

Material Agency: questioning both its role and mediational significance in mathematics learning.

Preliminary Research Report
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Abstract

Tools in the mathematics classroom are often not given the credence or the attention they warrant. Considering Vygotsky's view of mediation, tools may play a larger role in mathematics than originally thought. This preliminary report presents a framework for attempting to identify the implications of tools in student learning. Using Pickering's analytic framework (1995) distinguishing individual, disciplinary and material agencies, I am interested in how material agency takes form in the interaction of students with tools. While teaching an education class of pre-service mathematics teachers I will analyze their interactions with a Dynamic Geometric software, specifically Geometer's Sketchpad. In the process of solving a problem I will analyze students' engagement with the tool in terms of the different types of agencies, based on their spoken words and their actions in using the program.

Key words: agency, disciplinary agency, material agency, mediation, dynamic geometry software, Geometer's Sketchpad