# Physics through Algebra for Preservice Elementary Teachers: A Comparison of Asynchronous and Hybrid/Face-to-Face Learning

PROCEEDING

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## Abstract

At a large Hispanic-serving Institution in the southwestern United States, physics was integrated into an algebra content course for preservice teachers. Due to the pandemic, content was asynchronously taught during the fall 2020 semester. During the fall 2021 semester, content was taught in both hybrid and face-to-face format. This research question was: Regarding preservice teachers' leaning and academic experiences, what were the differences between perceptions of preservice teachers' learning on the subject of physics-based algebra in an asynchronous format compared to a hybrid or face-to-face format? Data were gathered from both preservice teachers and their instructors. Data from preservice teachers showed that the in-person and hybrid instruction cohort saw a significant change in Personal Mathematics Teaching Efficacy from pre- to post-test when testing at the .05 level, whereas this was not the case for the online instruction cohort. There was no statistical difference in the post Personal Mathematics Teaching Efficacy and post Mathematics Teaching Outcome Expectancy scores between the face-to-face and hybrid preservice teachers and the asynchronous preservice teachers. Their instructors felt that experiences were more fruitful in a face-to-face format.

## Citation

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