- balancing competing demands on the curricula;
- creating and sustaining an entrepreneurship-friendly campus culture;
- melding university programs with outside communities; and
- defining and measuring success.

■ Defining the Constituency

Inclusivity versus selectivity: an inherent tension

As simple as it sounds, the first and arguably most basic question about entrepreneurship education—who are these programs for?—also is one of the most complex and challenging. Programs need to find a balance between inclusiveness and selectivity; between serving the campus and serving the community; and between catering to specialists looking to acquire specific skills and catering to generalists looking to bring an entrepreneurial mindset to all of life. A balance, once found, requires continual fine-tuning.

Needless to say, there is no right answer, and even looking for one misses the point. By its very nature, entrepreneurship education serves two masters, which need not be incompatible but sometimes are in tension. On the one hand, an important goal is to expose many students, preferably most or even all of them, to some of the principles of entrepreneurship. In an economic environment where traditional jobs decreasingly are secure and stable, learning to cope with risk, spot opportunities, and innovate has become an essential life skill, one which more and more students want. A program tuned to giving many students a taste of entrepreneurship must be broad in its curriculum and cater to students who may or may not have entrepreneurial talent—or who often do not regard themselves as entrepreneurial at all.

At the same time, another important role of entrepreneurship education is to help students determine if entrepreneurship is a viable choice for their careers. As one university told us, “We are not trying to turn everyone into an entrepreneur through our programs and courses. Instead, we see a large part of our role as exposing students to entrepreneurship and helping them to learn and decide for themselves if they would like to be an entrepreneur or to play some other role.” As this university pointed out, a gatekeeping function probably is central, not incidental, to successful entrepreneurship education: research shows that “keeping people from

becoming entrepreneurs who would otherwise have a high likelihood of failing may be one of the mechanisms of business school education.”

The funnel model

In response to this tension between serving the many and serving the few, the usual response is one that educators often liken to a funnel, a ladder, or a pipeline. The idea is similar in many respects to the familiar structure of musical education, which begins with music appreciation classes for practically everyone and extends through conservatory training for the especially talented few. “Nearly everything that is true for music is also true for entrepreneurship,” a Kauffman Foundation report noted in 2008. “Education in entrepreneurship, as in music, operates along a continuum of learning that extends from the professional to the amateur. In music, at one end of the continuum is the composer or the virtuoso performer. At the other end is the audience, which values what the composer and performer do.”⁷ Like a music program, a successful entrepreneurship program cultivates the virtuoso practitioner, often elaborately and at significant expense, while simultaneously enriching the lives and deepening the skills of millions of others who have more affinity than talent. While these students will not pursue entrepreneurship after graduation, they will, as consumers and voters, have a deep understanding of the enormous effort and talent necessary for successful entrepreneurship and a profound appreciation for the importance of entrepreneurship to our economy and society.

How, then, does the funnel approach work? At the wide end are courses and co-curricular programs that sweep many of the university’s students into some exposure to entrepreneurship. For example:

- **Traditional classroom instruction.** All students at Olin College, a small, engineering-focused school in Massachusetts, get exposure to entrepreneurship in an

introductory class. The University of Michigan holds a “Distinguished Innovator Seminar Series” introductory class for 900 to 1,000 students, half of them freshman, with many more participating via online video.

- **Extracurricular contests and activities.** Pitch competitions and brainstorming events are a common way to get students involved. At Michigan, Mpowered Entrepreneurship, a student organization, runs an annual “1,000 Pitches” competition designed to stimulate interest and involvement among students, including many who may not self-identify as entrepreneurs. Other schools stimulate students’ interest with “pitch parties,” as at the University of North Carolina at Chapel Hill, whose annual Carolina Challenge pitch party encourages students to show up with an idea and compete for a \$1,000 prize. Many such events are not only campuswide but open to the broader public.
- **Online platforms.** Stanford University runs Venture Lab, an online platform that lets students (not just Stanford’s) watch online lectures and helps them form teams and collaborate on projects—the result being to give tens of thousands of students a taste of entrepreneurial concepts and experiences before they reach the classroom. Arizona State University sponsors a “10,000 Solutions” website that collects ideas of students—and also nonstudents—for solving “local and global challenges,” with a \$10,000 prize. Washington University in St. Louis, through its Skandalaris Center for Entrepreneurial Studies, solicits student ideas for businesses and projects on its IdeaBounce® website, and lets users connect there with potential collaborators and mentors.

Those are only examples of the many kinds of catchments by which universities spark entrepreneurial excitement; others include entrepreneurship weeks, orientation programs, seminar series, guest lectureships, and more. They have in common, first, a low requirement for commitment, so that the casual and curious will be attracted; second, visibility, with broad exposure and a high “buzz” quotient; and third, an emphasis on fun and accessibility, underscoring that anyone can be an entrepreneur and that there is nothing to lose by trying.

A winnowing process then occurs as the merely curious detach themselves and the more dedicated continue through progressively more challenging coursework and practicums. For instance, the University of Michigan’s Entrepreneurship Practicum takes about 100 students a year, which is a tenth of the number in its introductory seminar series. Finally, at the funnel’s narrow spout, the emphasis shifts to concentrating resources and instruction on the students who seem most likely to succeed.

MIT’s Founders’ Skills Accelerator, an intensive summer program, provides a case in point. MIT describes its entrepreneurship education program as a ramp where students build knowledge and skills in order to reach “escape velocity” on graduation. The goal is to help them make the transition from academia to business, rather than simply being what a university called “domesticated animals,” unable to thrive outside the university bubble. The university found, however, that some of its best potential entrepreneurs dropped out to work on their businesses, or talked openly about dropping out. Many seemed to feel, as an official said, “either you’re a serious entrepreneur or you’re a wimp who stays in an academic environment.” To meet the needs of this demanding group, the Founders’ Skills Accelerator provides a shared work environment, monthly stipends of \$1,000, additional milestone payments when goals are met, twice-weekly check-in meetings with other students, simulated board meetings, access to mentors, and more. One official calls the highly concentrated, resource-intensive program a “Rhodes Scholarship of entrepreneurship.” It is selective and elite, as the narrow end of a funnel must be (though university officials argue that the program motivates more students than it enrolls, by giving them something to shoot for).

Is the funnel too limiting?

