Physics Major Takes On An Educational Challenge

Loyola Marymount University's innovative center to improve the teaching of math and science gained recognition in Washington D.C. this spring when physics major Melissa Taylor presented her junior-year research project on an aspect of the program at the Posters on the Hill event.

The annual event on Capitol Hill showcases undergraduate research from all disciplines by students nationwide. Taylor's poster, "Assessing the Effectiveness of the MAST Program for In-Service Teachers," was one of 60 selected from almost 300 submissions to the Council on Undergraduate Research.

Taylor collected and analyzed data on the effectiveness of LMU's Math and Science Teaching System program, which is trying to make a cultural shift in the way learning and teaching is done in schools. The program guides teachers in becoming self-sufficient by giving them the tools to assess and solve educational issues in their own classrooms. The goal is to make science and math more accessible and engaging to students.

The program is run by the Center for Math and Science Teaching in the School of Education at LMU, in collaboration with the Frank R. Seaver College of Science and Engineering. The program has demonstrated its ability to improve student performance. For instance, at one group of 17 Los Angeles Unified School District schools, performance on standardized tests increased dramatically in the first year. Before the program, 68 percent of students scored below or far below basic on the standards test. After a full year of collaboration with CMAST, there was an improvement of 30 percentage points, with 38 percent of the students scoring in those categories.

Equally impressive were the results with students in the proficient/advanced categories who comprised 11 percent in 2007. In 2008, proficient/advanced students rose 18 percentage points to 29 percent. The success was sustained in 2009, with only a slight dip to 27 percent.

Taylor, who plans to teach physics, described herself as "addicted to physics. I totally love it. It changes how I think about the world."

Taylor is working on the research project with her faculty mentor, Jeff Phillips, associate professor of physics, as well as Cathy McElwain, associate professor of biology, and Kathy Clemmer, director of the Center for Math and Science Teaching. In the research, Taylor developed a survey to assess the attitudes of teachers who take part in the center's professional development program. She will continue to refine that survey, using it to determine whether successful teaching attitudes are fostered by the program or are something that good teachers bring with them.

While in Washington, Taylor, Phillips and McElwain discussed the program's success with staff to California Sen. Dianne Feinstein and other California legislators. Taylor said the staff members understood how improving the teaching of science is a key issue for our country.

"It would be cool to make a difference," she said.

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