Educating the educators benefits the students

BY ROBERT P. MAYER
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Using the latest technology, biology teacher Kristine Jennings created a glowing onion by bombarding it with genes from a glowing jellyfish.

The lab project at UC Riverside was more than a novelty. It was a way to teach high-school and middle-school science teachers how to demonstrate to students the inner workings of an organism.

"That was really, really cool in showing the modern technology of DNA," said Jennings, a teacher at Martin Luther King High School in Riverside. "I really didn't know how to do that before. It wasn't really my area of expertise."

Dozens of science teachers from Corona-Norco, Moreno Valley, Palm Springs and Riverside school districts participated in the weeklong program sponsored by the Copernicus project.

The project operates from a five-year, $11.6 million Department of Education grant, which is the second-largest grant for UCR and the largest for its Graduate School of Education.

The goal is "to improve the number, diversity and quality of science teachers," said Raymond Hurst, the project's education and business liaison. "Kids benefit from having fully qualified, better-trained, better-skilled science teachers in the classroom. That's the bottom line."

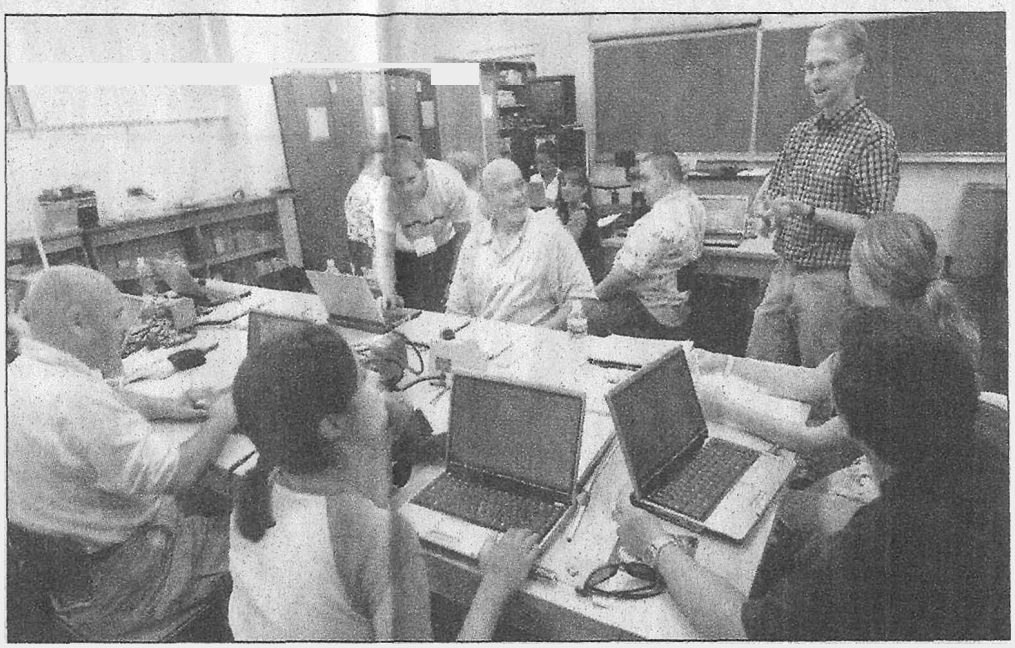
During the week, teachers studied genetics from plants and yeast. They then transferred what they learned into standards-based lesson plans to take back to their classes.

"I wasn't familiar enough to teach about those things, let alone how to do those things, which I now feel confident that I can," Jennings said.

All science teachers need to be kept informed of the latest techniques and technology, regardless of how recent their college educations may be, said Paul Larsen, UCR professor of biochemistry, who taught the plant-genetics portion.

More than just learning about technology, these teachers received hands-on experience in manipulating the organisms.

"When they go back and lecture about that material from the textbook, they have a brand-new perspective on what they're talking about," Larsen said.



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Science teachers are kept abreast of the latest techniques in plant genetics from Paul Larsen, a UCR professor of biochemistry. The teachers received hands-on training as part of the Copernicus project.

That's what Kathy Sainato discovered. To have performed the experience firsthand gives the teacher credibility as a scientist in the classroom, the Corona High School science teacher said.

"To be able to talk about it from an experiential point of view is nice," Sainato said. "You can explain what the gene transfer really means instead of reading a book and hoping you know enough."

Ultimately the goal of such experiments is to gain greater insight into the nature of human beings and life in general, said biology professor Brad Hyman.

Humans don't make ideal biology-lab animals, Hyman said. You can't choose who will mate whom for scientific purposes and follow the offspring, for results would take years.

Fortunately, Hyman said, organisms are organisms and the basic biological processes are universal.

Thus, Vegemite yeast is used, which is easily manipulated in the lab with quicker results.

"Many of the genes of diseases that impact humans you can find in yeast and flies and worms," Hyman said.

Jerry Reylek, teacher at Nellie N. Coffman Middle School in Palm Springs, said what he learned from the seminar could apply to various grade levels.

"This was great. Both middle school and high school can use the same sort of thing."

The project also helps teachers meet the "highly qualified" status as mandated by the federal No Child Left Behind Act.

"I go to conferences with the idea that if you get one valuable thing that it was worth your time," Jennings said. "I got way more than one, so I was very pleasantly surprised."

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