2007 Award Winner: District Leadership in Science, Math and Technology

Project Tomorrow
INNOVATION IN EDUCATION
Award Recipient
2007

Dr. Theresa Daem
Superintendent, Laguna Beach Unified School District

What is your vision of "innovation in education"?

Dr. Daem's vision of educational excellence is that students are well rounded in academics, social and emotional capabilities, health, wellness, and learning and thinking strategies. This singular focus on the "whole-child" is accomplished through the Quest for Excellence program, which fosters a culture of continuous improvement throughout the school district.

How has your vision been communicated to stakeholders?

Stakeholders learn about the "Quest for Excellence" vision through their participation in committee, school board, staff, PTA and monthly Q4E meetings. As well as, the district website, "Quest for Excellence" newsletter and committee meeting minutes.

Innovative Program

Future high school graduates must have the talents, skills and experiences that transcend the basic academics. They must be globally aware, excellent communicators, strong critical thinkers, problem solvers and good team players. This past year, the Laguna Beach Unified School District developed and piloted a very innovative approach to developing the whole student – an individual student profile that focuses on each child individually, not just as part of a class or a school. This profile, enabled and empowered by technology, contains academic performance and standardized test scores, information on the student's learning style and strengths, multiple intelligences, meta-cognitive skill and ability, social and emotional capabilities, health, wellness, fitness, interests and strengths, as well as links to community resources. Everyone involved in developing the student – the student, teachers, administrators and parents, uses the profile. During the 2006-07 school year, the web-based program ISP was piloted with the district's 6th grade students.

"Innovation – any new idea – by definition will not be accepted at first. It takes repeated attempts, endless demonstrations, and monotonous rehearsals before innovation can be accepted and internalized by an organization. This requires "courageous patience."
– Warren Bennis

Students Results

"Quest for Excellence" is now embedded within the district culture and guides all educational practices in the district. Teachers are part of Professional Learning Communities and work cooperatively to enhance student instruction and articulation so that each child grasps the concepts being taught. Today, stakeholders are working together to bring increased "Academic Depth," "Social and Emotional Well-being," "High Levels of Wellness," and "Child Capacity Development" to all students in the district.

Education's role in driving Orange County's economic competitiveness

"Great schools provide a significant edge for the promotion of successful business development in Orange County. Not only do business leaders seek a highly competent workforce, they also know that great employees have choices and most of them choose to live where their children can get a great education."

2007 Award Winner: Innovative School Program in Science, Math and Technology

Jerry Halpin
Principal, Brea Olinda High School
Brea Olinda School District

What is your vision of "innovation in education"?
Mr. Halpin's vision is to prepare students to compete in a globally competitive technological workforce. This vision has become a reality at Brea Olinda High School through the Global IT Academy. The four-year academic program develops students' critical thinking, problem solving, information-literacy, communication, interpersonal, and self-direction skills.

How has your vision been communicated to stakeholders?
The vision for the Global IT Academy is communicated to stakeholders through Parent Information Nights and business events throughout the community.

"Implementing best practice is replicating yesterday; innovation is designing tomorrow."
– Paul Sloane

Program Description: Global Information Technology Academy
The Global Information Technology Academy fosters an environment that empowers and challenges students to solve real world global technology issues. This rigorous four-year program provides students with opportunities to gain college-level instruction and credit for global information technology courses in their area(s) of specialization; international research and collaboration experience; marketable IT certifications; and international corporate work experience.

During their tenure in the academy, students develop computer programs using Visual Basic.Net; study Informatics and Relational Databases; learn JAVA programming while preparing for the AP Computer Science exam; and design and develop a global software application. Students also interact with industry experts to learn more about the IT profession, including: ethics, industry trends, software development and contemporary tools.

In an effort to foster cross-border collaboration and communication, Global IT students exchange computer science lessons with undergraduate college students at SIAS University in China. Through this partnership, the high school and college students are learning how to communicate in both English and Chinese.

Program Results
As a result of the Global IT Academy, student participation has doubled in computer science courses and the school now offers after-school programs in web design and basic computer programming. Additionally, the staff from the elementary and junior high schools have made changes to the math curriculum so that students are better prepared to meet the academic prerequisites of the Global IT Academy. Lastly, students in the Global IT Academy feel a sense of community as they work together around the campus, participate in "working lunches" with their teachers and mentor fellow students.

Education's role in driving Orange County's economic competitiveness
"The education community needs to continue its push to prepare more students who have the technological expertise to compete in a global economy. Educators can accomplish this by strengthening ties with the business community and by creating stronger articulation programs with local colleges and universities."

