Highlights
San Mateo County Partnership with Stanford University Summer Research Program for Teachers
2005-2014

SUMMARY

Since 2005....

- Stanford has sponsored 38 Summer Fellowships involving 24 individual science teachers from San Mateo County.
- Teachers came from 16 schools (12 public, 4 charter or private) in 6 districts in San Mateo County.
- Teachers have reached over 93,000 San Mateo County students directly, half of whom are economically disadvantaged students historically underrepresented in STEM.
- Teacher retention among participants is stellar. As of 2014, every single teacher except one is still teaching in the county.

WHERE TEACHERS TEACH

School	# of teachers
Half Moon Bay HS	1
East Palo Alto Academy HS	2
Jefferson HS	2
Junipero Serra HS	2
Sacred Heart Preparatory	1
Kennedy MS	1
North Star Academy	1
Parkside Intermediate	1
Aragon HS	1
Hillsdale HS	1
San Mateo HS	1
Carlmont HS	3
Redwood HS	1
Sequoia HS	4
Summit Prep	1
Woodside HS	1

IMPACT ON TEACHERS AND STUDENTS

Teachers reported frequent engagement in these activities during their summer in a Stanford research lab:

- I used instruments, equipment or other technologies that were new to me.
- I collaborated on an ongoing project with researchers from Stanford.
- I gave a presentation on what I learned or an activity I developed.
- I assisted in the process of developing, modifying, or documenting applications of science, math or technology for my mentor/sponsor.
- I wrote about the work that I was doing and shared it with my mentor or others in the lab.

Teachers reported significant gains in the following areas:

- It elevated my enthusiasm for teaching.
- It increased my interest in research or the ways that STEM can be applied.
- It increased my commitment to learning and seeking new ideas on my own.
- It stimulated me to think about ways I can improve my teaching.
- It increased my confidence in myself as a teacher.
- It increased my interest in networking with teachers and other professionals.
- It increased my motivation to seek out other experiential professional development activities.

- I acquired a greater understanding of fundamental concepts in science or math.
- I increased my knowledge of current issues in scientific or mathematical research.
- I became familiar with new materials and equipment that I can use in my teaching.
- I increased my knowledge of careers that utilize STEM.

A year after their Stanford research experience, teachers reported the following impacts on their classroom instruction and school:

Examples of how the teachers used their experience in their classroom instruction.	**% responding to "large or moderate extent"**
Added new content/lessons.	96 %
Added examples and illustrations to my lessons.	86%
Increased emphasis on problem solving and/or having students explore open-ended questions.	82%
Added new labs.	64%
Assigned more research projects.	55%
Developed a new course.	9%
Examples of how the teachers used their experience in the school setting.	
Created/sought more opportunities for professional networking.	73%
Created/sought more opportunities for own professional development.	59%
Wrote/submitted proposals for funding for classroom.	46%
Assumed new leadership roles within department, school or district.	41%
Mentored/coached other teachers.	36%

HIGHLIGHTS OF SAN MATEO COUNTY SUPPORT

All teachers developed new lessons and materials to take back to their students. These lessons are available to teachers everywhere in a searchable database keyed to California state teaching standards on IISME's Community Website at http://community.iisme.org/.

In addition, it's worth noting one very positive and unexpected outcome made possible by the support of the San Mateo County Board of Supervisors.

Aragon High School science teacher Kevin Doyle and Howard Shen of Summit Prep worked with two other high school teachers from 2009 through 2011 in collaboration with Professor Christopher Chidsey in the Department of Chemistry. The teachers created a dozen hands-on, guided inquiry activities suitable for high school students. These chemistry labs are shared widely on the Chemistry Department's outreach website (http://chemoutreach.stanford.edu/chemistry-learning-labs-2011-2012) and they formed the basis and impetus for ChemEx^2 ("ChemEx Squared"), a laboratory-based course offered during the summer for high school chemistry teachers. The course was designed and taught collaboratively by staff from the Center to Support Excellence in Teaching, these high school chemistry teachers, and faculty and graduate students from the Department of Chemistry. This course also provides opportunities for the teachers to put key ideas from both the Next Generation Science Standards (NGSS) and Common Core State Standards into practice through its focus on evidence and explanation. Finally, during the course the teachers also have time to develop a plan for their classrooms that integrates the experiences, experiments, and core teaching practices they experienced during the summer.
ChemEx^2 has trained 69 California teachers to date; of those 29% teach in San Mateo County. CSET plans to offer the workshop again in summer 2015 (https://cset.stanford.edu/programs/chemistry).