



Cal TAC UPDATE

Bringing the voice of teachers and the wisdom of their classroom practice to those who can use this information to improve science and math education in California: researchers, policymakers, and fellow teachers.

OCTOBER 2010 VOLUME 1, ISSUE 2

Working Toward an Assessment System with Value

A Cal TAC Symposium on Measuring the Right Stuff, in the Right Ways

On October 21, 2010, Cal TAC members and representatives of the education, research, policy and philanthropic arenas will gather in Sacramento for a symposium on how to strengthen assessments of science, technology, engineering and math (STEM) teaching and learning.

The current Race to the Top assessment program is providing financial incentives for states to create stronger assessment systems that support accountability and improvement at every level of the educational system.

The symposium will be an opportunity for science and math teachers to help inform the process of designing an assessment system that measures “the right stuff” (such as complex thinking and problem-solving) in the “right way” (e.g., providing results in a timely enough way that they help inform instruction and reward good teaching).

The forum will open with a keynote address from Joan Herman, Director of the National Center for Research on Evaluation, Standards, and Student Testing.

Ms. Herman’s address will be followed by two panel discussions — one focusing on innovative formative assessments, and the other on summative assessments. (Formative assessments typically refer to ongoing, day-to-day assessments and feedback that teachers collect



Analyzing Insect Orders: Biology Lab Summative Assessment

as part of the everyday classroom experience, while summative assessments are used periodically to determine what students do or do not know at a particular point in time — as with a standardized test.)

Panelists will include representatives from the Departments of Education in Minnesota and Oregon, who will help the California audience consider lessons learned from others who have worked to improve their own assessment systems.

The forum will be an opportunity to consider what an improved, value-added assessment system could look like in California, and to begin the process of making informed revisions to California’s current system by 2014.

Cal TAC members are pleased to represent the voices of California’s classroom science and math teachers in designing an assessment system that measures more of the right stuff — in ways that are useful and relevant to students, teachers, administrators, and policy-makers.

Stay tuned for a symposium report, to be released early next year.

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The California Teacher Advisory Council (Cal TAC) is a statewide group of 12 outstanding K-14 science and math classroom teachers and is modeled after the successful National Teacher Advisory Council (NTAC) established in 2002 by the National Academies.

Cal TAC works to provide a valuable connection between the teaching community and the educational experts and policymakers who are shaping California’s educational system. They serve as the teachers’ voice in addressing critical needs in math and science education.

Cal TAC members are appointed for 3-year terms. The California Council on Science and Technology (CCST) and the Center for the Future of Teaching and Learning (CFTL) jointly support Cal TAC.

Business and Industry Partnerships: Connecting Schools, Students, and the Workplace

In addition to their roles as outstanding classroom science and math teachers, Cal TAC members also use their creativity to reach beyond their classroom walls and connect their students to the businesses and industries that could become their future employers.

Science Suppers

Caleb Cheung, program manager of science for the Oakland Unified School District, developed the Oakland Science Partners Network. Twice a year, the Network convenes 35 science-related organizations to support and improve science instruction in Oakland's schools. The wide-ranging group includes museums, research institutions, foundations, environmental groups, public radio stations (including a youth radio program), laboratories, parks, business and industry representatives, and even the Oakland Zoo.

The zoo was the setting for another unique partnership launched by the District's Science Department — one of two 2010 "Dinner with a Scientist" events that celebrate science in a festive setting. Each year, one of the two dinners is geared to elementary school students and teachers, and the other to secondary students and teachers. At each event, teachers are invited to select several of their students to attend the dinner with them and interact with local scientists. For example, the Oakland Zoo dinner featured engineers, doctors, forensic scientists, field biologists, research scientists, and graduate students — all eager to share conversation and ideas with the students and their teachers.

Dressing Up Science

Sue Pritchard, a science teacher at Washington Middle School in La Habra, California, makes a point of inviting female engineers into her classroom. After one such visit from a Latina engineer, a student saw herself in a different way. "It got me thinking," the student said, "If she could do it, I could do it." Today, that student is taking pre-med college courses.

In addition to challenging stereotypes about ethnicity and gender, Sue also tries to show her students that science has a fun side. One of her regular guest speakers, a consulting engineer for the Air Force, dresses up as a wizard for Sue's middle school science class (with Sue playing the role of the wizard's apprentice — also in full costume). The students get into the spirit of investigating different problems and, as Sue says, "they see that engineers aren't just males with black-rimmed glasses and pocket protectors."



