

Proceedings
Teaching Entrepreneurship to Engineering
Students

Engineering Conferences International

Year 2003

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Collaboration: the Caltech
Entrepreneurial Fellowship Program

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LESSONS IN INTERDISCIPLINARY COLLABORATION: THE CALTECH ENTREPRENEURIAL FELLOWSHIP PROGRAM

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The California Institute of Technology (Caltech) and Art Center College of Design (Art Center)—are founding partners in the Entrepreneurial Fellowship Program (EFP)—a program that is part bootcamp, part finishing school for technologists. The EFP is a post-degree fellowship program that enables students previously trained in science, engineering, or design to learn new skills geared toward the development of commercial products in a start-up environment.

With funds from the NSF Partnerships for Innovation program, The Fellowship is full time and provides participants with a stipend for 6 months. Graduates of Caltech, Art Center, USC and UCLA team on a technology in a hands-on learning environment to develop insights into entrepreneurship, product design and business.

Although the EFP addresses the needs of young entrepreneurs by providing time, money, connections, and skills, the primary objective of the program is educational, and culminates in a business plan and investment pitch. Through iterative coursework, Fellows learn about business strategy and practices, develop presentation and leadership skills, and build relationships with potential clients, financing sources, and mentors.

Caltech and Art Center are vastly different institutions and the partnership taught us several lessons that may be of value to other schools developing interdisciplinary programs. This list is neither rigorous nor exhaustive, but is presented as summary notes from the presentation.

A. Think like an entrepreneur. One goal of the EFP is to encourage entrepreneurial behavior among our students. Ironically, in order to implement the program, the faculty from the two schools had to behave entrepreneurially as well. In program development meetings, we found the following “rules” to be useful in guiding our collaboration.

1. *Be opportunistic.*—Allow partners and circumstances to shape your program to some degree. Whether you are leveraging existing courses or capitalizing on alumni interest, seek out resources that may be compatible with your agenda.
2. *Find a champion (and their replacement).*—For every partnering organization, find 2 or more people in that group who will promote your cause internally. Members of the development team will change over time, so keep recruiting people to participate. This will offset attrition as well as generate a stream of new ideas and contacts.

- 3. *The customer is (almost) always right.*—The customers in an educational program are the students. Get regular feedback from them on the coursework, the lecturers, the team dynamics, etc. The more you experiment, the more you need to check your results. However, ignore students' requests for more structure. Chaos is vital to entrepreneurial learning.**

4. *Cash is king.*—The more cash you have, the more resources you can command. Be creative and persistent in your pursuit of funding. Governments, communities, businesses and individuals are all potential sponsors. Alumni or civic leaders may be willing to fund a chaired professorship in entrepreneurship, or local government may have funds for workforce training, or grant agencies may fund academic research around your entrepreneurial activities.

B. Manage expectations. The wonderful thing about interdisciplinary collaboration is that everyone thinks differently. The terrible thing about interdisciplinary collaboration is that everyone thinks differently. It is natural that misunderstandings will occur; for this reason, it is important to regularly check that everyone is still working on the same goals.

1. *Find a common language.*—The languages of science and design are highly specialized. We saw that, even when people agreed on a goal, their wording could be so obtuse that they didn't realize that they were in agreement. The common language we inevitably settled on was that of business. At the earliest stages of the collaboration, few Caltech or Art Center faculty spoke the language of business, which had the advantage of putting everyone on equal footing.
2. *Hire a translator.*—Business is filled with its own jargon and shorthand and an expert guide is useful. One or more business practitioners (preferably entrepreneurs) should be part of the development team to ensure that the entrepreneurship curriculum is relevant. In addition, be aware of common words which might be defined differently; for example, Caltech and Art Center educators didn't use "product design" in the same way. To an engineer, product design might mean a bolted together prototype, while a designer might be referring to an airbrushed concept sketch. In business, product design also includes pricing and market considerations.
3. *Incubators should be left to the chickens.*— Dissuade students (and administrators) from thinking that there will be a viable company resulting from your academic activities any time soon. Professional entrepreneurs with more contacts, money, and experience often fail to make their ventures work. We modeled our program after a classroom rather than an incubator, and focused on the educational objectives. *(Please note that successful incubators do exist, several of which were described at the conference and that demonstrated it takes 10-20 years to achieve success. Take care to manage the expectations of your administrators and politicians so that they do not inflate the commercial impact your program is going to have in the near term.)*
4. *Two heads are not better than one, if they think exactly alike.*—The more diverse the program participants are, the better the program. Though such relationships may be a challenge to coordinate, it is well worth the extra effort. Different professional fields will offer alternate approaches to teaching core entrepreneurial topics, such as creativity, innovation, and communication. Look outside your own institution, as well, for instructors, mentors and partners.