

Fractions in Grades 3-5

Level 1 Data: Tickets out the door revealed that teachers felt the instructors were well-prepared, and the pacing of the class was appropriate. The teachers did feel frustration with the online (moodle) portion of the class, some teachers could not create log-ins and the videos did not work for them.

Level 2 Data: A content assessment of 17 teachers revealed that teachers had difficulty representing relational thinking with fractions (only 53% of the teachers answered correctly). Relational thinking is defined as making connections among fractions or across other math areas that would help solve a fraction problem.

There were seven questions on the assessment aimed at evaluating how teachers represent and analyze mathematical situations and structures using models and symbols. Teachers demonstrated a stronger conceptualization of fractions in a multiplicative situation (over 80% of the teachers answered these questions correctly) versus fractions in a division situation (the questions answered correctly by the group are: 59%, 71%, 53%, and 65%). Sixty-five percent of the teachers demonstrated pedagogical content knowledge appropriate for teaching P-5 rational number concepts by providing strengths of a given word problem for teaching a particular concept.

Level 3 Data: The organizational survey of nine participants revealed that there is time in the day for teachers to collaborate and there is time to implement. Yet, there is not time built into the day for teachers to observe and provide feedback to each other. Another area of interest is that principals are not observing or providing feedback on knowledge and skills related to the professional learning.

Level 4 Data: An examination of student work samples supplied by participants indicated that the teachers expected a wide variety of representations and were posing appropriate problems that focused on answers with mixed numbers. The examination also revealed that teachers are not expecting students to write the answer with the appropriate unit.

Seventy-one percent of the teachers were able to create and accurately analyze an individual assessment of strategies used by students when working with fractions. The assessments were built to develop student thinking about rational number.

Level 5 Data: When compared with schools of similar socioeconomic populations, the students from participating teachers' classrooms from 5 of the 8 schools represented in the data outperformed comparison schools from the region. There was a significant positive impact in the exceeding category on the CRCT and within the Students with Disabilities group.

Proposed changes to the class:

- The fraction problem types have been reorganized into a hierarchy for teachers to consider. (Enabling teachers to see how the problems are related.)
- More time will be spent developing teacher's development of relational thinking
- One session will be spent in a school classroom, modeling how to present problems to students