The funnel approach is in common use and would seem to be, colloquially speaking, a no-brainer, because it combines, and to some degree reconciles, the tasks of serving two quite different constituencies. Still, some of those we

consulted expressed caveats about it. One relates to what is sometimes referred to as “gap filling”: the need to remain vigilant against programmatic holes that allow promising students to fall out of the funnel. MIT’s Founders’ Skills Accelerator is an example of gap filling, inasmuch as it responded to the discovery that promising students were falling through the cracks.

Another widely cited and more fundamental challenge posed by the funnel model relates to those students who have entrepreneurial talent but do not self-identify as entrepreneurs. Among the educators we consulted, an unexpectedly frequent concern was that the label “entrepreneurship” may deter students who identify entrepreneurship with a career in business or with a particular start-up culture like that of Silicon Valley—places that may seem foreign or intimidating. Gifted students in other fields, from engineering to music to nursing, may fail to see the importance of applying entrepreneurial principles to their own disciplines. Seeing themselves simply as engineers or musicians or nurses, for example, they miss the opportunity to learn skills and ways of thinking that could enhance their careers tremendously.

As one educator told us, “We were frightening off all the students who said, ‘Hey, I’m not an entrepreneur, I’m an engineer.’” The question that needs to be asked, he said, is not how to identify students who meet some preexisting notion of what it is to be an entrepreneur, but rather, as he put it, “How do you take that passion that students have when they self-identify and attach the entrepreneurial tool set to it?” Others told us that the drive to elevate the term “entrepreneurship” in the university culture, and to sell it to students, has had the unintended consequence of inaccurately stereotyping their offerings and constituencies as strictly for the business-minded. The accidental result

is to turn away some of the students who may be most important to attract.

Anti-stereotyping strategies

Approaches for addressing this problem vary, and none completely resolves the issue. Some emphasize social entrepreneurship, or cast offerings in the language of community and problem solving. Others shift emphasis toward students’ specialties and interests, using the “E-word” more as an adjective than a noun, affixed to whatever it is the student wants to do. As one educator said, “We want to produce the next generation of *entrepreneurial* lawyers and *entrepreneurial* engineers.” Still others outsource the choice of vocabulary to the people and departments applying it. One official said of his university:

The design school has this whole other way of talking about entrepreneurship, but with their own language and terms, and it appeals to a whole other segment of students. Even the humanities have been holding this “bibliotech” conference recently, where they’ve been talking about similar things but in a different language of pursuing your dreams or being able to work on your art. Enabling these groups to create their own language might be part of it.

Ultimately, there is tension between university-level efforts to promote entrepreneurship education to all students and school- or department-level efforts to tailor the language regarding entrepreneurship to a more narrow audience. University-wide definitions of the phenomenon may be limiting, and this tension may be unavoidable. It can be managed creatively, however, and we take it to be a positive sign that many people in the field acknowledge the dilemma and are working proactively to resolve it.

■ Balancing the Curriculum

Learning versus doing

The curriculum and the constituency it serves go hand in hand. It is not surprising, then, that the tension between broad and narrow constituencies is mirrored by a related tension between teaching broadly applicable entrepreneurial concepts and immediately applicable, venture-specific skills.

This tension, of course, is nothing new to higher education, which always has discussed the balance between book learning and vocational skills. Entrepreneurship programs build on many years of successful university experience with schools such as nursing and journalism; experiential education, such as internships, archaeological digs, and “Washington semesters”; and service learning.

Striking the right curricular balance can be a particular challenge for entrepreneurship programs. Their mission inherently combines both theoretical and vocational elements in a sometimes unstable mix. They must do some of both, and do both well for a widely diverse student population, keeping a foot in each of two fast-changing pedagogical worlds simultaneously. Moreover, they must impart at least a smattering of a wide range of skills, everything from business planning and elevator-pitching to law and bookkeeping. And they must accommodate students with all kinds of interests and ambitions, in fields ranging from software and social media to crafts and community service.

Typical curricular and co-curricular offerings

Universities respond with a broad diversity of offerings, often involving many departments across campus. Washington University in St. Louis’s Skandalaris Center for Entrepreneurial Studies offers more than eighty courses, with faculty developing courses “in all schools and for all degree levels,” according to the university. It also provides

innovation grants to seed new courses and co-curricular programs across the university’s various schools.

At the core of the entrepreneurship education curriculum, one finds courses essential to the starting and running of a new business. For example:

- Introduction to entrepreneurship
- Developing a business plan
- Financing a small business
- Legal environments of new businesses
- Cases in small business
- Managing fast-growth companies

Commingled with those entrepreneurial basics are courses scattered throughout traditional disciplines, such as marketing, human resource management, music production, information technology, and so on.

Even offerings geared specifically to entrepreneurship cannot be one-size-fits-all. They need to be tailored to specific audiences at particular points on their learning curves. Arizona State thus offers “ASU 101,” a required one-credit course for freshmen that includes awareness of entrepreneurship and opportunities to pursue entrepreneurship on campus; “EPICS,” the Engineering Projects in Community Service Program, which teaches social entrepreneurship by deploying teams of students to create engineering-based solutions for community groups and nonprofits (ASU is one of several universities offering EPICS); and “My Life Venture,” which aims at helping students “discover the entrepreneurial spirit” and use outside-the-box thinking. ASU 101 seeks to provide the broadest possible audience of incoming students with a taste of entrepreneurship—the wide end of the funnel. EPICS brings entrepreneurship more specifically to engineering undergraduates and aims to expose them to team-based project experience. My Life Venture seeks

to encourage students to identify as entrepreneurs and develop an entrepreneurial mindset throughout life. All teach entrepreneurship skills to nonspecialists, but each takes a different approach for a different audience.

Educators we spoke with are of one mind on the indispensability of classroom work. Absent a theoretical framework that can be applied across problems, they say, experiential training is both less effective and less portable. No one, unsurprisingly, disagreed that experiential training is also crucial—perhaps almost uniquely so in entrepreneurship education, where knowledge without action is a lost opportunity by definition. Also unsurprisingly, then, the range of experiential offerings is staggering (see “Beyond the Classroom at Washington University in St. Louis,” page 10, for an example).

Theoretical and problem-solving training, then, caters to the generalist who may go in and out of freelance and “solopreneurial” employment throughout life. It also lays the intellectual groundwork for those who think they may launch or join a business. Intensive experiential training caters to the smaller number who are serious about starting companies and who, indeed, may be doing so already. Both are necessary. Programs typically begin with coursework and hands-on activities such as team building and idea pitching, then graduate through a series of increasingly stringent practicums, up to and often including a requirement to build a practical business plan or even, in some cases, to launch a business.

