

# MODELING AFFECT AND ETHICAL PERCEPTIONS IN TECHNOSCIENTIFIC INTERACTIONS USING ANIMATION

Santanu Dutta<sup>a</sup>, Ariel Ducey<sup>b</sup> and Pratim Sengupta<sup>a</sup>

Contact Author: Santanu Dutta (santanu.dutta@ucalgary.ca)

<sup>a</sup>Werklund School of Education, University of Calgary, Calgary AB T2N 1N4, Canada

<sup>b</sup>Department of Sociology, University of Calgary, Calgary AB T2N 1N4, Canada

## THEME:

Approaches and methodologies for STEM education research

## BACKGROUND AND AIMS

We propose a methodological expansion of computational modeling through the use of cinematic animations to model narratives of disciplinary experiences, and demonstrate how such forms of modeling can help us visualize ethical-historical dimensions of experience that are often invisibilized in professional contexts of technoscience (Philip & Sengupta, 2021). While moral undertones have been argued to be implicitly shaping the practice of technologized medicine (Ducey et al., 2020), the cinematic technicalities of animation enables us to specifically represent and amplify affective experiences that are otherwise fleeting or hidden in disciplinary spaces. The significance of such methodological innovations, we argue, is the ethical-historical reorientation (Vossoughi et al., 2020) of disciplinary authenticity in STEM education.

## METHOD

We report on a focal vignette from an ongoing, interview-based study of physicians' experiences of the relationship between bodies, medical technologies and pain. We identified the participants' ethical perceptions and actions (Vossoughi et al., 2021) based on their accounts of clinical practice. We developed animations (generated the screenplay, created and sequenced scenes and their transitions using computational tools) to represent and amplify the moments in physician-patient microinteractions.

## RESULTS AND SIGNIFICANCE

Our illustrative case shows how an Indigenous patient's historicized experiences and memories of medical trauma shaped their affective response in a pain clinic interaction. Cinematic technicalities of animation—the use of multiperspectival frames and temporal-spatial movements—allows amplifying subject-subject relations within which occur misrecognition of racial trauma. We demonstrate how animation uses emphasis on spaces, positioning of bodies and temporality to amplify both the micro-interactional and historical dimensions of experience.

This work shows how cinematic animations can be used to center hidden voices and narratives which technoscientific practices are entrenched in, and furthermore, can challenge political neutral notions of what counts as “authentic” practices in STEM disciplinary spaces.

## REFERENCES

Ducey, A., Donoso, C., Ross, S., & Robert, M. (2020). From anatomy to patient experience in pelvic floor surgery: Mindlines, evidence, responsibility, and transvaginal mesh. *Social Science & Medicine*, 260, 113151.

2022. J. Bobis & C. Preston (Eds.), Proceedings of the 7th International STEM in Education Conference (STEM 2022), University of Sydney, Sydney, Australia, November 23-26. University of Sydney.

- Philip, T. M., & Sengupta, P. (2021). Theories of learning as theories of society: A contrapuntal approach to expanding disciplinary authenticity in computing. *Journal of the Learning Sciences*, 30(2), 330–349.
- Vossoughi, S., Escudé, M., Kitundu, W., & Espinoza, M. L. (2021). Pedagogical “hands and eyes”: Embodied learning and the genesis of ethical perception. *Anthropology & Education Quarterly*, 52(2), 135–157.