

## Abstract

The purpose of this project was to explore and develop students' thinking about graphical representations of data and help them determine appropriate measures of center for distributions. Our main research question revolved around how students' proficiency in regard to Grade 6 Common Core Mathematics Standards about statistical measures of center should be developed. The entire research project consisted of seven weekly one-hour sessions in addition to pre and post assessment interviews over a nine week period. Four students participated in the project and we recorded each session to analyze student learning in terms of the Five Strands of Mathematical Proficiency. Initially, most of the students lacked conceptual understanding of typical values and comparing statistical measures. We focused our instructional tasks on displaying data, understanding mean, and measures of center. In addition to finding, using, and interpreting measures of center, we focused on helping students understand the mean's relationship to other measures of center, such as median and mode. Students ultimately were able to describe how each statistical measure is affected with various data. At the conclusion of the project, students gained conceptual understanding in regard to finding the best statistical measure to represent a typical value. Students gained procedural fluency and strategic competence in selecting and constructing data displays while also gaining adaptive reasoning skills when explaining their processes. This research helped students begin to reason conceptually about measures of center and skewed data affects these values.