

Hands-on learning, mentoring keys to 'diversifying science'

January 19 2012, by Jack Croft

Richard Losick got hooked on science while writing his senior thesis as a Princeton University undergraduate in 1965.

“I was working on something rather obscure,” Losick recalled during his public talk on “Diversifying [Science](#)” Tuesday afternoon. “As an undergraduate, I was able to learn one thing that nobody on the planet Earth knew before.”

That moment of epiphany set him on a career trajectory that has seen him become one of the nation’s most respected scientists—the Maria Moors Cabot Professor of Biology at Harvard University as well as a Howard Hughes Medical Institute Professor.

But it wasn’t just the thrill of discovery that fired his passion for science. It was also the mentoring he received from his Princeton professor, “a tough guy,” embodied by the detailed comments and criticisms scrawled on the copy of Losick’s thesis that he showed on the large screen in Packard Lab 101 during his presentation.

“I was thrilled that he cared enough about my thesis and what I’d written that he went through it and gave me all this critical advice,” Losick said. “Rather than my being crestfallen, it was a positive experience for me.”

Great IDEAS

Those valuable lessons—the thrill of discovery and the joy of having a caring mentor—served as the foundation for a program Losick created at Harvard that is now considered a national model. IDEAS (Increasing Diversity and Educational Access to Science) is designed to address a problem Losick has seen in his classes as well as in national statistics: Many students who enter college with the intention of majoring in science fail to do so. And students from [disadvantaged backgrounds](#) are at the highest risk of leaving science behind.

So Losick developed a program to identify incoming first-year students who have an interest in science and come from disadvantaged backgrounds. IDEAS engages those students from the very beginning in an ongoing research project—what he calls “hands-on learning”—with a professor who serves as mentor. And so that students don’t have to take outside jobs to help pay their way, IDEAS pays them to do research during the term and fulltime over the summer.

Of the 30 alumni who have graduated from the program so far, 29 have remained in the sciences, with most pursuing graduate degrees in STEM (Science, Technology, Engineering, Mathematics) fields. Losick said the program has drawn African American and Hispanic students, as well as students from economically disadvantaged backgrounds, rural areas and developing countries.

With the success at Harvard, Losick—using funding from the Howard Hughes Institute—has seeded IDEAS programs at three other universities: Hofstra, Ohio State, and Michigan State.

Losick was introduced by a former student from Harvard: Amy Camp, now an assistant professor of biological sciences at Lehigh. He called Camp “a brilliant young scientist . . . who cares about teaching and education.” Camp praised Losick as “a devoted teacher and mentor” who “is particularly devoted to the undergraduate experience.”

Opening the session was President Alice P. Gast, who served with Losick on a National Research Council panel that was asked by the FBI in 2008 to review the scientific evidence related to the FBI investigation of the 2001 anthrax case.

Letters containing anthrax were mailed across the country and were responsible for killing five people and sickening 17 others, shutting down the U.S. Postal Service in certain areas and alarming Americans. The panel's report found that it is not possible to reach a definitive conclusion about the origins of the anthrax in letters based on the science alone.

Through countless hours sorting through the evidence and the science, Gast called Losick "the heart and soul of that committee," while Losick returned the compliment, hailing Gast as "our leader, our captain in treacherous waters."

Losick met with various groups of administrators and faculty throughout the day, and delivered a Biological Sciences Colloquium on "Life and Death of a Microbial Community" before his public talk.

Provided by Lehigh University

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