

Mitchell Bruce, Professor of Chemistry, recently gave an invited talk at the 255th American Chemical Society National Meeting in New Orleans, entitled “Promoting analogical reasoning in general chemistry laboratory experiments” in the session “Curricular Innovations in Undergraduate Chemical Education Impacted by NSF”.

Co-authors on the paper include Dr. Alice Bruce (Chemistry), graduate students, Joe Walter and Devin Howard (RiSE Center), undergraduate Anna Turner (Chemistry), and teachers, Samantha Poll (Wagner Middle School) and Clint Eaton (Hermon High School).

Abstract

CHED: Curricular Innovations in Undergraduate Chemical Education Impacted by NSF

CHED 262: Promoting analogical reasoning in general chemistry laboratory experiments

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CORE (Chemical Observations, Representations, Experimentation) is a scaffolded learning-strategy designed to promote student use of analogical reasoning in introductory laboratory experiments to foster the connection of macroscopic, submicroscopic, and representational domains. We report preliminary findings related to the use of analogical reasoning in a variety of student lab work including pre-lab assignments, drawings, student construction of representations during lab, and incorporation of analogical reasoning in lab reports. One of our research goals is to understand how students use analogical reasoning in advancing scientific arguments. We will also report preliminary findings of our efforts to use qualitative content analysis to understand the use of analogical reasoning in lab reports as well as efforts to revise **CORE** experiments for middle and high school students.