Extracurricular Endeavor: Local high school students use summer to learn

Vivian Webb School student Annie Han and Upland High School student Tristan Raniga were anticipating a scientific hands-on experience this summer.

Keck Graduate Institute satisfied their desire.

Up until last week, the 2 high school students had been participating in a summer research program at KGI that gave the duo an opportunity to embrace science in a new way.

"When you're able to work with the equipment, it makes you feel good about yourself and it introduces you to research and being a scientist," Annie said. "This, you're contributing to something that affects a whole community."

Tristan agrees.

"I like the whole perspective that KGI offers where science meets business," the Upland High senior said. "Also, I liked that no matter if you were a high school student or an undergraduate student, everybody still communicated well with each other."

As part of the KGI research experience program for students and teachers, Annie and Tristan joined fellow high school students Ayla Ahmed (Vivian Webb), Randal Lin (Upland HS), and Grace Qi (Troy HS), as well as high school teachers Cheryl Fiello (Claremont HS) and Sharlyn Taquino (Upland HS). The involvement of high school teachers and students is part of the Research Experiences for Undergraduates (REU) program that KGI holds annually to bring students to KGI from various colleges and universities from across the country during the summer.

In order to be selected for the student internship program, candidates had to have applied before the May 2nd deadline and submitted a letter of recommendation from a high school science teacher along with a current, official transcript from their respective high schools.

"It's not something that is highly publicized," Tristan said. "But KGI does work with the surrounding schools. I ended up finding out about this through my teacher."

Both Annie and Tristan were involved in a project entitled "Diagnostic Test Strip Fabrication using a Lateral Flow Reagent Dispenser" during the 2-month period under the supervision of KGI faculty member Dr. Angelika Niemz. The specifics of the project had the students working to help create a device that would indicate whether a person has a disease or not through a line indicator on a strip, similar to over-the-counter pregnancy tests.

Working with a reagent device inside the Mars Cooper Bioengineering Laboratory, the students worked with the machine in order to prepare strips that would be used as indicators for a positive/negative test.

"They did a great job with it and they were methodical and insightful," said Robert Doebler, director of the bioengineering lab. "They were able to figure out what speeds to run it at in order to get a solid line and we had no doubt that they were able to run the machine."

One of the goals of the project is to create the instrument in such a way that it could also be affordable for people that live in impoverished countries.

"For places that don't have the resources to test for diseases, we were working to develop a device that can track diseases while, at the same time, is something that people can afford to buy," Annie explained.

Last Thursday, the 2 students gave a short PowerPoint presentation on their research before an audience mainly consisting of undergraduate students. The presentation covered their research and also featured the results of their data collection throughout the process. One of the other projects the 2 high school students worked on was an educational board game called "HIV Monopoly," modeled after the popular educational aspect about HIV as well. Once completed, the game will feature Monopoly-styled play with an assortment of HIV facts.

Annie feels that the game will be a good resource for people to learn about HIV and also indicated that there could be a possibility for an online version of the game in the future.

"It's an educational but also a fun way of learning about HIV," Annie said. "For instance, we're going to have the population of different countries, the percentage of HIV cases in those countries and the infrastructure of those countries. The cards will feature HIV trivia as well."

In the meantime, Annie and Tristan will now be preparing for the coming school year with the Vivian Webb student set to begin her junior year and the Upland High student entering his senior year. While Tristan is not looking to become a scientist in the future, the summer experience did further his interest of pursuing a career in engineering.

"I'm more into mechanics and I like working with gadgets," he said. "I'm not sure about doing research in the future but I love working with machines."

For Annie, the chance to work within the laboratory environment and also have something that will enhance her college application made the nearly 10-week commitment worthwhile effort.

"It was a good experience," she said.

― Landus Rigsby