

PEER-LED TEAM LEARNING EVALUATION

EVALUATION OF STUDENT LEARNING IN A PLTL CLASSROOM

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Although the American Chemical Society Examination Institute's exams are generally considered to be the *de facto* gold standard for evaluation of student learning in chemistry coursework, they are poor instruments to use to measure the effectiveness of a Peer-Led Team Learning (PLTL) curriculum. PLTL practitioners in all disciplines will have to develop measurement instruments that examine the type of learning gains that should reasonably follow from student participation in a PLTL classroom. Specifically, improved problem-solving skills, increased conceptual understandings, and refined general intellectual process skills should be targeted. Factual recall and algorithmic problem-solving items should be avoided when testing the effectiveness of PLTL classrooms.

A potential source of support for such a project is the NSF Evaluative Research and Capacity Building program. According to NSF, "The EREC program seeks proposals that offer unique approaches to evaluation practice in the generation of knowledge for the science, engineering, and mathematics (STEM) education community and for broad policymaking within the research and education enterprise." However, this program is currently being revised, so it is presently not known what type of proposals will be considered in the next round.

Barriers to obtaining support include the low projects-funded-to-proposals- submitted ratio for most NSF programs, difficulties in forming a team of PIs with expertise in both PLTL and evaluative research, and the match between PLTL and the goals of the EREC program. Our related efforts in this area have largely focused on development and validation of an instrument designed to measure general intellectual process skills. The Higher- Order Thinking Skills test is a significant advance in instrumentation quality in this area. We have also developed some PLTL-like curriculum materials that may be useful in promotion of the development of students' thinking skills. Our *Think Out Loud!* workbook and related curriculum design has potential to affect students' thinking skills. However, we have not yet taken the next step and conducted an experimental study of the effect of the curriculum on thinking skills.

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Cite This Article as: Cracolice, M.S. (2012). Evaluation of Student Learning in a PLTL Classroom. Peer-Led Team Learning: Evaluation. Online at <http://www.pltlis.org>. Originally published in *Progressions: The Peer-Led Team Learning Project Newsletter*, Volume 6, Number 2, Winter 2005.