

Campus Entrepreneurship Opportunities

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Abstract

This paper discusses a new and unique undergraduate entrepreneurship program at the University of Maryland. - The Hinman Campus Entrepreneurship Opportunities (CEOs) Program. The CEOs Program was initiated in the fall semester of 2000 for students interested in starting entrepreneurial ventures when they graduate. The University and its corporate partners provide many resources, activities, courses, technologies and services to assist the students in learning how to start successful companies. An important feature is that students admitted to the Program live together in an incubator-like residence hall where they can freely exchange ideas with like-minded students. Living and learning together, these students are provided with a unique opportunity to interact with their fellow CEOs. This environment has the potential to impact the way the CEOs think about their careers, their destinies, and their ability to start businesses right out of school.

1. Introduction

Employment options for graduating students have generally centered on large corporations and government; however, in recent years, students across the nation are realizing that a third option - starting their own companies - has significant appeal. This is especially true at the University of Maryland where the new and unique Hinman Campus Entrepreneurship Opportunities (CEOs) Program has been initiated. The University is the academic anchor of the Baltimore-Washington corridor, one of the nation's fastest growing research and development centers and home to a concentration of technology-based industry and support services.

The University of Maryland has a history of internal cooperation in offering programs that foster entrepreneurial activities through the Engineering Research Center in the Clark School of Engineering and the Dingman Center for Entrepreneurship in the R. H. Smith School of Business. These centers provide support to the campus and the community in entrepreneurial endeavors.

While a number of leading universities and colleges have entrepreneurship programs and activities, most are aimed at graduate students.¹ Common activities offered within these programs include courses in entrepreneurship, e-clubs and business plan competitions. The CEOs Program is unique in that it is exclusively for undergraduate students, who live together as a community within the University.

It has been shown that students demonstrate potential strength in entrepreneurial ventures through their opportunity recognition competency, leadership competency, goals, self-efficacy and start-up and growth strategies.² The CEOs Program helps students to recognize, develop and nurture these characteristics.

2. Program Overview

Brian Hinman, University of Maryland Alumnus of the Clark School of Engineering and entrepreneur, provided \$2.5M to initiate and support this program for its first ten years. The Program was established in the Fall of 2000 as a joint partnership of the Engineering Research Center and the Dingman Center for Entrepreneurship. The Program is co-directed by a faculty member from each Center.

The CEOs Program is a living-learning program offered to undergraduate students who have demonstrated interest and potential strength in entrepreneurial ventures. Students from all majors can apply, and all aspects of diversity are sought. In the first year of the Program only juniors and seniors were eligible for participation, but in successive years, sophomores will be accepted and gradually phased into activities with upper-class CEOs. Admittance into the program is based on GPA and an essay that discusses both the applicant's interest in the Program and his or her initial ideas for an entrepreneurial venture.

Students can enter the program individually or as teams. A variety of team-building activities are used to help students to identify others with complementary skills to make up balanced teams. Activities include team-building workshops to facilitate team formation and educational modules that focus on development of strategies for working together for development of skills including idea generation and time management skills.

Students who participate in the Program are referred to as "CEOs." A unique component of the CEOs Program is that CEOs reside in a special residence hall that includes an incubator-like business environment with conference rooms, a computer lab and state-of-the-art technology that is more sophisticated than that found in many businesses.

The Program promotes the development of student teams that have the goal of pursuing an entrepreneurial venture.³ Each student team is assisted in the development of a business idea from conception, through design and ultimately to the formation of a company. This process takes place over a period of up to three years while the students are undergraduates, culminating with the students being prepared to pursue a successful entrepreneurial venture upon graduation.

Each year the CEOs Program culminates with each graduating team having developed a business plan suitable for attracting financing. During the time students are in the program, they participate in multi-faceted activities emphasizing: community, team building, diversity, partnerships, educational seminars, use of modern communications technology, mentoring, entrepreneurship education and business plan competitions. The ultimate goal of the Program is to improve the probability of success of entrepreneurial ventures by the CEOs.

An important program objective is to facilitate the development of teams of students with complementary backgrounds, majors and skills from a highly diverse student body. Table 1 shows the distribution of majors being pursued by the current CEOs.

