Stanford eCorner

Comparing and Contrasting Entrepreneurship Programs

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The following interviews were conducted during STVP's annual Roundtable on Entrepreneurship Education for Engineers, hosted at Stanford in October 2001. Five entrepreneurship center directors from leading entrepreneurship programs were invited to share their visions, successes and challenges. Their stories will provide a collection of models for other colleges and universities who are planning to establish an entrepreneurship center.

Transcript

The Stanford Technology Ventures Program, known as STVP, is the entrepreneurship center in the Stanford University School of Engineering. STVP strongly believes that students who are trained in science and engineering with leadership and entrepreneurial skills excel in all areas of business. Our hope is to share our vision and our resources to students and faculty in other universities around the world. The following interviews were conducted during STVP's annual Roundtable on Entrepreneurship Education for Engineers, hosted at Stanford on October, 2001. We invited five entrepreneurship center directors from leading entrepreneurship programs to share their visions, successes and challenges. We hope that their stories will provide a collection of models for other colleges and universities who are planning to establish an entrepreneurship center. When we talk about entrepreneurship education, we're talking about exposing our students to the thought of thinking like an entrepreneur. It's a style of managing and leading. It's one where it's focused on opportunity. Cornell's mission in entrepreneurship education is to create a diverse set of courses and activities, to reach out, to find and foster the entrepreneurial spirit in every Cornell participant; in every school and every college in the campus.

The focus of our program is on our students. They are our customers. So, our goal is, really, to give them the resources and the skills that they need to have an entrepreneurial mind set. To create and nurture a culture of technology innovation, creativity, leadership and enterprise at the University of Texas at Austin. Our mission statement is quite simple. It's to create a new generation of managers and scientists, able to lead and inspire the high-technology commerce in the future. The vision of the program is create a diverse set of activities to find and foster the entrepreneurial spirit in every Cornell participant, in very school and college, in every age. Specifically, we have a dedicated Chair in the engineering college who teaches Engineering Enterprise and starts off by a two-credit hour freshman course to try to introduce the topic to Freshmen right away. We also have a chemistry professor who teaches a course in Chemical Enterprise for entrepreneurs, to reach out to chemistry and biology major students. Well, the mission statement is simple; it's to create a new generation of managers and scientists, able to lead and inspire the high-technology commerce of the future. That's a simple statement, actually; very complex to deliver that. We're a joint venture linking on London Business School and University College London, where UCL is the largest research technology university in the U.K.

So, we're really linking two world class centers together to drive science enterprise between them both and linking them together in the exercise. The program is focused--I think we look as the students as the most important component of our

program. And our goal is, really, to send them out of the university with an entrepreneurial mind set, to have the ability to recognize opportunity, to gather resources, to be able to start a venture if they want or to become entrepreneurs inside of a large corporation. The mission statement is, really, to create and nurture a culture of technology innovation, creativity and leadership at the University of Texas at Austin, in the community that we serve. The Stanford Technology Ventures Program or STVP is the entrepreneurship center at Stanford University located within the School of Engineering. Our mission is to accelerate high-tech entrepreneurship education for engineers and scientists, not only here at Stanford--on campus, these college students--but worldwide. We, actually, run quite a complex structure. because we are a virtual organization. We fund other people who do exciting things. So, as an example, within UCL, we fully fund members of faculty within bi-committal engineering who teach innovative entrepreneurial courses both at undergraduate and the postgraduate.

We also fund consultants to come in to co-design the course and co-deliver it to make sure it's really embedded in business, not embedded in technology. We also fund entrepreneurial education across departments within UCL both for the undergraduate level and the postgraduate level. The postgraduate level is delivered by the Department of Educational Professional Development. Where, again, we fully fund the member faculty to design and deliver postgraduate enterprise courses. At London Business School, we fund individual courses. So, we funded the design of new courses. And we funded students from UCL, that means the faculty from UCL to go on London Business School courses. The program has really three major components; we have the academic side, we have the outreach and we have the Alumni. On the academic side, we have a graduate program and an undergraduate program. And they, kind of, mirror each other; except that, at the graduate level, we deal in technology commercialization as well.

Our outreach program is our outreach to the other schools in the campus. And we have something called the Technology Commercialization Alliance which is a partnership of the medical school, the engineering school, and the Marshall School of Business. So, our goal is to help our faculty and our graduate students commercialize the technologies that they've developed at USC. So, that's one of our big outreach programs. And then our Alumni; we have a huge connection with our Alumni. In fact, every March, about 300 alums comeback to the university to spend the day and share their success stories and network with each other. So, we actually, have a group of faculty, some are full-time, regular faculty combined with some that are part-time-- up to about eight or nine faculty. We also augment that with some terrific staff members. And together, we teach courses, we do basic research, and we reach out to industry but also to other schools. We are, again though, focused entirely on engineers and scientists.

