

STEM-EDUC Research Symposium

UCR Honors Capstone Projects

Wednesday, May 2, 2018

11:10 a.m. to 12:00 p.m.

1315 Pierce Hall



PURPOSE: Learn from these exemplar SMI peer mentors about how their Honors Capstone projects could improve your pedagogy for STEM teaching.

Savannah Sprague **Senior Math Major**

Using Mathematical Representations in the Classroom and the Effects on Student Learning

Mathematical representations are models of mathematics concepts outside of symbolic math such as counting blocks or algebra tiles. In theory, mathematical presentations supplement student learning in that they provide concrete ways for students to approach mathematics concepts and make connections between their experiences and symbolic math. Research has been done that shows significant results of the impact on student learning when using mathematical representations. The first part of the capstone project offers a summary analysis of research articles on mathematical representations and their effects on student learning. Based on the results of the research articles found, they are sorted into categories of effects in a discussion. The results of research articles provide evidence in support of using mathematical representations in mathematics classrooms to better student learning. As a second part of the capstone project, a lesson plan using mathematical representations is provided as an example to use in a classroom and along with commentary referencing to teachers the research.

Brittany Besnyl **Senior Math Major**

Which Students Need Flipped Classrooms?"

Flipped classrooms are becoming more popularly adopted by teachers. This teaching method involves students receiving content knowledge at home to allow class time for activities and group work. I will be conducting a scholarly analysis with the purpose of focusing on the effects flipped classrooms have on diverse students, specifically relating to qualities such as ELL students, different genders, and students with special needs. The anticipated outcome is to decide whether flipped classrooms are more effective than traditional classrooms for all students, no students, or only for certain students. This will be validated by evaluating previous research that has been conducted involving flipped classrooms.

Seats are limited.

RSVP at <http://smi.ucr.edu/registration.html>