Table 1 Degrees Pursued by CEOs	
Business	34
Engineering	34
Computer Science	5
Government/Political Science	4
Communications	3
Psychology	3
Journalism	2
Letters & Sciences	2
Architecture	1
Classics	1
Economics	1
English	1
Human-Computer Interaction (Individual Studies)	1
Marine Biology	1
Math	1
Physical Sciences	1
Note: Some students are pursuing 2 degrees	

A further objective is to strongly encourage diversity in the CEOs student body and through the people who interact with the students, including the seminar speakers, mentors, and those who manage the program. Table 2 provides diversity statistics for the 87 current CEOs.

Table 2 Diversity Statistics of CEOs	
Female population	28%
Male population	72%
African American	14%
Asian	18%
Indian	8%
Hispanic	4%
Caucasian	56%

Table 3 provides the structure of the CEOs Program. The primary features of the Program are the community environment, technology environment, seminars and workshops, mentoring, entrepreneurship education and business plan competitions. Underlying the program are the faculty of the University, principally those of the Clark School of Engineering and the Smith School of Business. Also important are the staffs of the Engineering Research Center and the

Dingman Center for Entrepreneurship. Finally, the Program is strongly supported by partnerships with several external firms that provide technology and legal mentoring services. Each of these will be discussed in the following sections.

Table 3 CEOs Program Features and Partners
<p><u>CEOs Program</u> Living-Learning Community Environment Technology Environment Seminars and Workshops Mentoring Entrepreneurship Education Business Plan Competition</p>
<p><u>Internal Partners</u> Engineering Research Center Dingman Center for Entrepreneurship Department of Resident Life Office of Technology Commercialization Office of Information Technology</p>
<p><u>Corporate Partners</u> Technology firms Legal firms</p>

3. Community Environment

The CEOs Program provides students with a unique opportunity to share the experience of finishing their undergraduate education in an entrepreneurial living-learning community. The residential environment encourages frequent interaction among the CEOs and provides opportunities for germinating new ideas where the students live. In addition to the living spaces, meeting rooms and workspaces are located in the residence hall so that the CEOs can conduct business conveniently. Meeting rooms are available for teams of CEOs to meet among themselves and with external business and technical contacts. Computer labs, equipped with fast computers and business software, are available to the students 24 hours a day. The CEOs also have access to state-of-the-art communication tools (detailed in the next section) that enable communication among the residents and with outside business contacts and mentors. By being provided with this unique opportunity have close interactions with their fellow CEOs and together to learn what it takes to start and grow successful companies, it is anticipated that this

Program will have a positive impact on the way the CEOs think about their careers, opening up new possibilities that they would otherwise not have considered.

4. Technology Environment

At the heart of the CEOs Program is the opportunity for students to live in an environment that provides voice, data and video technology that is more sophisticated than that found in many companies. One of the CEOs Program external partners has provided enabling communications for the CEOs residence hall. Together with the University, this partner is providing a unique environment for these entrepreneurial students. CEOs have the resources to interact with one another and with the outside world, utilizing leading-edge technologies, program-designated offices, conference facilities, computers, fast communication lines and teleconferencing capabilities. Technologies provided include: voice, data, and video communications capabilities installed on each resident's PC; wireless access that allows the end-user to connect to the wired data network anytime, anywhere in the residence hall and at designated places on campus; teleconferencing systems and IP view stations that enable the CEOs to conduct professional briefings and consultations with potential partners anywhere in the world from the two conference rooms located in the residence hall. The residence hall is now being popularly referred to as the "eDorm."

5. Seminars and Workshops

Students participate in weekly presentations offered by outside guest speakers from the entrepreneurial community, including successful entrepreneurs, venture capitalists, legal experts, technologists, and service providers. Speakers are also drawn from University of Maryland educators who specialize in the areas of business plan writing and review, financing, business law, ethics, startup company incubation and other essential subjects for the aspiring entrepreneur. The programming of this component is facilitated by a Program Committee that consists of constituents from inside and outside the University.

