

Dr. Richard Lesh



Dr. Lesh was the featured speaker for the SFU Culmination Celebration on December 2, 2006, through the Rocky Mountain Middle School Math and Science Partnership funded by a grant from the National Science Foundation.

Reconnecting the 3 Rs for Technology-Based Age of Information

Dr. Richard Lesh spoke to teachers participating in the Structured Follow-up (SFU) courses during fall 2006 about the need to prepare students who have the skills required by business and other facets of life. He explained that the skills that business needs have changed partially as a result of information technology. Business leaders need people who can generate and communicate problem-solving options

“Humans interpret experiences by mapping to internal models. Therefore, creating and using models is an important goal in instruction.”

He used a basketball analogy to explain the instruction needed by students. In preparing for a basketball game, the coach provides a sensible mix of practice in the basics or fundamentals with scrimmages that provide a more authentic practice for the complexity of a real game. In the same way, we need to know what computations students can do AND what kind of situations (or systems) they can describe (or interpret) through mathematical models. A sensible mix of learning and practice in mathematical computation AND application of mathematical (and other problem-solving) models should be the goal of teachers for their students.

“The constructs we use to make sense of the world are also the constructs used to mold and shape the world.”

Dr. Lesh recommended a case study approach in instruction that provide simulations of “real life” problem-solving situations. He suggested that multiple approaches to the same problem be encouraged so that students learn to develop and communicate models for solving problems. He lobbied for thinking about 10 big ideas within a course that the instructor would like for students to understand through problem-solving.

Although Dr. Lesh has been involved in educational testing over many years, he reported that each standardized test has limitations in terms of the relevance of its application of the results for decision-making about student capabilities.

Dr. Lesh is the Rudy Distinguished Professor of Learning Sciences at Indiana University, serves as the Director of the Center for Research on Learning & Technology, and chairs the Department of Learning Sciences in the Indiana University’s School of Education. He also is the associate editor for the *International Journal for Mathematical Thinking & Learning*.

Formerly, Dr. Lesh served as Dean for Research at Northwestern University and Purdue University, as well as a Principal Research Scientists at the Educational Testing Service in Princeton, and as a Program Officer for the Research Division at the Education Directorate for the National Science Foundation.

His more than 250 journal articles and books reflect his international reputation for his expertise on **learning & problem solving in mathematics** education and research & assessment design in mathematics & science education. Current or recent publications include: *The Handbook of Design Research in Mathematics & Science Education* (Kelly & Lesh, in press), *Foundations for the Future in Mathematics Education* (Lesh, Hamilton & Kaput, in press), and *Beyond Constructivism: Models & Modeling Perspectives on Mathematics Problem Solving, Learning & Teaching* (Lesh & Doerr, 2003).