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In an attempt to find ways to develop creative and critical problem solvers, we implemented a novel Discovery Learning Assessment technique in Mathematical Modeling and Introduction to Calculus during the Fall 2017 semester. This technique entailed weekly assessments in place of major exams. The assessments consisted of three parts: a night before read-ahead focused on a new application, an in-class individual portion where students responded to short answer questions, and an in-class group portion where groups of 3-4 students provided team responses to similar questions after discussion, learning, and consensus.

After assessing the impacts of the Discovery Learning Assessments on students' performance in the subsequent course – Single Variable Calculus – it was determined that the Discovery Learning Assessments had a statistically significant positive impact on first-time calculus students' performance. Additionally, across the population analyzed, the Discovery Learning Assessments did not hinder any subgroup's performance.

These results and other observations will be discussed. (Received September 25, 2018)