

# Theater improvisation techniques show promising results for science classroom engagement

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A researcher at the University of Maryland, Baltimore County (UMBC) has developed a unique method to improve class participation in a graduate-level thermodynamics course by incorporating theater improvisation activities in the classroom. Erin Lavik, associate dean for research and faculty development and professor of chemical, biochemical, and environmental engineering at UMBC, wanted to find a way to encourage better participation in a thermodynamics seminar, and thought that allowing students to warm up to each other through theater exercises might improve their confidence when discussing complex topics. Based on her case studies of class participation on days when improv activities were conducted and also on anonymous survey feedback from students, Lavik confirmed that the improv activities led to a higher rate of engagement and participation. The findings are published in *Biomedical Engineering Education*.

The research was conducted over the course of the Fall 2019, Spring and Summer 2020 terms, and the improvisation techniques were used both

in person and digitally, after remote learning became the new normal. Lavik used a variety of improv games at the beginning of class periods. One example is "Yes, and," which encourages students to listen to each other and build upon what the previous person said in order to create a nonsensical story.

The importance of listening in this game fosters an attentive classroom. Everyone is expected to participate at least once in the story, which creates a community of students that are primed to pay attention and respond to one another easily. In the [survey data](#) that Lavik collected, students said that when the improv games took place, they felt more alert, engaged, and ready to participate.

These findings are situated in a larger body of evidence indicating that doing improvisation exercises can support alertness. Students who believe that they are able to improvise and think on their feet use that knowledge to reduce their anxiety both in their studies and in general. The [positive reinforcement](#) associated with the activities after their completion was intended to leave students feeling more comfortable talking and making mistakes in the course.

Now that most university instruction is taking place online, participation in seminars and discussions is more important than ever, but these platforms make it even less likely that students will participate actively. However, given that the improvisation activities can be done completely online and show promising initial results, Lavik believes that the technique might help to engage everyone more effectively.

"The improv exercises often led to laughter, especially the exercises that were inspired by thermodynamics," says Lavik. "It helps create an

environment where it is ok to try out new ideas and experiment. It is easier to ask questions when people feel like they are part of a group."

The use of this interdisciplinary method has proven to be highly effective at engaging students and creating a classroom community, especially important given the common limitations of online learning. Providing a final note on the benefits of this project, Lavik says, "We can do a lot to augment learning by being creative across disciplines. This is just one example of why it is so important to talk across our expertise, sharing ideas and techniques across different fields."

**More information:** Erin Lavik, Thermo in the Time of COVID-19: Using Improvisation to Foster Discussion and Translating the Experience to Online Learning, *Biomedical Engineering Education* (2020). [DOI: 10.1007/s43683-020-00022-z](https://doi.org/10.1007/s43683-020-00022-z)

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