

IMPROVING STUDENT OUTCOMES

Research continues to demonstrate that the inclusion of students' cultural knowledge enriches the curriculum, expands opportunities for parent and community involvement, and improves student achievement (Demmert & Towner, 2003; Moll, Amanti, Neff, & Gonzalez, 1992; Nelson-Barber & Lipka, 2007; Warikoo & Carter, 2009). Understanding that culturally responsive, standards-based curricula can help schools improve student outcomes—especially schools that are low-performing or have high English language learner (ELL) populations—PREL continues to focus on initiatives that support and engage linguistic and cultural diversity.

Picturing Science

Picturing Science, a course offered through PREL's Hawai'i School Improvement Services program, shows teachers how to integrate students' oral, visual, and written communication skills using an innovative, multidisciplinary model of instruction. In 2010, over 100 public school teachers in Hawai'i earned professional development education credits, added to their toolbox of English as a second language (ESL) strategies, and offered students of all ages opportunities to use words in "painting" what they know.

Building science literacy through *Picturing Science* affords students the opportunity to learn in a real-world context while creatively developing and testing new ideas. Science is, by nature, a multidisciplinary endeavor and a means to apply many of the skills we want students to master. Program Director Lori Phillips stated, "The critical thinking skills developed through scientific inquiry can serve students by providing logic and problem-solving skills used in all aspects of learning. The integration of science with language and visual arts targets the whole brain. Learning in the arts mirrors the goals of scientific literacy by seeking to engage students in both intuitive and analytical thinking."

The 21st-century literacy skills practiced in *Picturing Science* requires students to engage in the synthesis of information, patterns, and concepts; incorporate multiple perspectives; and create meaning from words, symbols, and images. These skills, built through the arts, parallel those sought by scientists.



For the past five years, REL Pacific's Pacific Communities with High-performance In Literacy Development (Pacific CHILD) program has delivered year-round professional development interventions that combined workshops, lesson demonstrations, observations, and peer learning groups for 4th and 5th grade teachers. Program content integrated three reading strategies for improving student reading comprehension (vocabulary; text structure; question generation) with three instructional strategies for improving classroom pedagogy (differentiated instruction; interactive tasks; cognitively rich environment) through the use of expository text. In partnership with Berkeley Policy Associates, REL Pacific, in its final year of 2010, concluded a randomized controlled trial of Pacific CHILD, which will show the level of impact the program has had on teachers' content knowledge and pedagogical practices, as well as student achievement.

One of PREL's newest initiatives to improve student outcomes, the Mathematics and Culture in Micronesia: Integrating Societal Experiences (MACIMISE) project, centers on recovering the mathematical understandings that reside in the everyday heritage practices followed by Pacific

indigenous groups across PREL's service region. MACIMISE staff now work with local practitioners to make use of the mathematical concepts identified in each context—Chamorro, Chuukese, Hawaiian, Kosraean, Marshallese, Palauan, Pohnpeian, Samoan, and Yapese—as they begin to develop curriculum materials for grades 1, 4, 7, and 8. Community engagement and participation are essential to the MACIMISE program, which supports the preservation and advancement of indigenous knowledge systems.

As teachers, administrators, and members of state education agency (SEA) improvement teams increasingly utilize student performance data to inform instructional decision making, PREL's Pacific Assessment Systems and Support (PASS) program continues to provide technical assistance and assessment development and revision services to SEAs across the region. In American Samoa and the Commonwealth of the Northern Mariana Islands, PASS staff are partnering with SEAs to develop and pilot standards-based English language proficiency assessments for both student placement and end-of-year assessment. In Guam, PASS staff are working with teachers and content area specialists to develop Chamorro, mathematics, science, and English language arts assessments that align with the newly implemented content area standards. In the Republic of Palau and the Federated States of Micronesia, PASS is working with teachers to develop standards-based assessments in English language arts and mathematics. A specialized focus of the PASS program is the development of culturally valid



assessments that tap the linguistic and cultural variation of students. PASS staff conduct research and continue to disseminate findings regarding both criteria for culturally valid assessment and recommendations for specific strategies that teachers can use to design and implement effective assessments.