Student CEOs are expected to attend weekly seminars and workshops in three broad categories: education, experiences and resources. Educational activities include: market analysis workshops, team-building workshops and seminars on: intellectual property (including patents, copyrights, trade secrets and trademarks), business plans, developing ideas into companies, mergers, acquisitions and IPOs. Seminars in the experience category are those given by successful entrepreneurs who discuss diverse paths to success and barriers that were overcome along the way. Activities in the resource category involve introducing the CEOs to well-established facilities and programs that are very helpful in developing new businesses.

Even though students may come to the CEOs Program with well-formed ideas for a business, most undergraduate students have had little or no training or experience working in teams to achieve a mutual goal. A faculty group called BESTEAMS (Building Engineering Student Team Effectiveness And Management Systems) provides the CEOs with a set of learning modules that fall into three basic domains: personal, interpersonal and team operation.³ Students begin by completing a Kolb learning-style inventory to discover their own style and that of their teammates. Modules include the following topics: Individual Time Management, Mission

Adoption, Project Organization, Entrepreneurial Approaches to Decision Management, Tools for Working in Groups and Project Resolution - Lessons Learned. Along with these tools in team management, students gain skills in personal and interpersonal relationships including modules in self-critical evaluation, negotiation and conflict resolution.

6. Mentoring

The Hinman CEOs Program is establishing a mentoring program serving all Hinman CEOs as well as providing outreach to all undergraduate students across the campus. The Program utilizes a mentoring program database that contains contact and expertise data for volunteer mentors and that also has a means of rating the value that specific mentors offer. Additionally, the database has a means of tracking the number of times a specific mentor is contacted so that no mentors are overstressed by multiple requests.

Two levels characterize mentoring services. Level 1 is called “just-in-time” mentoring to reflect a basic stage of need that is frequently requested by undergraduates early in their entrepreneurial journey. The on-site program manager and graduate assistant provide level 1 mentoring. The mentoring is provided in such a way as to help students to learn to succinctly define their problem and efficiently utilize their time with the mentor. This level provides answers to specific and well-defined questions that can be answered in a short time and with relatively brief interaction. In addition to answering the specific question, also included is an assessment of the need for further mentoring. If needed, a referral is provided to faculty volunteers and/or outside mentors from the database. Also included at this stage is a feedback process so that positive interactions are reinforced and evaluated for future reference.

Level 2 mentoring involves deeper, ongoing mentoring relationships for teams that have formed. For example, teams that are pursuing R&D efforts may require faculty and other technology expertise, and faculty and graduate student support is very helpful to them. The Clark School of Engineering is a source of mentoring on a wide range of technical subjects. As teams progress toward the formation of businesses, mentoring is provided on business topics. The Entrepreneurship Department of the Smith School of Business offers student mentoring in business planning, marketing strategies and financing. The Office of Technology Commercialization and Office of Information Technology provide advice on intellectual property issues. Other internal partners as well as external law partners provide mentoring on legal issues. More generally, mentors can usually be identified throughout the University to advise students on specific issues. Through the database maintained by the CEOs Program, experts from the local business and technical communities are also generally willing to provide mentoring.

7. Entrepreneurship Education

CEOs are encouraged to elect entrepreneurship courses that are offered by the Smith School of Business. There are five undergraduate entrepreneurship courses that are available for all qualified campus students who have taken prerequisite courses. Four of the courses are part of the Citation Program, a selective program with sequential courses. The fifth entrepreneurship offering is a survey course that combines content offered in the Citation Program. CEOs may

elect the survey course; however, they are encouraged to take the Citation Program. Students are selected for the full four-course Citation Program based upon their academic performance (3.0 GPA or higher) and a written essay about their entrepreneurial intentions. These standards are identical to the requirements for admission to the CEOs program. Thus, CEOs are freely admitted to the Citation Program if they have sufficient elective opportunities.

Indeed, the CEOs Program directors propose to more closely unite the CEOs “residency” program and the Entrepreneurship Citation “curriculum” program. The combined residency and curriculum benefits for students are widely recognized; however, many CEOs who are engineering students do not have sufficient elective flexibility in their curricula to enable participation in the four-course Citation Program. These students are encouraged to take the “stand alone” entrepreneurship survey course. Exceptional CEOs may also take advanced Citation Program courses without formal admission to the Citation Program if space is available in the classes and the CEOs have elective opportunities. Despite scheduling constraints, many CEOs are also participants in the Citation Program.

