

Ryken, A. E. (2009). Multiple representations as sites for teacher reflection about mathematics learning. *Journal of Mathematics Teacher Education*.

#### Abstract

This documentary account situates teacher educator, prospective teacher, and elementary students' mathematical thinking in relation to one another, demonstrating shared challenges to learning mathematics. It highlights an important mathematics reasoning skill—creating and analyzing representations. The author examines responses of prospective teachers to a visual representation task and, in turn, their examination of school children's responses to mathematical tasks. The analysis revealed the initial tendency of prospective teachers to create pictorial representations and highlights the importance of looking beyond the pictures created to how prospective teachers use mathematical models. In addition, the challenges prospective teachers face in moving beyond a ruled-based conception of mathematics and a right/wrong framework for assessing student work are documented. Findings suggest that analyzing representations helps prospective teachers (and teacher educators) rethink their teaching practices by engaging with a culture of teaching focused on reading for multiple meanings and posing questions about student thinking and curriculum materials.