Finding a balance

Between the two poles of theory and practice, and amid the strong consensus that both are indispensable, there is significant discussion about the balance between the two, both between schools and within them. Some in the university may perceive experiential training as giving students credit for building their own businesses, something which, some believe is not a pursuit worthy of course credit. As one administrator told us, “It’s so deeply ingrained in us in the academy to think that starting a business is not an academic pursuit. It’s in the water in the academy that starting companies is sort of treif,

and we like to think of entrepreneurship as alternative and cool and experiential”—and thus, may be seen by some as lacking the rigor and cumulative building up of knowledge that characterize other disciplines. Another person related many a skeptical encounter: “Academic credit for working on your business—how do you justify that?”

We will return to this challenge in the next section, while noting here that entrepreneurship education has come a long way toward answering some of these challenges. Though some programs do indeed grant credit to advanced students for working on new ventures, they do so in the context of structured programs under faculty guidance or expert mentorship or both, generally with milestones and other metrics of progress. One educator cited the example of a course in which students are given credit for working on a business, but “you can take from one to six credits, you meet every week with a faculty mentor who is in charge of it, each week there is a lecture associated with that, and you have weekly deliverables that you have to march through to get to your business.” The curriculum, he added, is vetted by a curriculum committee of eight schools and colleges. As more than one educator pointed out, structured programs like this one may be a good deal more rigorous than some for-credit internships. “There’s a difference between action learning and working on your business,” one person told us. “And action learning is fine [for academic credit], if it’s a project within a class with tenured faculty and clear objectives.”

The dilemma becomes more acute as students move closer to full engagement with the world of business. At that stage, perhaps more than ever, the university wants to help students gain altitude—but granting academic credit becomes more problematic. It is in the often tricky gap between the accredited academic environment and the world of for-profit commerce that co-curricular, not-for-credit “bridge” programs are most important.

This transition stage is a signature component of entrepreneurship education programs—and it also poses a significant and continuing challenge for them. Where many disciplines train students until they get a degree and then

BEYOND THE CLASSROOM AT WASHINGTON UNIVERSITY IN ST. LOUIS

As a sample of the diversity and range of experiential learning programs, here are some of Washington University in St. Louis's co-curricular options, along with their intended timing and audiences:

- "IDEA" (Innovation, Discovery, Experience, Action), a pre-orientation program that familiarizes incoming students with entrepreneurial concepts and programs on campus (entering freshmen)
- A dozen student entrepreneurship clubs and groups (any time; all degrees)
- "StEP" (the Student Entrepreneurial Program), which supports students' owning and operating twelve campus-based businesses, such as a laundry service, logo'd apparel, moving and storage, bike shop, appliance rental, and others (any time; undergraduates)
- The Skandalaris Center Internship Program, which coordinates nearly fifty entrepreneurship opportunities with startups and growth companies in St. Louis (rising undergraduate juniors and seniors)
- IdeaBounce®, a series of events and a website for competitive pitching and connecting with mentors and team members (any time; all degrees)
- Coffee with the Experts, providing ten-minute conversations with entrepreneurs, investors, and service providers (any time; all degrees)
- The Skandalaris Entrepreneurial Skills Series, ten noncredit courses that include skills training, panel discussions by entrepreneurs, and a concluding reception (any time; all degrees)
- The Olin Cup Competition, a commercial business launch competition that has invested nearly \$1 million in new ventures (any time; all degrees)
- The YouthBridge Social Enterprise and Innovation Competition, a social-entrepreneurship venture launch competition which has awarded more than \$1 million in grants to new social ventures
- The Skandalaris Student Venture Fund, which provides up to \$250,000 for students to invest in ventures and private equity deals (Olin Business School MBA students)
- The Kauffman Pathway in Life Sciences Entrepreneurship program, a multischool collaboration which offers training in business skills and entrepreneurship for promising young scientists (PhD and MD candidates in biology and biomedicine)
- The Balsa Group, a PhD and post-doctoral student-led group that provides consulting to early-stage startup firms and other companies

simply graduate them into the job market, any such bright-line distinction between the academic and commercial worlds is impossible with entrepreneurship education. Some students can and will simply quit college to start businesses, and some will take entrepreneurship courses for credit but never embark on a business career. But entrepreneurship education is perforce preoccupied with a middle group who benefit from guidance through a staged transition from classroom to commerce.

Is theory undervalued?

To expect any static equilibrium between the two competing forms of rigor that entrepreneurship education must balance—the rigor of scholarship and the rigor of the marketplace—would be unrealistic. Indeed, the constant readjustment between the two may be a source of vitality in the discipline. The task of bringing coherence to a shifting admixture of the curricular, the co-curricular, and the commercial is, on net, a beneficial challenge.

That said, some educators raised questions about what they viewed as a tendency to overemphasize seemingly glamorous *doing* over seemingly plodding *thinking*. A student who turns up one day with a notion for a business may be loaded up with how-to instruction on writing a business plan and pitching an idea, equipped with mentors, and pushed toward competitions—without necessarily having mastered enough basics to distinguish disciplined thinking from brainstorming. “Not enough time is dedicated to concept-making, way, way, way before they’re writing their business plan,” one educator told us. “The concept phase that I’m referring to is about how to identify unarticulated, next-generation, higher-order needs. Not enough *questions* are created.”

Although we see no danger that curriculum will fall between the cracks in entrepreneurship education, the cautionary note sounded by this educator and others is a wise one. The university’s first and foremost job is to teach not what to do or even what to think, but *how* to think. In that respect, entrepreneurship education, for all its distinctiveness, is very much of a piece with the age-old mission of the academy, from Plato’s time to ours. Remembering the importance of the intangible—teaching the disciplines of thinking that produce not just entrepreneurial inspirations but an entrepreneurial frame of mind—is not always easy in an outcome-driven world, a challenge we will return to.

■ Creating a Campus Culture

Entrepreneurship in the academy

Entrepreneurship education has to integrate instructional opportunities across disciplines and departments; it must respond in real time to needs of students who are themselves responding to real-world input; it thrives in close partnership with the community and the commercial world; and it aims to spawn a mindset that prizes practical innovation and personal risk taking.