Entrepreneurship education at the Smith School of Business is highly practical, and this is particularly useful for CEOs. The curricula and supporting activities provide access to the knowledge, skills, and mindset needed to create jobs by helping to found and grow new businesses. Indeed, in the past three years, the Smith School's entrepreneurship curriculum has produced nine new ventures. Fifteen current students have business ideas that are ready for financing.

The Smith School's entrepreneurship courses are tightly linked with the world of practice through mentoring, internships, review of real business plans, and classroom exposure. For example, practitioners are regular guest lecturers in all entrepreneurship courses. Typically, four guest lecturers appear per entrepreneurship section. During the 1999-2000 school year, guest lecturers included technology business founders, manufacturing entrepreneurs, inventors, venture capitalists, bankers, and business plan advisors.

The linkage between academia and practice is strongly supported by the teaching faculty. Indeed, over 80% of the faculty are experienced practitioners with academic credentials. Of the 12 entrepreneurship instructors, five are Ph.D.s and 10 have been, or are, practitioners.

Like the CEOs Program, the Citation Program brings together selected students from business, engineering, computer science, life sciences, and the liberal arts to create an "entrepreneurship chemistry" that stimulates the creation and growth of high-potential businesses. However, the diversity of skills found in the Citation Program classrooms requires custom training. Thus, Graduate Assistants are employed to present special seminars about: (1) preparation of financial statements, (2) review of financial terms, (3) team structuring, and (4) computer-based industry research.

Citation Program courses are sequenced to follow the stages of life of a new venture. The courses focus on innovation and opportunity recognition, business plan writing, startup, financing, and growth strategies.

The first course, *Starting a New Venture*, focuses on the early venture development.⁴ Specific areas studied include: idea-generation processes (creativity techniques), technological innovation, opportunity recognition, feasibility studies, protection of intellectual property, formation of the founding team, organizational forms, very early stage financing, and startup. Students are taught how to identify, evaluate and obtain control over valuable technology opportunities. The differences between opportunities that are valuable and sustainable for entrepreneurs and those that only fit in large, established firms are discussed. In short, the course is designed to improve the student's ability to acquire innovative technical and non-technical ideas and convert them to profit.

Opportunity recognition principles and practices are explored in great detail using a format for checking the commercial feasibility of the business idea. At least four successful start-up entrepreneurs offer real-world guidance about commercial feasibility.

The second Citation Program course is *Financing a New Venture*. This practical course explores financing alternatives including: (1) debt financing by venture banks, commercial banks, and by the Small Business Investment Corporation, and (2) equity financing by angels, private placement firms, venture capitalists and the public equity markets.⁵ Sections of the course offer financial tools to build an analytical framework for determining financial need over various stages of growth, from startup through the harvest stage. Topics include: cash management, "bootstrapping" techniques, and valuation. Guest speakers, practicing entrepreneurs, and practicing venture capitalists offer real world viewpoints about valuation and financing techniques.

The third course in the Citation Program sequence is *Growing and Managing an Emerging New Venture*. This course offers practical management tools that are needed to build a new venture into a significant enterprise.⁶ The competencies, strategies, and structures of successful high performance businesses are studied through cases, videos, and guest lectures. Topics include profiting from technical innovation, leadership, internal growth strategies, merger, acquisition, and franchising. Specific new business strategies that have been successful are offered to guide students who may wish to convert their own technological innovation to personal profit.

The final course in the four-course Citation Program involves review of real business plans, writing a personal business plan, and preparation for business plan competition. Each student must focus on production of a business plan that could be accepted for the Spring or Fall University of Maryland business plan competition. It is expected that several of those developed in the course will be of sufficient quality to attract financing. Topics include a thorough review of business plan construction and its derivative short forms (one-page summary, three-page summary, and executive summary).⁷ Students will, in part, monitor MBA reviews of actual business plans supplied by venture capitalists and accountants. Practicing venture capitalists and experienced professors teach business plan critique and writing skills, and venture capitalist screening practices.