"Dinner with a Scientist"
Oakdale, CA



Making Internships Work for Students and Industry

Lewis Chappellear, an engineering teacher at James Monroe High School in North Hills, knows from his own experience and that of his students that some of the most profound learning occurs outside the classroom. He recalls how one of his students — a young man who slouched in the corner, shyly avoiding eye contact with anyone who approached — blossomed through an internship with a local company. Working alongside an engineer at the company, the student became so engaged in his new role that he continued to work there after he graduated from high school. Today, he has a full-time job at the company, which is helping to pay for his college education — and setting him on a path that seemed unlikely just a few semesters ago.

Creating this opportunity for more students has been a challenge, though. Lewis notes that the economic recession and school budget cuts have forced his school to suspend a summer school internship program. (The program is difficult to offer during the school year, when teachers are reluctant to release students from their classrooms for internship hours.) Still, with the help of his students, Lewis has been able to galvanize support from 40 local aerospace companies.

The companies provide guest speakers for science classes, as well as mentorships, internships, and company tours — a menu of options all designed to expose as many students as possible to the many possibilities for applying science and math problem-solving and creativity in the real world.

Teachers, too, are encouraged to participate. Too often, Lewis reports, they also lack opportunities to learn about the creative, interesting work that surrounds them behind the parking lots of anonymous office buildings scattered throughout the community.

Meet the Cal TAC Members: Profiles of Brian Shay and Lewis Chappellear

Brian Shay's high school math teacher saw his potential in mathematics early on — before he himself did. “She knew me before I knew me,” recalls Brian, who is still in touch with her. In addition to his mathematics skills, which she honed with extra tutoring and encouragement, she observed his passions for acting, music, theater and student government as well. In his high school yearbook the year he graduated, she wrote, “Your creative talents will take you far, but Brian, I know you will fall in love with math.”



Brian Shay with some of his students

She was an even greater influence than she realized, for Brian not only fell in love with math — as she predicted — but with teaching math. As a doctoral student at UC Davis, Brian taught Calculus to college students, but he soon realized that he wanted to engage students in math long before they got to college — before they formed their opinions that mathematics was boring and formulaic. To Brian, math is the opposite. Instead, it's an elegant, beautiful, engaging and highly relevant way to see the world and to think about solving problems. That's the feeling he wanted to instill in his students, just as his high school teacher had done for him. He began the transition from concentrating on mathematics research classes to taking more teaching and education classes, which ultimately led him to his current role as secondary mathematics teacher at Canyon Crest Academy in San Diego and a 4-year stint as Math Chair.

Before being nominated to serve as a member of Cal TAC, Brian was not familiar with the organization, but he's become a quick convert, helping to spread the word about what Cal TAC does to support classroom learning through legislation, symposia, and media attention to the issues important to science and mathematics teachers. This

year, Governor Schwarzenegger selected Brian to serve on California's newly formed Academic

Content Standards Commission, which developed new academic standards in Mathematics and English Language Arts based on the new nationwide Common Core Standards. This is just one way that Cal TAC's work — and the influence of its members — dovetails with

other state and national efforts to improve student learning in the STEM fields so critical to innovation and the economy.

Lewis Chappellear is also following in the footsteps of teachers who influenced him early in his education. “The reason I do things with students after school, on weekends, beyond the regular workday . . . is because I had a couple of teachers who did that, and it made a huge impression on me. It's because of them, my belief that it's what you do.” Clearly, Lewis's students and peers agree; in 2008, he was chosen as California Teacher of the Year and was one of four finalists for National Teacher of the Year.