In order to live up to its educational potential entrepreneurship cannot hide in a secluded corner. To thrive within the university, it must develop and maintain a good cultural fit. As one university put it, “Culture at the university can have a bigger impact than a single center, course, or extracurricular program in encouraging significant numbers of students to be entrepreneurial.”

Organizational arrangements: centralization versus dispersion

How do entrepreneurship education programs square this circle? Partly by seeking a sweet spot between two structural poles, one centralized, the other distributed.

In principle, there is no reason a university cannot build an entrepreneurship department organized on the vertical model of a traditional academic department, with a full-time faculty offering courses toward a major or advanced degree, and with the program under the centralized control of a specialized dean or director. And, indeed, some universities have separate entrepreneurship departments. The University of Missouri-Kansas City has a dedicated department of global entrepreneurship and innovation within its school of management, with eight full-time faculty attached to the department; Syracuse’s entrepreneurship and emerging enterprises department, also within the school of management, offers undergraduate majors and minors as well as advanced degrees. Schools that use this approach speak highly of the intellectual cohesion and institutional independence provided by stand-alone departments and programs. A Kauffman Foundation working paper in 2006 emphasized that recognition as a formal department or school is critical to long-term success, as departments have greater staying power than informal programs.

At the other pole, equally possible, in principle, is an entirely distributed entrepreneurship education program, spread

university-wide through multiple disciplines and departments and reporting to a provost or to the university president, rather than to any particular dean or department. The majority of programs rely primarily on the distributed model. It has the advantage of spreading program “ownership” to multiple constituencies and mobilizing resources and networks from many sources. It, too, however, has potential downsides. As one university told us evocatively:

Programs in entrepreneurship that have spread across the university are like a solar system in which there is perhaps a dominant center of gravity (sometimes a specific program, sometimes a center or institute) that helps bind the individual units (departments, colleges) to the system. Unfortunately, it can be challenging (not impossible, but challenging) to maintain cohesion and momentum in such a setting, because there are several competitive sources of gravitational pull that act on each of the planets in the entrepreneurial solar system.

Moreover, a distributed program may find itself constantly in the position of competing for resources with the same departments and programs whose cooperation it counts on.

Not surprisingly—indeed, necessarily—most schools hybridize the two models. Those with independent departments supplement them with cross-disciplinary and co-curricular elements; those with university-wide programs bind them to at least one institutional center.

Strategies for cultural sustainability

As they have approached maturity, entrepreneurship education programs, both centralized and distributed, have evolved a number of common strategies to integrate themselves into university ecosystems. Not everything works everywhere, but our discussions revealed some lessons, and also some unresolved tensions.

“Democratize” ownership. Simply creating an entrepreneurship track within, for example, a business

school or an engineering school does not seem very effective at creating cultural buy-in throughout the university. Instead, it is important, both for departments and for distributed programs, to let various university stakeholders adopt, define, and “own” concepts of entrepreneurship and programs themselves.

The University of Michigan, for example, has nineteen schools and colleges and 100 top-ten-ranked programs, according to an official there. To thrive both institutionally and pedagogically in this competitive environment, entrepreneurship education has focused on what the official calls “the democratization of entrepreneurship in a way that people in the liberal arts, business school, law, sports management, whatever—these people show up and are interested in trying to figure out how the pieces fit together.” An example is the law school’s entrepreneurial clinic, in which law students support student-run companies on and off campus. Law students get practice in their craft and exposure to the culture of entrepreneurship, without having to redefine themselves as “entrepreneurs.”

Blend your funding. One way to broaden ownership without sacrificing independence is to use a blended funding model, as many universities are doing. These models combine money from the university’s general funds and endowment with money raised from outside sources. Of course, many traditional university departments and schools also raise off-campus money, but finding the right blend is of special relevance to entrepreneurship education, which needs to remain nimble and maintain a cross-disciplinary perspective. The blended model mirrors the financing of a successful startup or company, balancing multiple revenue streams to remain sensitive and adaptive to changing marketplace conditions.

Specific funding mixtures vary, as one would expect. University of Michigan’s program told us it receives one-third of its financing from the university and raises the rest from outside. Rice University’s program raises 80 percent from corporations and only one-fifth from the university. Washington University in St. Louis receives 15 percent of

its budget from the central administration, 40 percent from the endowment, and the rest from gifts. Less important than the particulars of the blend is the *fact* of the blend, and the combination of discipline and relative independence it brings.

Ensure deans' support. A theme that surfaced repeatedly is the importance of support from the university's deans. It is common for the university's president and provost, with their institution-wide viewpoint, to be supportive, and for students and particular faculty members to be enthusiastic. Entrepreneurship programs also must attract the interest and favor of the school's deans. And their collaboration is crucial to the flow of resources and the cooperation of faculty. "The deans are critical," one university official told us, citing this example:

I work very closely with the dean of the law school, to the extent where we share our strategic plan. She said to me, "We really want to excel in the areas of entrepreneurship law. How can we work together?" If you can find champions on the campus on the dean's level, the deans then open up chairs and professors to encourage them to work with the entrepreneurship department."

A Rice University educator notes that a critical element of the success of their program has been participation on the part of the Deans of Engineering, Science, and Business, along with the Vice Provost for Research and Technology Transfer from the very beginning. Those four individuals serve as the board of directors for the Rice Alliance. This structure has ensured the sustained support from these four groups over the thirteen years of the program, despite the fact the individuals in all four of these positions have changed over time.

Entrepreneurship education administrators describe their jobs as, in part, identifying and partnering with deans who support their mission. They also must develop stratagems to win over the skeptical.

Funding can be an important piece of this puzzle. New programs can be seen as a drain on resources or energy, or

as a distraction from other important work, such as gaining expertise in the field or publishing research. By contrast, if an entrepreneurial program can bring new resources to the table—in the form of either new money or additional students—its endeavors may receive greater support.

Cultivate university champions. Support from the top is possibly the most important single factor in institutional success. The evangelism of a university president gives a program more clout within the university and more credibility outside, and it can influence the campus tone and culture to an extent that perhaps nothing else can equal. As one leader put it: "I'm blessed with a chancellor [who] is committed and giving me money, and I should never underappreciate that simple fact. If you do have someone at the top of the food chain [who's] willing to make that happen, that's helpful." At Michigan, according to a professor there, the president made a point of mentioning entrepreneurship in 80 percent of her speeches. "In each case, there was an example of what it means. Sometimes it was a student competition, or a startup of a medical company."

