

CHAOS Lab Recognized for Innovative STEM Teaching, Diversity in Education

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A student designs an app. The CHAOS Lab helps teachers use technology to enhance learning experiences.

The CHAOS Learning Lab at USU was recently included in a national policy brief by the Education Commission of the States as an outstanding example of innovative STEM education, arts integration, and diversity and equity in education.

The CHAOS (Culture, History, and Art Originating in STEM) Learning Lab is focused on engaging teachers in hands-on, arts-integrated STEM, social studies, and computer science learning. Through professional development and project workshops that integrate social studies, equity, and civics education with STEM learning, the Lab works with K-12 teachers to bring technology into classrooms in innovative ways while challenging preconceived ideas about who engages in STEM subjects.

This commitment to broadening participation in STEM through access and outreach is a main part of the CHAOS Lab's mission that was highlighted in the Commission's policy brief. According to the brief, racial, ethnic, and socioeconomic inequities negatively impact high school STEM participation, pursuit of STEM in post-secondary settings, and entrance into STEM occupations. Arts-integrated STEM, especially in elementary school, can help improve access, equity, and inclusion in STEM education by addressing opportunity gaps early and igniting interest in STEM subjects among all students.

"We work to meet teachers where they are and center the passions they bring to their own teaching, said Dr. Colby Tofel-Grehl, associate professor in the School of Teacher Education and Leadership and co-director of the CHAOS Lab. "In doing so, we are able to maximize learning across content areas."

The Commission included the CHAOS Lab as a premier example of innovative STEM education with a focus on equity and diversity in the hopes that educators across the country will begin thinking about how arts-integrated STEM education can enhance outcomes for their students.

Tofel-Grehl attributes a large part of the Chaos Lab's success and recognition to the valuable collaboration between the Emma Eccles Jones College of Education and Human Services and the Caine College of the Arts. "A lot of the credit for this goes to the CCA's associate dean, Raymond Veon," she said. "Raymond's tireless efforts to support arts education dovetailed our broader STEM education efforts and created this optimal opportunity to serve Utah youth with rich art and STEM experiences."

Located on the third floor of the Emma Eccles Jones Education building, the CHAOS Learning Lab has equipment such as 3-D printers and sewing machines, and it currently has three project workshops available to educators: The Science Escape Room, which is designed to enhance technology-facilitated problem solving and design in middle and high school physical science classes; Project STITCH, which uses the creation of e-textiles to explore STEM-associated topics related to physics, chemistry, earth science, and life science; and Project ESTITCH, which focuses on grades 3-6 and engages students in computing and making activities that are culturally and personally meaningful.

The lab also coordinates community and youth outreach events such as LGBTQ+ maker classes and summer camps. Learn more about the [CHAOS Learning Lab](#).