

“A Stimulus Package for Understanding and Retention,” Nancy Kerner

Abstract

Statistics indicate that the number and diversity of students who graduate with STEM degrees is not sufficient to meet the needs of a global workforce. Extensive research on why students leave STEM fields suggests that individual instructors can play a key role in supporting and retaining a diverse student body. This presentation will focus on specific classroom strategies and instructional behavior that have been demonstrated to improve student understanding and retention. For example, recent research on learning, especially on Bloom’s Taxonomy of learning levels, indicates that students understand and retain a concept only if the concept is learned to at least application of the concept. Thus it is not surprising that the research indicates that inquiry based learning and exposure to real-world applications and careers are among the four suggested primary strategies for promoting understanding and retention.

Biographical note

Nancy Konigsberg Kerner has been a faculty member at the University of Michigan in Ann Arbor since 1983, where she teaches and coordinates the introductory general chemistry lab program. She has taught or designed chemistry programs at all academic levels from elementary school to college. Recent programs are targeted to introduce middle school girls and deaf and hard of hearing high school students to what chemists do and activities chemists engage in. Her research interests focus on guided inquiry instructional strategies, team-based learning, and the use of technology in teaching chemistry. Nancy is the author of several lab manuals including the recent *Guided Inquiry Experiments for General Chemistry: Practical Problems and Application*. She is chemistry co-editor of MERLOT in conjunction with JCE where one of her roles has been the establishment of evaluation criteria for online learning objects. Her work in this area has been recently recognized with receipt of the 2009 Innovative Use of MERLOT Award.