Support from the top is not, of course, something that people developing and running entrepreneurship education programs can directly control. What they and others can do, however, is help make presidents and provosts understand that they will need to get behind a program with real personal backing to create a strong, successful program.

Talk it up. One thing that a university president or chancellor can provide is visibility, which is important for programs whose success depends on keeping a high profile in the community, among investors, and within the university itself. "Talk about it again and again, everywhere," one university representative told us. "Consider events and communications beyond the initial launch; consider people beyond the core group; consider departments and units beyond those already engaged." Visibility can help build awareness of entrepreneurship education within the university and, no less important, can help weave it into the university's identity as "something we do here."

ENTREPRENEURIAL CULTURE AT ARIZONA STATE

How can a large, diverse university set about fostering an academic and social culture in which the teaching of entrepreneurship feels not tangential but central to the school's mission? Arizona State University, with its very large student enrollment of more than 70,000, provides an example of how diverse strategies can interlock, making entrepreneurship, as one official told us, "a steady, explicit, and visible part of the vision at ASU":

- All 10,000 or so freshmen take "ASU 101," an orientation course that gives prominent play to entrepreneurship.
- The university president makes a point of championing entrepreneurship in public advocacy. Senior university officials also stress entrepreneurship as a way of life within the institution, not merely as an instructional aspiration but as the way the place should run itself.
- Entrepreneurship is integrated into every college's strategic plan, and into a larger vision known as the New American University. This integration

pushes "every single college to think about how entrepreneurship is relevant to them and what they want to do and what they want to achieve," one former university official told us.

- The message is reinforced with messaging around campus and in deans' offices, for example with posters saying, "Value Entrepreneurship." So "you see it everywhere and you see it all the time."
- The president's office provides the schools with hands-on support in the form of University Innovation Fellows. These are free-floating facilitators who coach the schools on entrepreneurship and innovation efforts such as programs, events, and marketing ideas.
- Entrepreneurial concepts and approaches are seeded throughout diverse courses so students encounter them in multiple contexts. For example, a community service course prods students not only to come up with ideas for service projects but to form a sustainable enterprise and even apply to the ASU Innovation Challenge to seek development funds.

Escape the pigeonhole. The problem of stereotyping entrepreneurship—of defining, or appearing to define, the field too narrowly—already has arisen in the context of constituency and arises in the context of culture as well. Few of the faculty who teach entrepreneurship are full-time members of entrepreneurship departments; most teach business, engineering, or any of a host of specific disciplines that have entrepreneurial elements. Thus, broad faculty support for the mission of training entrepreneurs is important, and that support partly depends on faculty members' perceiving entrepreneurship education as being about more than just helping a fortunate few students start for-profit enterprises. "We could be more impactful if we had a word that had less negative connotations than 'entrepreneurship,'" one official said. "The initial reaction

in many of the schools [at our university was] a negative one, not a positive one. We overcame it in many ways by showcasing what it means in various contexts, and creating a common voice with many units behind us, but it's a really cumbersome task."

Some of the measures that help prevent pigeonholing already have been mentioned in other contexts but are no less important in this one. Educators suggested encouraging each discipline to define entrepreneurship in its own terms—in terms of what, say, musicians or architects do, not in terms of what Silicon Valley does. Equally important, they said, is to beware of talking exclusively about *entrepreneurship* per se. Instead, make a point of talking about "innovation," for example, "independence," and other terms that are more redolent of individual and social empowerment and less likely to be

associated purely with for-profit commercial business. Some argued that broadening the terminology is more than a public relations maneuver. “We’ve had to accept that a certain amount of the negative reaction to ‘entrepreneurship’ on the part of our students was correct,” one educator told us. “We’ve had to say there’s something right in this. We have engineering students

who identify as engineers first. How do we then understand the role that entrepreneurship plays in all of their lives?” Confinement within a stereotyped notion of entrepreneurship is likely to isolate the field within the university. It also may reduce programs’ relevance, real or perceived, in their communities—the subject to which we now turn.

■ Melding with the Community

A communitarian discipline

Entrepreneurship education benefits from melding the university with the outside community, and merging school with work (or life). Beyond the first-exposure stage, every stage of entrepreneurship education, at least at its best, requires students to interact with the real world: with team members on and off campus and with networks of mentors, investors, vendors, and customers in the community.

On the whole, entrepreneurship education programs have had notable success on that score. Universities always have attracted talent and expertise to their home communities, so they always have been engines of local economic dynamism. But entrepreneurship education is showing potential to take this dynamic to a new level.

To see why entrepreneurship education and community go hand-in-hand, consider some of the staples of university entrepreneurship programs:

- **Mentorship networks**, a near-universal feature of entrepreneurship education beyond the 101 level, connect budding entrepreneurs with advisers in the community. Of course, the result also is to connect business people in the community with young talent—and often also to connect local entrepreneurs and talent with each other.
- **Investor discovery**, a common element of advanced entrepreneurship education, strives to connect entrepreneurs with funders, most of them typically local. Investors, in turn, may organize new funding networks

to exploit the availability of fresh local talent. Students’ search for investment begins within the academic environment but can end up reorganizing and expanding the investment community outside the university’s walls.

- **Pitch contests**, idea jams, and other social events are most exciting when they are large, diverse, and visible. Partly for that reason, and partly out of an ethic of community service, most universities and student organizations open their pitch competitions and the like to the whole community, or large subsets of it (such as students at all nearby colleges). Thus, talent-surfacing exercises become community events, not just university events.
- **Post-graduation local partnerships**. Entrepreneurship programs cannot simply switch off after a degree is granted and drop their graduates into the job market. Nor can they fill the post-graduation gap with an on-campus job placement service, or place students on a ready-made track toward employment, as some vocational and professional schools can do. They frequently need to provide support for budding entrepreneurs after graduation in the form of continuing access to mentors and resources. That, in turn, requires partnering with local incubators, business organizations, investor networks, and so on.