8. Business Plan Competitions

The Hinman CEOs Program will sponsor and manage the first University of Maryland business plan competition in the Spring of 2001. Goals for the competition include providing education and networking opportunities for students, fostering new venture ideas and providing new opportunities for University of Maryland students and recent alumni to compete for prize money that will enable them to start businesses. Participants will learn from the experience and will develop important contacts in the practitioner and financing communities whether or not they win. The competition is open campus-wide to University of Maryland undergraduate and graduate students. Recent alumni may also compete. By rule, at least one team member must be a current University of Maryland student or recent graduate having "material role" in the team.

It is expected that most CEOs will compete in the Business Plan Competition at some point in their tenure in the Program. Indeed, it is a goal of the CEOs Program that students will form networks and teams that will lead to business ideas. Seminars for CEOs will offer guidance about business plan writing and preparation for business plan competition. Finally, it is expected that CEOs will be among the most active student supporters of the organization and management of future competitions.

9. Internal and External Partnerships

The CEOs Program itself arises from a partnership between the Business and Engineering Schools, and substantial services to the Program are provided by the Engineering Research Center and the Dingman Center for Entrepreneurship, along with the Office of Technology Commercialization, the Office of Information Technology and Department of Resident Life.

Programs of the Engineering Research Center include an on-campus incubator for technology-oriented start-up companies (the Technology Advancement Program - TAP) and a program through which research and development projects are carried out for Maryland companies by the faculty and graduate students of the University (the Maryland Industrial Partnerships - MIPS Program).

TAP provides a dynamic environment for technology based start-up companies. Located on the University of Maryland College Park campus, it is at the center of activity for start-up companies in biotechnology, information technology, medical equipment, telecommunications, aerospace and electronics technologies. Over 15 years of operation, 36 companies have graduated from TAP with 80% still in business five years after formation.

Through the MIPS Program, the campuses of the University System of Maryland, which include 13 educational and two research institutions, serve as R&D labs for Maryland companies by providing access to the latest technologies by carrying out R&D projects for Maryland companies. An important feature of this program is financial matching that is provided by the University to facilitate projects by smaller firms. Over 12 years of operation, 355 projects have been carried out for 236 companies. Over 50% of these projects led to new or improved products or services for the companies.

The Dingman Center assists emerging growth companies in the Mid-Atlantic region with mentoring, seminars, business plan reviews, and structured networking between entrepreneurs and capital providers. It also facilitates practitioner participation in academic programs and student/faculty participation in practitioner programs.

New partnerships have been formed with other on-campus departments that are responsible for various areas of campus infrastructure, intellectual property and housing. These partnerships, detailed below, have resulted in open lines of communication for handling the unique issues that this special program raises.

The Office of Technology Commercialization (OTC) is the campus unit that is responsible for managing intellectual property. The OTC mission is to facilitate the transfer of intellectual property to business and industry through the development and management of a high quality portfolio of diverse technologies and to negotiate and execute licensing agreements in order to provide benefits to the university and economy. As such, the OTC staff is expert in patent and copyright information and is an important source of information, advice and mentoring for the CEOs students on issues involving intellectual property.

The Office of Information Technology (OIT) is charged with overseeing technology planning and coordination for the College Park Campus information technology infrastructure encompassing all major central computing activities, networking and infrastructure, including academic, student and administrative computer services and instructional technology. The staff of OIT provides extensive services to the CEOs Program. For example, an OIT team managed the installation of the technology infrastructure for the eDorm and continues to act as a liaison between the vendor and the Program to ensure that new technology is properly installed, maintained, utilized and updated. The partnership with OIT facilitates continued relationships with outside technology companies that provide hardware to the campus. Potentially, the partnership with OIT will help build future external partnerships with technology companies.

The Department of Resident Life is also an important partner. Resident Life has a long history of facilitating close-knit living-learning communities on campus so that students of all different majors who have similar interests and aspirations can live together in supportive environments. It oversees the residence aspects of seven living-learning programs at the University of Maryland, including the CEOs Program. Among other things, Residential Life is providing flexibility in housing rules for the CEOs. While Resident Life serves an entire campus community of students and necessarily has very stringent rules and regulations that prioritize which students can live in particular spaces, it is providing the greatest flexibility possible with housing issues concerning CEOs. Also, in the interest of coordinating programs and maintaining positive relations, two representatives from Resident Life serve on the Program Committee, the program manager has standing meetings with resident life management and Resident Life coordinates heavily with the CEOs Program during the annual applicant selection process by facilitating housing issues with individual student applicants. Resident Life has been instrumental in making the current residence hall available to the CEOs Program and in planning the new residence hall, which will be available to CEOs by January of 2002.

