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CEOS/ADVANCE COMPREHENSIVE EQUITY AT OHIO STATE

National Science Foundation ADVANCE Program for Institutional Transformation

REACH for Commercialization: Strategies to Inspire Female Entrepreneurship

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Background

Women underperform in virtually every measure of entrepreneurial activity in the engineering & science disciplines. These patterns hold across all work sectors (academic, industrial, governmental) and disciplines with the exception of regional clusters of small firms in biotech. Yet, the scholarship on the causes of these patterns is thin. Some of the factors that may be at work include:

- Women are more ***risk averse***
- Women are less ***comfortable promoting their work***
- Women have ***smaller networks***
- Women have more ***family constraints***
- Women choose areas of research that are ***less amenable to commercialization***

Therefore, The Ohio State University's NSF ADVANCE grant, Comprehensive Equity at Ohio State (CEOS) has constructed a series of introductory training programs aimed at empowering women by:

- Introducing the various mechanisms available for commercialization
- Providing Information about resources available on and around campus
- Encouraging industrial network connections
- Providing a supportive network of women entrepreneurs

Campus Cohort Approach

In 2010 and 2011, women faculty were invited to participate in a four-workshop series. The value of the program was given important prestige by requesting a nomination from the Dean and tuition paid by the College. Twelve women participated each of the two years.

Workshop topics focused upon four key issues:

1. Visioning Social Impact from Research
2. Building Awareness and Skills for Collaboration
3. Capitalizing on Ohio State Tech Transfer Resources
4. Stepping Out & Building a Network for Impact

The first of these workshops recognized that women scientists often pursue research with an interest in affecting broad societal impact. Traditional dissemination models **(Figure 1)** may be sufficient for many people; however, Project REACH sought to introduce an expanded dissemination model (**Figure 2)** to female faculty. This model emphasizes the myriad ways that research might be translated in social impact through the use of entrepreneurial tools.

With this expanded model of social impact through research in mind, women then assessed their skills, identified those needed for commercialization and learned how to access resources and make connections with industry contacts.

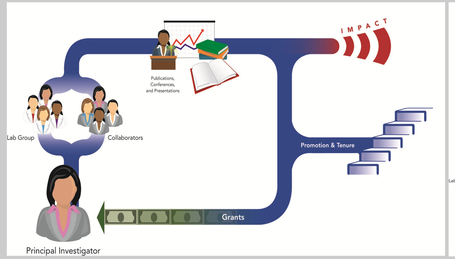


Figure 1. Traditional Model for IP Dissemination

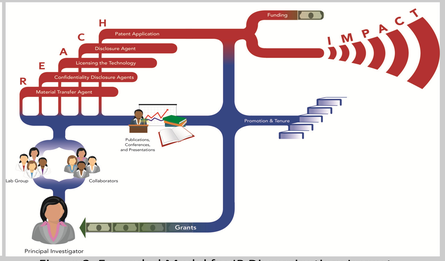
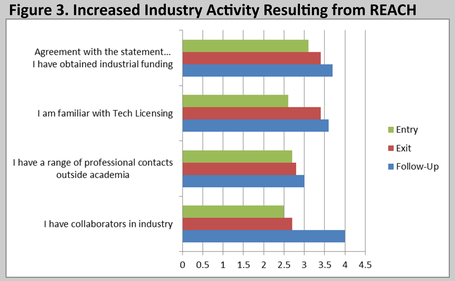


Figure 2. Expanded Model for IP Dissemination: Impact *via* Commercialization Activities

Campus Cohort Outcomes

Assessments of personal characteristics, confidence and skills were conducted at the beginning and end of each cohort, as well as at yearly intervals since completion. Results (**Figure 3)** demonstrate that this type of training not only improved women's relationship with industry contacts initially but motivated them to seek out collaborators over time.

Figure 3. Increased Industry Activity Resulting from REACH



Although these results indicate that participants have begun to work with industry contacts, other areas showed less consistent improvement. These statements include "I am comfortable making decisions under complex, uncertain conditions", "I have good self-presentation skills", and "I know how to build a team." This pattern, first, reinforces the understanding that women's interactions with industry can often leave them feeling rejected and less capable of pursuing entrepreneurship successfully.

Women felt more knowledgeable and capable after leaving our workshops, but as they have begun to interact with the business world they once again felt adrift. As a result of these findings, quarterly luncheons for all cohort members have been introduced to maintain confidence, networking and skill building.

From additional comments received from participants, it became clear that a major impediment to female entrepreneurship was the lack of a codified rewards structure for promotion & tenure. Since the start of the project, some units at OSU have created new guidelines for promotion and tenure review that include entrepreneurship activities.

Constructing a National Conference

Cohort participants, research data and industry experts provided feedback about the most valued areas of their experiences. These suggestions coalesced around three broad themes:

1. Learning the Business Landscape
2. Building a Team
3. Finding Funding

Working from these ideas, we gathered a diverse group of experts. The planning committee consisted of representatives from:

- Project Comprehensive Equity at Ohio State (CEOS)
- The Fischer College of Business
- The Center for Clinical and Translational Science
- OSU Technology Commercialization & Knowledge Transfer Office

The committee constructed a two day schedule of speakers, panels and mixers, including keynote speakers Lydia Villa Komaroff and Scott Shane . (To see a copy of the full schedule please visit http://ceos.osu.edu)

Participants were recruited from across the nation through advertisements in national women's association newsletters. Fellowship opportunities were provided, which resulted in participation by a group of diverse women ranging from postdocs to full professors.

Conference Outcomes

Self assessments of characteristics, skills, and attitudes were conducted at the start and end of the conference. Of key importance, average familiarity with Tech Licensing ***increased 1.4 points*** on a 5 point scale.

Comments from participants were very positive. Many expressed gratitude for the opportunity to learn about a new way of expanding the reach of their research impact. A highly valued aspect of the conference was individualized feedback on participant's early commercialization ideas. Many participants had not previously considered how to commercialize their research and this unique feedback provided useful direction and encouragement.

Next Steps

Women not only enter entrepreneurship less frequently than men, they also get discouraged and exit entrepreneurship more often. It will be important for CEOS to continue monitoring the progress of participants over time to see how best to support continued activity. CEOS is currently working to determine the most replicable aspects of both the cohort and conference workshops.

We are grateful to the entire Project CEOS team & staff, and to the organizers & speakers at our national conference.

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