When such efforts are successful, they may well become tightly integrated with their local environments. Exemplifying such intertwinement, an official at Syracuse told us, “We run Startup Weekends, and that’s a partnership with the community. That has been very successful. There are 150

people at each one; probably about eighty of them are students and seventy are not students. We also run a women's business center that helps out women in the community, but it also helps female students to get involved. It's viewed as that partnership, again, with the outside world." At Rice, an MBA formed the JGS EO (Jones Graduate School Entrepreneur Organization). The group's membership includes about 100 entrepreneurial CEOs who form small mentoring teams to mentor each other as CEOs. Additionally, the group has opened its doors to current MBA students who want to get advice and mentoring and build a network that can help them launch their own startups when they graduate.

The "outside world" can be more than just local. Competitions and other events can mobilize and organize resources not just within the immediate university community but also nationally, and even globally. In its first dozen years, Rice University's business-plan competition, which is open to graduate-level students worldwide and awards more than one million dollars each year in cash and prizes, has created a pool of more than 250 judges, half of them investors. In a 2012 survey, almost half of participating students said they had met ten or more valuable contacts in the course of the competition.

Interactivity as norm and catalyst

By their nature, community partnerships and networks ramify both inward and outward, creating new opportunities and relationships both on campus and off. Sometimes the interactions prove rich in both directions. By way of an example, the University of Miami has created a network of sixty venture coaches: members of the business community who volunteer five hours each month to work with students coming out of the university's Launch Pad program. They help students by offering monthly breakfasts, pitch-coaching sessions, advice on everything from fundraising to accounting, and more. According to a university official, the program ripples through the community in several interesting ways.

First, it helps root students and their companies in local networks and resources, often before they graduate, thus keeping many of them nearby. As a university official told

us, "Because we're the only private research university in the state of Florida, we bring in lots of students from outside the state. We want them to start businesses in south Florida; we don't want them to go back to Chicago. So the idea is to connect them to the community *quickly*."

That helps both students and community, but there is a second community dimension: "The venture coaches have become a network unto themselves, which is not something we anticipated. These are people who never would have come into contact with each other through the Chamber of Commerce, because they're from a broad range of fields. So we have sixty people who refer students to one another." Although investors are not allowed to take positions in the companies they advise, they can, and do, refer students to other members of the network. This deepens the community's resource base, as well as the students'.

Third, something less tangible but also important: the mentor network becomes a source of evangelism for both entrepreneurship education and entrepreneurship itself within the community, as the university official described:

There is no financial benefit for these venture coaches. They are giving their skills and their talents, and that's a nontrivial thing, especially for people who think that entrepreneurs are greedy and selfish and all about money. These folks talk about this experience in their own social worlds. When they go to dinner and cocktail parties, they say, "I'm working with students and this is a wonderful experience." They are broadcasting their own generosity, their own concern for building a business. I call this the pollination of beneficence. It's a hugely important thing and we can't measure it, but it's one of the ways entrepreneurship can help knit a community together.

Ramifications for the university

This kind of two-way interaction—indeed, multiple-way interaction—blurs the town-gown, academy-community

distinction. That it has emerged as a common, if not standard, characteristic of ambitious entrepreneurship education programs raises an interesting question going forward: to whom do hybrid university-community programs “belong”? Obviously, they can have more than one owner, and do. But universities find themselves juggling a mix of enterprises arguably more diverse in provenance and ownership than any faced by a conventional university program. Inevitably, identity questions will arise. Does entrepreneurship education primarily reside inside or outside the university wall? Or is it erasing the wall altogether? Even where borders are fixed, programs will migrate across them, in search of their own most appropriate business model. StartX, a new-business accelerator program begun in 2010 at Stanford (and funded, in part, by the Kauffman Foundation), is a case in point, and is now an independent nonprofit organization. If maturity brings entrepreneurship education a more established place in the academic sun, it also brings, paradoxically, new pressures to move beyond the university environment and sometimes leave it altogether.

■ Measuring Success

The mandate to measure

To a greater extent than with most other academic disciplines, entrepreneurship education programs are held accountable for measurable success. The critical word in that sentence is “measurable.” In traditional, core academic disciplines, such as in the humanities and sciences, it would seem odd to ask how many students have gone on to careers in, say, English instruction or applied mathematics. Programs are judged and ranked in terms of quality of faculty and throughput of students, but measures are mainly comparative rather than absolute, weighing institutions and departments against one another rather than attempting to judge how much a department has changed the world, or how much its alumni have produced. Professional schools

As with the other tensions discussed in this paper, we see no prospect that this paradox will be resolved. The task will be to manage it—and that task, we expect, will only grow more complex.

That said, the new models of university-community interaction being tried and refined by entrepreneurship education programs not only bring benefits, tangible and intangible, to students and communities; they comprise a powerful source of dynamism reshaping the university itself. Conventional wisdom nowadays has it that classroom education by bricks-and-mortar universities may be under threat of disintermediation by online education. If so, higher education may need to emphasize the things you can learn and do at a university that you cannot learn and do in classes online, and it will need to offer reasons to do them *here*, at *this* university and in *this* community, as opposed to anywhere else. Entrepreneurship education is a laboratory for the development of new kinds of curricular and locational value.

and vocational disciplines more often are asked to measure outcomes, but those are relatively easy to gauge: the number of students who get jobs, how much they earn, and so on.

By contrast, entrepreneurship education finds itself on the horns of a dilemma. On the one hand, the point of entrepreneurship is to have an impact in the outside world; learning without doing is not entrepreneurship, and doing without succeeding is not sustainable entrepreneurship. So entrepreneurship education effectively asks to be judged by measurable outcomes.

On the other hand, what exactly does one measure? The diversity of real-world outcomes and the unpredictable trajectory of the entrepreneur’s life make it hard to know,

even in theory, what to measure. What if an alumna starts two businesses, but both fail? Is that a measurable output? What if she has learned something valuable in the process, which she goes on to use in a conventional job? What if she then spots and exploits an opportunity that, but for her entrepreneurial experience, she might have missed? How can any of that be quantified? And over what time frame? And against what counterfactual?

So entrepreneurship education, by its very nature, finds itself required to measure success without clear criteria for what is to be measured. Moreover, even if the metrics were agreed upon in principle, textured knowledge of the sort needed to judge real-world success is hard to come by. As one longtime observer of the field told us, the university knows more about the student the day she first registers than it will ever know about her again. Yet entrepreneurship education programs face the expectation of measuring, as one person put it, “outcomes, outcomes, outcomes.”