External partnerships form an important service to the CEOs Program. The Program is establishing a network of external corporations and organizations to provide advice and services to the students and student teams. Many corporations and organizations outside of the University are willing, if not eager, to provide services to forward looking university programs such as the CEOs. Some prefer to provide assistance on an item-by-item basis, while others prefer to have significant and ongoing partnerships with the University. Current corporate partners include an international communications company, which has provided the state-of-the-art communications capabilities for the residence hall, and law firms, which provide seminar lectures on legal topics and legal mentoring to the student groups. Additionally, student teams have received equipment for building prototypes and consulting services from a number of companies. Additional partners are being sought to provide other services such as hosting websites for the student teams.

10. Lessons Learned and Conclusions

Since CEOs come from an exceptionally wide variety of departments, flexibility is a critical feature of the Program. For example, engineering majors have little flexibility in their curricula for Citation Program courses, while business majors typically take the courses. Even scheduling times for the seminars must be carefully selected to maximize participation. Although the diversity of majors presents problems, it is known that diversity produces superior teams; therefore, it is to be nurtured.

At the University of Maryland, a significant fraction of students commute to classes from home and others live in less expensive off-campus housing. Though CEOs do not pay any differential for the special technology and services they receive from the Program, for some of these students, it is a financial hardship to move to the CEOs on-campus housing. A process is being developed to assess the financial needs of worthy student applicants and a fund has been established to provide some financial assistance to enable them to live in the eDorm and fully participate in the Program.

Another issue that the Program encounters is that by the time students become juniors or seniors, many have long time roommates that they don't want to leave in order to move into the CEOs residence hall. By accepting sophomores into the program and gradually phasing them into the activities with upperclass CEOs, this problem will be largely overcome.

Early in the Program, it became apparent that the needs of undergraduate students for advice and mentoring were different and sometimes more intense than the needs of more mature groups, such as, graduate students and professionals. Because of the nature of their needs that are often immediate and sometimes at a basic level, the Program is establishing a policy of "just in time" mentoring, detailed in a previous section, which provides answers to the students' specific questions on a wide range of subjects. This format for the mentoring process employs a variety of resources and levels of mentoring to provide needed advice and also to limit the time required of the mentors.

While feedback from student CEOs is sought on program strategies, management, activities and expectations, and this feedback is acted on to improve the program, feedback from graduate

CEOs as they pursue entrepreneurial ventures will be even more valuable. The ultimate feedback will be the long-term level of success of companies formed by CEOs as compared with other entrepreneurs.

Finally, it is gratifying to observe the enthusiasm and passion with which the CEOs are pursuing opportunities afforded by the Program. It is believed that this characteristic, coupled with the early introduction to the fundamental tools of entrepreneurship, will result in another significant source of entrepreneurship energy for the Baltimore-Washington Corridor.

Bibliography

1. Roundtable on Entrepreneurship Education for Engineers (REEE), www.stanford.edu/group/stvp/, Stanford University, October: 1998, 1999, 2000.
2. Baum, J. R., Locke, E.A., and Smith, K.G., "A Multi-dimensional Model of Venture Growth," *Academy of Management Journal* (2001).
3. Gibbs, G., "Learning in Teams: A Student Guide." Oxford Centre for Staff Development
4. Allen, K. R. *Growing and Managing the Entrepreneurial Venture*. Boston: Houghton Mifflin (1999).
5. Sherman, A. L. *Raising Capital*. Washington: Kiplinger (2000).
6. Allen, K. R. *Launching New Ventures*. Boston: Houghton Mifflin (1999).
7. Timmons, J.A. *New Venture Creation, Entrepreneurship for the 21st Century*. Boston: Irwin/McGraw-Hill (1999).

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