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Impact of Context-Rich, Multifaceted Problems on Students' Attitudes Towards Problem-Solving CRAIG OGILVIE — Young scientists and engineers need strong problem-solving skills to enable them to address the broad challenges they will face in their careers. These challenges will likely be ill-defined and open-ended with either unclear goals, insufficient constraints, multiple possible solutions, and different criteria for evaluating solutions so that our young scientists and engineers must be able to make judgments and defend their proposed solutions. In contrast, many students believe that problem-solving is being able to apply set procedures or algorithms to tasks and that their job as students is to master an ever-increasing list of procedures. This gap between students' beliefs and the broader, deeper approaches of experts is a strong barrier to the educational challenge of preparing students to succeed in their future careers. To start to address this gap, we have used multi-faceted, context-rich problems in a sophomore calculus-based physics course. To assess whether there was any change in students' attitudes or beliefs towards problem-solving, students were asked to reflect on their problem-solving at the beginning and at the end of the semester. These reflections were coded as containing one or more problem-solving ideas. The change in students' beliefs will be shown in this talk.

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