Strategies for better measurement

A straightforward form of measurement is to count businesses started by graduates of entrepreneurship programs, or to count startups that received venture funding. Startups and capitalizations have the advantage of being easy to quantify, but they cannot measure the value *added* by the university’s entrepreneurship program. Some student entrepreneurs, after all, would have founded ventures even without the university’s help; others would have embarked on *different* business ventures, or experienced different outcomes.

Although controlled experiments are expensive and potentially impractical, universities have made progress in finding more textured, nuanced approaches. An example is the so-called LEO-I model, in use at Arizona State. It seeks to collect and weigh data on four dimensions:

- **Landscape:** What does the university offer by way of training in entrepreneurship, including any courses that contain entrepreneurial components?

- **Engagement:** How many students are enrolling in and completing entrepreneurship coursework? How many faculty and staff members, mentors, and other participants are involved?
- **Outputs:** What are the quantifiable outcomes from the programs, such as startups, venture financing, patents, and so on?
- **Impact:** To what extent has the program changed the world or inflected students’ lives? Impact is subtly but importantly different from output, and harder to measure. “If you create twenty-five student startups but they’re dead in a year,” a university official told us, “that’s an output but not an *impact*.”

The LEO-I template, while by no means the only or single best way to go about measuring, is a useful way to organize thinking about metrics, including, as it does, both narrow and broad yardsticks. Merely the act of using such a measurement template can help keep a program focused, even if the data are unscientific. Arizona State, for example, displays scoreboards tracking such things as the number of companies founded, their revenues, competition finalists and winners, and the securing of outside funding. “That’s not just about us collecting data,” an official told us, “but telling the community how successful—or not—we’ve been.”

Another useful measurement tool is the survey. Stanford, for instance, recently surveyed 140,000 alumni from the 1930s and 1940s up to the present day, asking whether they had founded businesses, which of Stanford’s programs relating to entrepreneurship they had used, and which were most useful. The results showed that founders took more advantage of entrepreneurship offerings than did nonfounders, and that those locating companies near the campus were more likely still to have participated in university entrepreneurship programs.

Still, where metrics are concerned, much remains to be done; the development of metrics lags behind the pace of entrepreneurship education program development. In conversations with us, people in the discipline argued

for more standardization of survey techniques and other measurement methodologies, without which it is hard to conduct multiuniversity studies or meaningfully compare schools and programs. They also voiced a need for more sophisticated measures (and concepts) of *impact*, an as yet ill-defined concept. They urged transparency in the gathering and use of data, citing the potential for careless and overbroad, sometimes even bogus, claims.

Hazards of overmeasuring

Despite such problems, the majority view is that measuring success is both worthwhile and practical, even if measures are less than perfect. "It's very easy to criticize various metrics and ways of measure," one participant told us, "but I think the important thing is to just start tracking *something*, so there's some baseline to compare changes and improve on the methodology over time."

That said, we also found a cautionary crosscurrent. Indeed, enough unease surfaced to suggest that it is appropriate to step back and ask some questions about the mandate to measure.

We found concerns in four areas. First, the mandate to measure may incentivize marginal programmatic changes that nudge outcomes measures up a little bit, thereby distracting educators from bigger changes and bolder experiments that could have more impact. "For me, the metrics have done the opposite of what you hope they would do," one person told us: they put educators in a "state of comfort." Too many educators, he said, are satisfied that they are in the top five or ten by some indicator when instead the question should be, "How do we ten-times improve?"

Second, we found concern about defining success too narrowly in terms of startups and venture funding. Business launches are glamorous and easy to count, but an excessive focus on them may be like looking for lost keys where the light is best, rather than where one mislaid them. The consistent emphasis on startups, some said, means too little attention is paid to benefits of *intrapreneurship*, the use of entrepreneurial skills within established businesses, where much valuable

entrepreneurship and innovation take place. It also overlooks the rapidly growing importance of "solopreneurship," in which individuals in personal-service industries such as design and marketing turn themselves into, as it were, microconglomerates, developing portfolios of products and networking with other solopreneurs to create sustainable personal brands and businesses. Startup-oriented tunnel vision, in other words, can diminish entrepreneurship education's relevance to many of the people who need it most.

Yet a third problem with measurement is its tendency to emphasize big success stories, in the form of high-revenue, fast-growth, and multiemployee businesses. Dollars, growth, and jobs are easy to count, after all. No doubt, the home run successes are impactful and important, but they represent only one slice of the entrepreneurial spectrum, and not the slice that is most relevant to most people. Many, after all, will start not the next Facebook but an art gallery or restaurant, generating good earnings for themselves, jobs for several others, and a fulfilling lifestyle. Metrics that ignore and implicitly denigrate companies that lack "10-X" growth potential overlook the great majority of entrepreneurs who never raise venture capital or appear on TechCrunch. That, in turn, can further feed the stereotype of entrepreneurship as being only for the Mark Zuckerbergs of the world.

A fourth concern about excessive emphasis on measurement cuts deep, to the mission of the university and the purposes of pedagogy. Starting businesses is all well and good, but, in education, intangibles often matter more, we were told. "We're driving students to focus on the wrong thing," one educator said. "Rather than focusing on the impact of what they've learned and how to take it and use it in whatever they decide to do, we're trying to push them" toward measurable successes. "It's an *education* program. It's not a student-startup program. It's about them *learning*." Another educator made a similar point: "How do we measure a student's ability to test convictions because they have an idea, versus an excellence which is predefined by the instructors? If you've taken an entrepreneurship course, have you been *transformed*?" This participant said that the more

important goal is personal growth, not business growth. “I think the personal development aspect is ultimately what is important in entrepreneurship education.”

No one is against improving the evaluation of programs and the measurement of success. Methodological progress,

all agree, is valuable, and the space for improvement is ample. On the other hand, to judge by what we heard, there is a real risk that the quest to quantify may, unless appropriate caution is used, become a source of pedagogical distortion.

■ A New Dynamism

The next opportunity: spontaneous order

In the course of the research and discussions that produced this white paper, two themes bubbled up repeatedly in various contexts. One sounded a note of caution: the concern that the stereotyping of entrepreneurship education as being of interest primarily to self-identified entrepreneurs, and as being interested primarily in high-tech, high-growth companies, artificially and counterproductively will limit the discipline’s relevance and appeal. In every discipline or business, to be sure, maturity brings a laudable tendency to develop and stick to core competencies and constituencies. But, as earlier sections of this paper have made clear, educators worry that the discipline already may have narrowed its mission and its brand more than is truly necessary and desirable—by alienating students who identify as, say, musicians or designers rather than as entrepreneurs; by pushing students toward competitions and ventures prematurely or inappropriately; by defining success in the framework of startups and venture capital, rather than in the framework of life enhancement; and by failing to diversify the brand beyond the term “entrepreneurship” itself.

