

## **English-Language Learners Improve Upon Literacy Performance Through Inquiry-Based Science Instruction**

As California's educational system faces a range of challenges related to student achievement and teacher efficacy, the state has turned its primary focus toward student performance in mathematics and reading with a sense of urgency placed on raising language arts test scores and meeting Accountability Performance Index (API) goals. As a result, schools and teachers are devoting less time in the classroom to instruction of other subjects such as science. This trend may be counter to the learning prospects of our students. A study of the Fresno Unified School District (FUSD) illustrated that inquiry-based science instruction not only improves student performance in science, but in reading language arts as well, particularly for English language learners.

FUSD has implemented an inquiry-based approach to teaching science in a way that is comprehensible and meaningful to students. This includes a strong literacy component that develops reading skills through the building of classification and oral communication proficiency, along with a positive attitude and growing interest towards science. This approach has provided teachers with a vehicle to increase language acquisition and help students learn how to access expository text.

A study conducted of FUSD's use of inquiry-based instruction by Jerry Valadez, Science Coordinator for the Fresno Systemic Program, emphasized that a positive relationship has been identified between the number of years of inquiry-based science instruction and standardized test scores in reading. This is critical for school districts, such as FUSD, that have a large portion of linguistically diverse students. Students are found to need to develop the necessary language and literacy skills in order to successfully access knowledge in mathematics and science. Valadez also noted that the professional development that the teachers received regarding the inquiry-based instruction and materials was also a critical factor in student achievement.

Valadez states, *"Science learning and language acquisition for ELL students is interdependent. Through the contextualized use of language in science inquiry students develop and practice complex language forms and functions."* In his analysis, Valadez also emphasizes that inquiry-based science instruction enhances and promotes the utilization of critical thinking skills, which is linked to increase reading comprehension.

The results of Valadez' study illustrate how science embedded literacy and a learning environment that promotes student inquiry, hands-on science instruction, and critical thinking, may provide an effective way to develop and nurture essential reading, comprehension, and literacy skills.