

Abstract

The study explored the teaching and learning of third-grade Common Core State Standards for Mathematics dealing with multiplication. During a ten-week period we worked with four students finishing third grade to explore how they approached mathematics problems requiring multiplicative reasoning. An initial clinical interview and written pre-assessment were administered to assess students' initial understanding of multiplication. Seven weekly instructional lessons were then completed. Instruction focused on equal groups and arrays. Each lesson and interview was video-recorded and we transcribed the recordings in order to analyze the data and make data-based conjectures about how to further develop students' mathematical proficiency each week. Using a learning progression document written by the Common Core Standards Writing Team, we assessed the students' developmental progress. Comparing the data to the learning progression helped us design each lesson in a manner that aligned with the students' current level of thinking and guided them to a deeper understanding. At the end of the experience the students took a post assessment that was compared to the initial assessment in order to evaluate students' growth. We observed the students improve in their ability in representing a problem, as well as in describing the reasons behind previously learned procedures. We saw development along each of the Five Strands of Mathematical Proficiency; even in strands we had not explicitly addressed. If we had additional time to work with the students we could further explore division and also facilitate the transitioning to the final level in the learning progression document.