

Abstract

Over the course of the summer, we conducted a research study that concentrated on elementary mathematics with a primary focus on developing students' mathematical proficiency with fractions. We were assigned a group of four rising fourth graders, two male and two female. The students were assessed with clinical interviews and via a written examination during the first week of the project. These preliminary tests allowed us to get a sense of where each student stood conceptually and in turn formed the basis for each of our weekly lessons. Following the first week, we conducted seven one-hour weekly instructional sessions in which we taught the children in accordance to the Common Core State Standards. After each class, we reviewed the video recording of the session as well as the students' work samples. We then transcribed the meeting verbatim and analyzed it critically to discover areas that we could improve upon as educators, and to identify points that the students needed to better understand. These observations informed our instruction each week. During the final week, post-assessments were administered that were identical to the initial assessments. Students improved in almost every category on which they were assessed. We did find, however, that all of our students had trouble when asked to interpret number line representations. We found that stressing the idea of a "whole" and "equal parts" are absolutely imperative. From our findings we hope that educators gain an understanding of effective instructional strategies for helping students develop mathematical proficiency with fractions.