That doesn't mean that we don't have business school students also in the classroom, where law students or school students from the humanities; it's just that we live, breath and eat developing the proper kind of entrepreneurship education for engineers and scientists. The entrepreneurship program at Cornell is a product of nine schools and colleges. So, as the director, I work for a board of Deans and report to the Chair of that board. Each of the schools and colleges has faculty in the entrepreneurship or personal enterprise arena and they teach courses. Our center provides funding for a number of faculty who develop new courses across the university. And that's one of the major things we do to spread the instruction to multiple schools and colleges. We, actually, have programs in the School of Business, in the School of National Sciences, in the College of Engineering. And we cooperate with IC2 which is the institute for creative capitalism. And I'm heading the program in engineering. We work closely with all three of the colleges, previously mentioned, as well as the School of Law.

And the program is inter-disciplinary, in that, we get students in law, students in engineering, students in natural sciences and business students together in classes, actually, working on entrepreneurial concepts. Back in 1995, we had a Dean that hired me. We put together a vision to look at the best ways to educate engineers and scientists about entrepreneurship. So, to get started--a lot like entrepreneurs started--a young company, we tried some things. We experimented for a couple of years. And then, when we found that we're having a good deal of success, we expanded the program by a great order of magnitude in 1997. We raised the significant money and added the team to do that. From then on, it's been gaining a lot of momentum. The fact, we had developed and understood the need for students to have a broader understanding of how their engineering education applies to society and the dean had seen that separately with encouragement of his outside advisers; so, it's something that has grown quite naturally. So, we were founded following the grants by the U.K. government of 4.6 million. Our board is a third London Business School, a third UCL and a third independent.

So, we're really outside the universities but totally free to generate activities within them; which is the best of both worlds. And it works well because neither university competes in anyway with the other. One is a world-class business school with research and teaching and application of business. The other is a college university with no business school or business teaching at all. So the fit is absolutely ideal. The program at Cornell evolved because of the interest of one alumni person in the early '80s. And that person created a Chair in the business school at Cornell which is a graduate school. But he required that each semester, the graduate professors teach that course to undergraduates without prerequisite. So, from the middle '80s until today, there's always been an opportunity for any student at Cornell to take entrepreneurship at the graduate business level. The thing at Cornell that is most pleasing to us, is that we have a faculty of 26 participants from all nine schools and colleges.

In fact, I've been stopped by a number of Associates Deans from different schools and colleges where we're meeting. And they'll say, How did you get all those faculty to come into it without an incentive? And I say, "The incentive is they're responding to student demands and student interest." And they found that it's fascinating to find out from each other the similarities as well as the different approaches in different schools and colleges to entrepreneurship. Well, I'm proudest of two of our innovations. One is the granting of scholarships to PhD students within technology fields; where those who succeed in getting the scholarships extend the PhD term by three months. And during their last year, they write a check for the PhD which is loosely titled, commercializing their research base. This is a great way to imbed business skills and culture--not just within those students--but within the whole department because these PhDs are then reviewed by professors and academics who may have little business exposure. They learn an enormous amount from what is the pinnacle of the academic hierarchy--PhD theses. The second major innovation we have, is we are taking 40 or more research scientists from UCL and putting them into London Business School electives as full participating students. And these members of UCL include heads of the departments, course directors, research scientists, heads of research groups. And they're interacting fully, they're taking courses for credits, getting marks in teams of MBA students.

And this is, again, really changing the culture of the technology departments by allowing them to understand the role of business in technology; in helping them be better researches, get more money for research, be better teachers and better mentors for their students. I think our students make us the most proud. To see them come in the beginning of the program; nervous about whether they could become entrepreneurs, not having an idea of what they might do. And by the end of the time that they're with us, they're out starting ventures and feeling very confident about their futures. Particularly, in times like these where it's difficult to find jobs and things aren't quite the way they use to be 18 months ago. It's giving them a level of confidence, that they can take charge of their lives and that's very gratifying. Things that we are most proud of are the students. In fact, the learning processes they've, actually, gone through. Another thing that's been very impressive is the cooperative environment that we've created among various colleges. It's frequently difficult at a university to work between departments in one college.

And sometimes, it's seemingly impossible to work across colleges. But this is one, where each college has really stepped up--individual faculty members, as well as administrators--and supported the entrepreneurial effort. I'm proud of a couple of things. One is what we've done on campus. We teach about 1,200 engineers and scientists a year in some aspect of entrepreneurship. We have, also, put together a robust high-tech entrepreneurship research agenda, if you will. And that means we're producing some PhD students who are going to go out and be future professors of entrepreneurship. So, that's on campus. I'm very happy about that. Off campus, through events like we're having today which this event is called the Roundtable on Entrepreneurship Education for Engineers.

