Abstract

Dr. Elaine Seymour reflects on two decades of national effort to improve quality and access in science, technology, engineering, and mathematics (STEM) undergraduate education. She discusses what enables and constrains progress in the wider uptake of the research-grounded teaching methods and materials now available, including the role of research.

Bio

Elaine Seymour is co-founder and director emerita of Ethnography & Evaluation Research (EER) at the University of Colorado at Boulder. Her work has focused on issues of change in STEM education and careers, including efforts to improve quality, access, and diversity. In recognition of her research on women in science, WEPAN awarded her their 2002 Betty Vetter Award for Research. Her best-known work, co-authored with Nancy M. Hewitt, Talking about Leaving: Why Undergraduates Leave the Sciences, (1997), is widely cited for its contribution to the nationwide effort to improve undergraduate education in the sciences. In 2006, she testified before Congress on trends and needs in the reform of STEM education. Seymour is a sociologist whose work has pioneered and established the value of qualitative inquiry in understanding complex issues in this field. In addition to her many articles, publications (with EER members) include; Talking about Disability: The Education and Work Experiences of Undergraduates with Disabilities in Science, Mathematics, and Engineering Majors (1998); Partners in Innovation: Teaching Assistants in College Science Courses (2005); and Undergraduate Research in the Sciences: Engaging Students in Real Science (2010). To meet the needs of classroom innovators for course evaluation methods relevant to their learning objectives, she co-developed the widely-used Student Assessment of their Learning Gains (SALG) online instrument. Most recently, she helped to organize the national endeavor, “Mobilizing STEM Education for a Sustainable Future.”

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