CHEMISTRY Departmental Seminar

Fall 2018
CHEM 285/191 Schedule
Tuesdays at 4:30-5:45PM
Room Duncan Hall 250

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Revisiting Summative Assessment: Taking a Fresh Look and Diving Deeper to Explore Hidden Issues

Success with problem solving depends on several variables, including students’ conceptual understanding, strategies, and skills. Determining the influence of each variable is an important task in revealing the reasons why students may struggle with problem solving. In this study, the students’ success with problem solving were investigated through audio and video analyses of think-aloud problem-solving protocols. A coding scheme was used to analyze their written work and explore the interaction between their knowledge structures and success at solving several chemistry questions. The questions were evaluated as a series of sub-problems, where each was coded by using COSINE (Coding System for Investigating Sub-problems and the Network). The application of this coding system was shown to reveal difficulties that might have otherwise been missed by an analysis that focused on end results only. Although almost all students showed a good understanding of individual sub-problems, in general, they appeared to be much less successful in linking the sub-problems within the context of difficult problems. This in-depth analysis of solutions has revealed important details on students’ knowledge structures (conceptual understanding) and informed new effective teaching methods.