

Classroom Activity with Vectors and Vector Equations: Integrating Informal and Formal Ways of Symbolizing \mathbf{R}^n

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Instructional design based upon realistic problems and scenarios allow students to examine the mathematics from a variety of mathematical positions, and create meaning that integrates geometric, algebraic, and formal linear algebra. However, a potential consequence of researching student work on complex activities in difficult mathematics is that classroom mathematical activity from this perspective requires examining how meaning for mathematical objects gets generated over time as a process of collective action and negotiation. In this talk, I will answer two questions: What are the activities that students engage in as they learn to symbolize vector spaces in \mathbf{R}^n using realistic situations? And, what is the process by which the classroom community developed these activities? Answering these questions can provide teachers ways being responsive to student needs and thinking as they lead their classrooms in symbolizing vectors and vector equations.

Keywords: Linear Algebra, Symbolizing, Sociocultural Perspectives