

Mathematics and material media

The role of sense and sensation in mathematical activity

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This presentation focuses on the material dimensions of mathematical activity, exploring the aesthetic and embodied nature of mathematics. Theories of perception are central to embodied mathematics and play a pivotal role in both cognitive and neurological approaches to mathematics education research. This paper looks to contemporary philosophy for ways of understanding the *speculative* nature of perception. I use case studies of mathematical activity – both expert and novice – to track the embodied investment in inventive and speculative moments of mathematical behaviour. Drawing principally on the philosophical insights of Michel Serres and Gilles Deleuze, this paper opens up discussions about the potentiality of the human body. Rather than study perception as the cognitive integration of multiple distinct sensory systems, my aim is to show how mathematical innovation emerges within learning environments as part of a *sensory milieu*, where learning is distributed across complex affective entanglements. Rather than center the rational Humanist subject as the synthesizer of sensory data, performing acts of discernment and judgment that collect and correlate disparate information, I explore how perception is dispersed across a material field of sensation. The consequences of such a theoretical shift are significant in that the body becomes open to new as yet unscripted future configurations, perhaps through technology ‘augmentation’ or simply through different forms of material media. The implications of this for how we work with dis/ability in mathematics classrooms are substantial, because it foregrounds and problematizes the relationship between sense (as meaning) and sense (as sensation). It also allows us to study the way that bodies are provisionally and temporarily enabled, directing our attention to the temporal contingency of dis/ability.