JRST
Journal of Research in Science Teaching
Research Brief
VOL. 59, NO. 4, PP.493-528 (2022)

Dramatizing Science Provides Elementary-school Students with Opportunities to Learn and Enjoy Science

Maria Varelas, Rebecca Kotler, Hannah Natividad, Nathan Phillips, Rachelle Tsachor, Rebecca Woodard, Marcie Gutierrez, Miguel Melchor, & Maria Rosario

Overview: Resisting the colonial mind–body divide, we created and studied pedagogical opportunities in science classes where students embodied science through performing-arts practices, constructing multi-dimensional science knowledge and identities.

Audience: Teachers; School administrators; Teaching artists; Educators in out-of-school learning environments; Providers of professional development

Key Points

- Engaging students in designing and performing embodied representations of science ideas is a generative approach to learning science.
- Science theatre promotes collectivity of meaning making and interweaving of affect with epistemic practices.
- Children's multiple enactments of the same concepts offer opportunities for developing multi-dimensional meanings.
- In short or long science dramatizations with different audiences, students exhibited complex science identities.
- Embracing the body as a site of knowledge and identity construction in science class contests the narrative of control that permeates schooling.

INTRODUCTION Privileging of the mind and thinking while suppressing the body and feeling is dominant in US schools. The mind–body divide is not only a colonizing practice but also leads to colonizing pedagogies that compromise equitable opportunities for children's engagement and meaning making in science classes. The goal of the study was to explore how multimodal literacies cultivated through the performing arts provide students from minoritized communities, who are often even more subjected to controls over their bodies in schools, opportunities to both create knowledge and to position themselves as science experts and brilliant and creative meaning makers. A two-case study design was used in the context of a partnership between school- and university-based educators and researchers. Case 1 focused on shedding light on the embodied performances of short durations in science classrooms grades 2-5, whereas Case 2 focused on a longer production, a science play, that 6th graders wrote, directed, and performed for the whole school to watch.

FINDINGS Three themes emerged: (a) embodied dramatizing supports, and is supported by, collective meaning making among students and teacher; (b) multiplicity of embodied performances offers opportunities for learning and engagement with multiple aspects of the science phenomena being explored; and (c) positioning through and during embodiment extends students' repertoire of possible identities. As the children engaged in this work, ideas became tangible, experienced, and felt with emotional intensity amidst similarities and differences across the two cases. Each of the two ways in which students participated in dramatic enactments provided them with specific opportunities to engage with ideas and with each other. As students took on roles of ants, blood pumping through the heart, trees releasing O2, and animals living by ocean waters, they engaged in relational perspective taking. The students created bridges between the science domain and its knowledge base and their own ways of being, with their bodies and minds as constitutive of each other, in the world, in the classroom, in the school, in their communities.

TAKEAWAYS The study supports existing knowledge that drama can facilitate engagement and understanding of abstract phenomena. It also expands this knowledge by elevating the presence of students minoritized in the US context, who have been mostly absent in the literature on drama in education, and by expanding understandings related to how identities are being constructed during and after dramatic enactments as children were positioned in new ways, extending views of being scientific and of science engagement vis-à-vis their bodies. The study suggests that engaging children to collaboratively design and perform science concepts in science classrooms offers them opportunities to use their creativity, imagination, and multiple lenses for perceiving the natural and social world to make sense of science ideas and share them with others, affirming their humanity.

Science Theatre Makes You Good at Science": Affordances of Embodied Performances in Urban Elementary Science Classrooms