



88c Virtual Implementation of a Hands-on Learning Tool and Its Effect on Student Comprehension and Motivational Gains

Details

Session: Lessons Learned from Teaching Chemical Engineering Online I (How We Changed Our Courses) (/aiche2021/event/2e13708d-c5a5-4753-9acf-7cf77bc4d4b8)

Location: Sheraton Back Bay, Republic Ballroom B

Date: Monday, Nov 8 8:36 AM

Duration: 18 minutes

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About

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Our project involves the national dissemination of highly visual hands-on learning tools focused on fluid mechanics and heat transfer principles to 44 institutions and branch campuses within the United States. Like many other educators, our team had to adapt the implementation protocols to accommodate remote learning during the COVID-19 pandemic. Rather than students working in groups with our hands-on learning tools, we created follow-along video implementations and supplementary tutorial videos. The videos allow students to complete the complementary worksheets associated with each hands-on learning tool while watching a graduate student explain basic concepts and collect real-time data with the hands-on learning tools. The supplementary tutorial videos are focused on an in-depth discussion of a single conceptual aspect of the learning tool. Across three remote-learning semesters, a total of 36 virtual implementations at 12 institutions were completed with approximately 630 chemical and mechanical engineering students. An asynchronous implementation method was used for 70% of the virtual implementations, while other instructors presented virtual material in a synchronous virtual setting with several allowing live, small-group discussion. At the conference, we will present conceptual and motivational assessment results to compare the effectiveness of virtual implementations versus traditional interactive hands-on implementations.

Speakers

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Groups

Awards Events (/aiche2021/events?

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