It might surprise his students and colleagues to learn that he was nearly 30 years old when “the fireworks went off and I found out I was supposed to be a teacher,” he said. At the time, he was pursuing an engineering degree at UCLA and working in Los Angeles County's juvenile halls part-time. His interest in engineering was sparked in childhood, growing up amidst a manufacturing company that was one of two in the country producing heart-lung machines (where his grandmother was a co-owner and comptroller) and watching the company gradually transition from an old-fashioned machine shop to a high-tech operation. The blend of doctors, machinists, and engineers lured Lewis

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2010 CALIFORNIA TEACHER ADVISORY COUNCIL

Anne Marie Bergen, Chair
Teacher in Residence
College of Science and Math
Cal Poly, San Luis Obispo

Barbara Shannon, Vice Chair
Director, Synergy Kinetic Academy
Los Angeles

Peg Cagle
Mathematics Teacher
Lawrence Middle School and
Gifted Magnet

Lewis Chappellear
Engineering Teacher
James Monroe High School

Caleb Cheung
Science Manager
Oakland Unified School District

Jeffrey Foote
Multi Subject Teacher
Kermit McKenzie Jr. High

Diana Herrington
Mathematics Teacher
Clovis High School

Juliana Jones
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Longfellow Middle School

Suzanne Nakashima
Elementary School Teacher
Lincrest Elementary School

Sue Pritchard
Science Teacher
Washington Middle School

Brian Shay
Mathematics Teacher
Canyon Crest Academy, San Diego

Katrina Williams
Elementary School Teacher
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Janet English
El Toro High School

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Javier González
Pioneer High School

Stan Hitomi
San Ramon Valley USD

Glen Hunt
Riverside Community College

Tracy Pearse
Freemont Middle School

Mark Stefanski
Marin Academy

CHECK IT OUT!

Who inspired you? Members of the President's Council of Advisors on Science and Technology (PCAST) answer this question on film as they reminisce about K-12 teachers who made a difference in their lives: <http://www.whitehouse.gov/blog/2010/09/16/who-inspired-you>

What are Californians' views on science education? Findings from a state-wide public opinion telephone poll and focus groups yielded insights about the public's support for science education and how it could be strengthened. To find out more, visit the Center for the Future of Teaching & Learning's Web site: <http://www.cftl.org/science>

Meet the Cal TAC Members

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into pre-med courses, engineering, and, ultimately, a degree in mechanical engineering from Columbia University and work as an engineering consultant. A stint as a restaurant owner — another lifelong dream — followed, before he discovered teaching.

Cal TAC is, in his view, a way to make the voice of teachers much more prominent in the community and especially within the legislative process. "Cal TAC keeps bringing the conversation back to kids, families, schools, and classrooms," he explains — all too often overlooked in legislative decisions.

Reflections on Cal TAC: An Interview with Juliana Jones

Juliana Jones, a math teacher at Longfellow Middle School, was one of Cal TAC's original 12 members. As her term on Cal TAC draws to a close, she reflected on her time with the organization and her fellow math and science teachers.

One of the aspects of Cal TAC that Juliana has valued most is its emphasis on highlighting the experiences and insights of classroom teachers. "Cal TAC has helped me to feel valued as a professional outside the class room precisely because I am still working with students in the classroom," she says. "Many vehicles in education take good teachers out of the classroom, and I love that Cal TAC is centered around those of us who still see the kids of California every day."

Juliana will continue to bridge the classroom and the policy arena, but will do so now on a national level as she continues to serve on the National Teacher Advisory Council (NTAC) as Vice Chair, on which Cal TAC is modeled.

"Cal TAC gave me an opportunity to meet, work with and learn from the amazing teachers of California in a unique setting," she adds. She's proud of the work Cal TAC has done to amplify the voice of classroom teachers, bringing "our wisdom of practice to policy." It hasn't been easy, and many challenges remain, but she's confident that Cal TAC will continue to play a role in transmitting and amplifying the voices of classroom teachers.

The Cal TAC Update focuses on Cal TAC activities and highlights innovative science and mathematics education and research in California. The Update is written by Anne Marie Bergen and Nicole Lezin, who welcome information from readers. Newsletter layout is by Sandra Vargas. The Update thanks Cal TAC members for their generous assistance in providing material for this issue. If you would like more information about Cal TAC initiatives, please contact us at:

email: ccst@ccst.us

website: <http://www.ccst.us>

phone: (951) 682-8701

fax: (951) 682-8702



California Council on
Science and Technology
1130 K Street, Suite 280
Sacramento, CA 95814
5005 La Mart Drive, Suite 105
Riverside, CA 92507



The Center for the Future
of Teaching and Learning
133 Mission Street, Suite 220
Santa Cruz, CA 95060

California Council on
Science and Technology
5005 La Mart Drive, Suite 105
Riverside, CA 92507

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