It's a mouthful but it is a very exciting day, where we have about three dozens of the top US engineering schools here on campus today represented by 60 faculty members where we're sharing best practices on what we do. And so, we're having an influence and impact, frankly, on all engineering schools in the United States which is, I guess, what makes us most happy. We're facing, rather, an unusual challenge in Los Angeles. There's a lot of entrepreneurship and you can find resources on entrepreneurship everywhere. And you couple that with the fact that our university, the great point averages in scores are going up so dramatically and it's becoming so difficult to get into the university. We're getting a different class of students. And so, the entrepreneur--the more creative types--are actually a little bit in decline in the business school. Where we're finding our biggest audience now and the challenge is, is in the scientists and engineers on our campus who have huge interests in entrepreneurship now. We're getting 4.6 million by the UK government that are seeking to develop a range of commercial activities which we can use to support educational activity. But again, the danger with generating commercial activities is that we're a charity. And there are certain things that charities cannot do.

They begin to conflict with the educational objectives that you have. The most challenging aspect of the entrepreneurship program is to secure permanent funding. Because we are a diverse program--meeting the needs of many different constituencies--there's no one secure resource. On the other hand, the opportunity that's provided by that is because we've done a good job of engaging alumni, there's now momentum building that this is a resource that will be preserved on the university. I think we've overcome most of our challenges--not to say that we don't have more but the one that comes to mind and most often is: is that people think entrepreneurship is about starting companies. They think that entrepreneurship educators' number one job is convincing their students to go start a company right now. When in fact, the people that are here today at our conference, the 60 educators that I talked about in the top 30 engineering schools; we are at violent agreement, that is not why we do that. And so, one of the big challenge is to explain that to all the different constituencies; whether it's alumni, deans and presidents of universities, and even to the students themselves, is to get that word out that this is not just about starting companies right away. It is about how to think like an entrepreneur. It's about how to have a mind set that is focused on opportunity. Not focused on how much cash do I have in my wallet, how many resources do I have and how do I administer those resources.

It's about seizing the day. It's about--and I don't care what you do, whether you work in a start up, work in an established

company, work in government, be an educator; if you think like an entrepreneur, you're obsessed with opportunity. And that's what we're really trying to teach. I think the challenge are cost opportunities. And it's really being able to fulfill the opportunities that we have. We've done a good job of building teams inside the university and our biggest opportunity now is reach outside the community that we serve and build relationships outside of the University of Texas. The biggest support for the program are the entrepreneurs' graduate: the graduates who are entrepreneurs. And what we find is because they come from diverse backgrounds; predicting a model in Cornell where we're trying to provide this education opportunity that any student from any background is supported by the Alumni. So, we have entrepreneurial alumni who are English majors or are in our Industrial Relation School or in our Law school or in our Veterinary Medical School. And their interest is that students in the various schools and colleges have an opportunity early on to get exposed to these particular forms of looking at things.

Strongest support within London Business School, clearly, comes from the foundation for entrepreneurial management which is the department on our business school which teaches, researches and actually practices entrepreneurialism. We, actually, have a lot of support from other departments in other business schools as well; like organization in human behavior where leadership and technology organizations can be source of topics or key to technology development. And technology development is key to their research base within University College London. Some of them were applied departments like biochemical engineering; extremely innovative and very willing to work with us closely. One of our biggest areas of support for the Grive Center is our advisory council. They contribute money to the program. They contribute their time in the classroom. Our advisory council is made up of alums and infrastructure people like venture capitalists and attorneys and accountants. And so, they come in and lecture to the students. They provide consulting for the students and then of course, the funding in the program that gives us some money to do some special things. Well, we've had a part of the Chair for enterprise as support for the engineering entrepreneurship society.

And they're cooperative with the entrepreneurship society out of the School of Business. As far as financial support is concerned, we've had support from the Chair for Enterprise, the Rodan endowment, Ford Motor Company and over 100 companies that support our design projects for our students. Turns out that the notion of 'why should you teach entrepreneurship to engineers and scientists' is, actually, not the question anymore. Out of the 350 engineering schools in America and an associated number overseas, pretty much everyone of them is thinking about 'how' at this point. We want to do it but how? And so, for those that have efforts underway or just starting, my recommendation on how to put together a curriculum is to realize there's a lot of resources, there's a lot of support. And of course now, the financial support will come from donors for the university and that sort of thing. And that's, sort of, unique to each campus. But I tell you what, if money can be had--so let's assume that money is there just to crank something up; it's just that where can you turn to get the tools and resources to do that? And there are some great places to do that. They just weren't there a few years ago. Number one, we'd like to think that what we're doing at the Stanford Technology Ventures Program and our websites and our conferences is a good place to start.

There's, actually, tools on how to get started. They're up on our website. Two, there's the American Society for Engineering Educators--that's the long word or a long phrase but it's a well-established group of engineering educators in the United States that have different special interests groups. There's a special interest group with the vision of that with over 200 members called the Entrepreneurship Division that meets once a year. And there's tons of help to be garnered from there. I can keep going. One other that comes to mind is the NCIIA not the NC double A but the NCIIA. And they are another organization that supports technology entrepreneurship education with grants. As a matter of fact, if in terms of financial support, as well as tools. So, those are just a few.

And as a matter of fact, you can learn about all of those by visiting our website at STVP. We link to all those support organizations.