This paper will have served a useful purpose if it helps people in the field think about the pitfalls of undue narrowing of scope (real or perceived). But in this final section we explore a second theme that also surfaced repeatedly, one which may have the potential to obviate or offset many of the risks posed by the first.

That second theme is the dynamic interaction as communities, networks, and energies organized and unleashed by entrepreneurship programs reach back into universities and reshape the programs themselves. Here we find a truly *dynamic* ecosystem, in the organic rather than merely mechanical sense of the term. If entrepreneurship education began as a top-down curricular offering created by universities, and then evolved a bottom-up component of student and community involvement, over the past half decade or so it has entered a stage in which the top-down and bottom-up elements interact spontaneously and sometimes unpredictably.

Mentors and (especially) students as leaders

The emergence of mentor networks as a force in their own right, discussed above, is a prominent example. Mentor networks originally may have been set up by university officials to guide students, but in some cases they have, so to speak, come to life, operating as independent entities financing start-up enterprises, stimulating student ingenuity, and both supporting and prodding the university itself.

Perhaps even more striking are student-initiated programs. These are not new. Student organizations focusing on entrepreneurship have been around for some time. But a threshold of criticality seems to have been reached in the mid-2000s, when student interest became widespread enough to spark frequent change. “The real driver of this ecosystem now is students,” one long-experienced educator told us. “That’s a critical element.” Another used a

STUDENTS TAKE CHARGE

Students are reshaping entrepreneurship education programs, sometimes with the support of faculty or program leadership, but sometimes by circumventing or pressuring academic bureaucracies. A few examples:

- The Eastman New Venture Challenge is a contest to encourage new thinking and innovative ideas in music. It was started in 2006 by the Institute for Music Leadership at the Eastman School of Music (University of Rochester). Two former first prize winners have received patents on their inventions—related to drum and chin rest design.
- University of Michigan students successfully petitioned for more entrepreneurship offerings in liberal arts programs; launched weekend solution-seeking brainstorming sessions; and encouraged the school of education to include entrepreneurship in the Teach For America program.
- Undeterred by an administrator's unwillingness to support his idea, a University of Utah medical student took his idea for a medical device competition to the entrepreneurship center, which helped raise money for a "Bench to Bedside" competition now in its third year. "We ended up with twelve new patented devices in the first year, and had ninety clinicians involved in being mentors with the students," an official told us.
- Rice University students started an elevator-pitch competition for engineering PhD students; MBA students then agreed to serve as judges and, through their entrepreneurship club, put up cash prizes. MBA students also initiated midsummer "Next Big Idea Weekend" brainstorming sessions to generate entrepreneurial ideas for the coming academic year.
- At Washington University in St. Louis, doctoral and postdoctoral students created Balsa Group, a cross-disciplinary organization that gives its participants commercialization experience by providing consulting services for early-stage biotech startups in the community. Though affiliated with the university, the group is an independent nonprofit organization and sustains itself with consulting fees.

striking, if less organic, metaphor for the impact of student leadership: "Sometimes I say we scratched the surface and struck oil." He added, "Our real point of success...is letting students start ventures and wrapping a curriculum and mentorship and support around that."

The sidebar "Students Take Charge" (above) provides a sampling of the kinds of dynamism that student involvement is generating. That dynamic element makes the future of entrepreneurship education less predictable than it otherwise would be. But it points to an emerging phase when entrepreneurship programs increasingly are self-defining—a change which, to some extent, may mitigate concerns about stereotyping and pigeonholing. To put the point another way, for both better and worse—

but, we expect, largely for the better—the boundaries of entrepreneurship education increasingly will be set by the ecosystem itself: by student-led incubators and competitions; by far-flung faculty members who insert entrepreneurial elements in their otherwise unrelated courses; by mentors who pass talent and ideas along their networks, recruiting still more mentors and talent as they go; by vendors and investors who help launch businesses and inspire yet more student involvement—thereby further energizing the whole process.

Reinventing academia?

An interesting wild-card question raised by this dynamic process is that of control. When does a university program

lose its educational identity or migrate away from the traditional university structure altogether? As we mentioned in a previous section, such migration already is happening as student- and community-led programs gain independence and become university affiliates or partners rather than university programs. (Stanford's StartX is an example.)

Educators in the field will have a balancing act to perform as they juggle a traditional pedagogical mission with the demands of students and communities who are reshaping the mission as they go along. It is not a given that universities will be able to manage the forces they are marshaling. To serve simultaneously the interests of both

education and commercialization, of both academy and community, is not an easy task.

That said, we believe the proper note to end on is one of promise, even excitement. The dynamism unleashed by entrepreneurship education programs in and around campuses across the country has the potential to reshape not only those programs but also the local economies in which they are embedded and the universities in which they originated. And, perhaps more fundamentally, it has the potential to reshape students throughout the country, offering them the tools and mindset they need to approach their careers—in whatever field they chose—from a more entrepreneurial and innovative perspective.

■ Appendix 1: List of Participants/Contributors

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Notes

- 1 *Entrepreneurship in American Higher Education: A Report from the Kauffman Panel on Entrepreneurship Curriculum in Higher Education*, July 2008, p. 6. Accessible at kauffman.org/uploadedfiles/entrep_high_ed_report.pdf.
- 2 Ibid.
- 3 Ibid., p. 16.
- 4 We are indebted to Paul Magelli of the University of Illinois at Urbana-Champaign for access to unpublished research that he and his colleague Cindy Kehoe performed for the Kauffman Foundation.
- 5 Laura Pappano, "Got the Next Great Idea?" *New York Times*, July 19, 2012.
- 6 For a discussion of these themes, see Hannah Seligson, "No Jobs? Young Graduates Make Their Own," *New York Times*, December 11, 2010.
- 7 *Entrepreneurship in American Higher Education: A Report from the Kauffman Panel on Entrepreneurship Curriculum in Higher Education*, July 2008, p. 8. Accessible at kauffman.org/uploadedfiles/entrep_high_ed_report.pdf.



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