Evelyn Maycumber

COMMENTS from Evelyn

A summary of *Infusing Reading into Science Learning*

By Courtney C. Zmach, Jennifer Sanders, Jennifer Drake Patrick, Hakan Dedeoglu, Sara Charbonnet, Melissa Henkel, Zhihui Fang, Linda Leonard Lamme and Rose Pringle

(from ASCD's journal *Educational Leadership*.)

This is a summary of the results from research involving 6th grade science teachers and university researchers with implications for Project CRISS teachers and trainers.

The National Science Education Standards describe scientific literacy as "the knowledge and understanding of scientific concepts and processes required for personal decision-making . . . " (1996). The dilemma comes when students are unable to read content-area materials in science. To work at solving this dilemma, researchers collaborated with 6th grade teachers to create lesson plans, book lists, and other tools to introduce more reading into science teaching. The three-pronged intervention included instruction of reading strategies, a home reading program, and professional development.

Reading Strategies

"*Explicit instruction was given in science-related language skills and reading strategies . . . . The team developed and taught 22 lessons involving comprehension strategies such as questioning, think-pair-share, two-column note taking, and paraphrasing. For each strategy, teachers provided direct explanation, modeling, guided practice, and chances to apply the strategy independently. Throughout the year, students were given opportunities to apply targeted reading strategies of their choice in science lessons." (Zmach, 2007)*

Professional Development

The professional development of the teachers included three workshops addressing and discussing the following books:

Language & Literacy in Science Education (Jerry Wellington & Jonathan Osborne)

Strategies that Work: Teaching Comprehension to Enhance Understanding (Stephanie Harvey & Anne Goudvis)

Non-fiction Matters: Reading, Writing, and Research in Grades 3-8 (Stephanie Harvey)

Real Reading, Real Writing: Content Area Strategies (Donna Topping & Roberta McManus)

Home Reading

In addition to specific instruction in reading strategies, *"access was given to award-winning science trade books through a home reading program." (Zmach, 2007)* Students read one book a week that portrayed accurate science information and was from an award winning list, such as the *National Science Teachers Association's List of Outstanding Science Trade Books for Students K-12.*

The analysis of student achievement prior to and following the research period, which was one school year, yielded several findings of interest. They were:

- Students who received reading strategy instruction had higher achievement in science and reading than did students who did not receive the intervention.
- The inclusion of a home reading program appeared to increase the gains made by students.
- Professional development of the teachers was one of the key elements that brought about this increase in science learning.

Note: I have personally worked on a research project with both Zhihui Fang and Linda Lamme. Both are outstanding educators and researchers and they strongly support the direct instruction and use of reading strategies across the curriculum.

Resources

Harvey, S., (1998). *Nonfiction Matters: Reading, Writing, and Research in Grades 3–8*, Stenhouse, Maine.

Harvey, S., and Goudvis, A., (1999). *Strategies That Work: Teaching Comprehension to Enhance Understanding*, Stenhouse, Maine.

Topping, D., and McManus, R., (2002). *Real Reading, Real Writing: Content Area Strategies*, Heinemann, New Hampshire.

Wellington, J., and Osborne, J., (2001). *Language and Literacy in Science Education*, Open University Press, Philadelphia.

Zmach, C., et al., (December 2006-January 2007). Infusing reading into science learning, *Educational Leadership*, 64 (4), 62-66.