2007 Award Winner: High Impact Teacher in Science, Math and Technology

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Holly Steele
Beechwood School
Fullerton School District

What is your vision of "innovation in education"?
Ms. Steele has a deep desire to motivate students to love learning. Her vision is to "Encourage students to appreciate science by providing a learning environment where students can explore, experiment, ponder and apply knowledge."

Innovative Programs:
Ms. Steele brings science alive for her 7th and 8th grade students by allowing them to conduct scientific investigations. She creates engaging, interactive lessons to capture her students' attention and provides a variety of technology tools for students to investigate, analyze and present the results. For example, students collect data via ProScopes and Probeware, use calculators and laptop computers, conduct internet research and web quests, and participate in real-time assessment using ACTIvote (a classroom response system).

Science is taught within a larger context, students analyze word roots to uncover meaning, learn science topics and teach them to their peers, sing "science songs" to remember content and vocabulary, write poetry, perform skits, draw, read expository text, and write about timely and news-worthy topics such as: genes and gene technology, selective breeding of dogs, or cloning.

"Imagination is more important than knowledge – for while knowledge points to all that is, imagination points to all there will be."

– Albert Einstein

To further engage middle school students in science, Ms. Steele designed a one-trimester forensic science course. Students learn about the profession from forensic professionals, work in teams to research and investigate crime scenes, collect and analyze data, and record and report findings.

Program Results
Ms. Steele uses a variety of methods to assess her students' academic progress. Additionally, she spends time talking to her students about the knowledge they have gained, their disposition towards science and the goals they would like to pursue. As a result, students are seeking out opportunities to participate in science activities such as the Science Olympiad. This past year, 42 students participated in a school-based Science Olympiad. The winners secured a spot on the 15-person team and will compete with teams from across the county in a regional Science Olympiad. Through this experience, students' opinions about science changed and they are "eagerly" awaiting next year's competition!

Education's role in driving Orange County's economic competitiveness
"The responsibility of the education community in driving Orange County's economic competitiveness is to partner with our business and industrial community leaders to create a shared vision of the needs of our learners who will one day become scientists and engineers. The goal of science education is to help students develop science literacy to prepare them to use science for improving their lives and surviving in an increasingly technological world. With that in mind, the partnerships we build today will form a solid foundation on which our students can develop into informed, active citizens."

2007 Award Winner: Emerging Student Innovator in Science, Math and Technology

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Marshall Thomas
Laguna Beach High School
Laguna Beach Unified School District

How did you use math, science or technology resources to solve a local problem in your community?

Marshall's concern for the ocean inspired him to reactivate the **Surfrider Club at Laguna Beach High School** to help raise awareness about local water quality issues. From the club's initial start up through his acceptance of the **2006 Environmental Achievement Award from the U.S. Congress**, Marshall has honed his scientific, leadership and public speaking skills.

As a result of Marshall's efforts to inspire his classmates to get involved, members of the Surfrider Club collect water samples from a variety of locations throughout Laguna Beach on a weekly basis. The students test the water samples for Enterococcus bacteria levels, analyze the data and post Water Quality Flyers through out Laguna Beach. Local residents and visitors check out the flyers to make informed decisions about where they want to swim.

"Discovery consists of seeing what everybody has seen and thinking what nobody else has thought."
– Jonathan Swift

The practical application of science begins when students collect water samples each Tuesday morning. The students carefully prepare their lab environment – sanitize the counters, set up bottles, pipettes, Enterolert, Quanti-Trays and ready the incubator for testing. Once the tests are completed, the results are calculated, recorded and verified. Controls are put in place to insure that the samples are not contaminated. For Marshall, testing the water quality brought a "textbook-contrived lab experiment" to life because the results were real and "brought useful information to the community on a subject people cared about."

How has your solution made a difference?

Parents and visitors have come to rely on the information from the Water Quality Flyers and the club website. Parents keep children away from highly contaminated areas, surfers check the bacteria levels before selecting a place to surf, and visitors can make informed decisions about where they want to swim. Additionally, because community members test the ocean for themselves, they are now thinking about the quality of our ocean water daily. They understand the dangers of swimming after a rain and know where the runoff from their gutter ends.

What factors or people have influenced your interest in science, math or technology?

Marshall was most influenced by his sister Margaux, who founded the original Surfrider Club during her tenure at Laguna Beach High School. His passion for the ocean and previous experience under Marguex's guidance served as an impetus for him to reinstate the program and carry it to honors.