Fostering Equitable Groupwork to Promote Conceptual Mathematics Learning

PURPOSE AND GOALS

The primary purpose of this study is to describe how students learn to interact with one another to make sense of mathematics, and how students and their teacher negotiate what constitutes equitable collaboration. Implement groupwork with 6th-grade students using

- **Complex Instruction.**
- Use vignettes of groupwork, to elicit students' ideas about collaboration.
- Document the relationship between students' interactions and students' mathematical learning.
- Describe how a teacher and students develop a shared understanding of collaborative groupwork.



Ļ	
Student and Teacher	
Interviews	
 Use groupwork vignettes to elicit 	
 Three interviews per student (2 in 	
first year of participation and 1 in	
 Five teacher interviews (2 each in 	
years 1 and 3, and 1 in year 3)	
+	-
Defining	
Collaboration	
ţ	_
Changes in Students']
Collaboration	
\$	_
Changes in Students']
Mathematics Learning	

GROUPWORK IN A PANDEMIC



I adapted Cohen and Lotan's (1994) puzzle building activity for students to complete in groups of 3 via Google Jamboards.

GROUP ROLES

Leader – Keeps track of time, keeps the group on task. Double checks what the recorder writes down. Keep track of levels of noise. Materials Manager/Recorder – Writes down your group's answers. **Question Asker –** When the group has a groupquestion, asks the teacher. **Mediator** – Looks for disagreements and helps resolve them.

This project is funded by the National Science Foundation, grant #2010172. Any opinions, findings, and conclusions or recommendations expressed in these materials are those of the author and do not necessarily reflect the views of the National Science Foundation.

Anna Fricano DeJarnette, with Elsheika Thompson and Nick Shaver

Each student began with a mix of puzzle pieces. • Students could give away pieces, but not take.



SUMMARY OF YEAR 1

• With the partner teacher, we read and talk about three components of Complex Instruction: assigning competence, developing a multiple abilities orientation, and the use of group roles. • Students began practicing (non-math) groupwork practices in fall 2020, but all data collection pauses between November-March. In April-May, students completed a sequence of 4

groupwork tasks related to fraction operations. I interviewed 9 students in May 2021.

A SAMPLE TASK

1. What fraction of the garden is planted with each type of fruit or vegetable?

2. Which plant takes up the largest/smallest portion of the garden? (CMP, Let's be Rational)