



# MQI Coaching: Supporting Coaches in Supporting Teachers

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# Research says: Individualized coaching appears promising

In U.S. experiments, several programs show positive impacts on student outcomes

- Remote coaching via video (two studies of one program)
- In-district coaching (two studies)

**KEY:** Focus on classroom observation and feedback over time

- NOT typical of some U.S. district-based coaching programs; coaches asked to do other tasks
- Also NOT typical of programs that are mainly professional development with limited visits from coaches

**KEY:** High-quality interactions between teachers and coaches

- Does NOT always happen, according to research

**KEY:** Highly trained coaches and monitoring

- In two cases, training of coaches to level of proficiency took one year
- Provided coaches content support and help in providing feedback – e.g., feedback routines



# NSF funded study: Developing Common Core Classrooms Through Rubric-Based Coaching

*What is the impact of video and rubric-based coaching on teacher instructional practice and student achievement outcomes?*





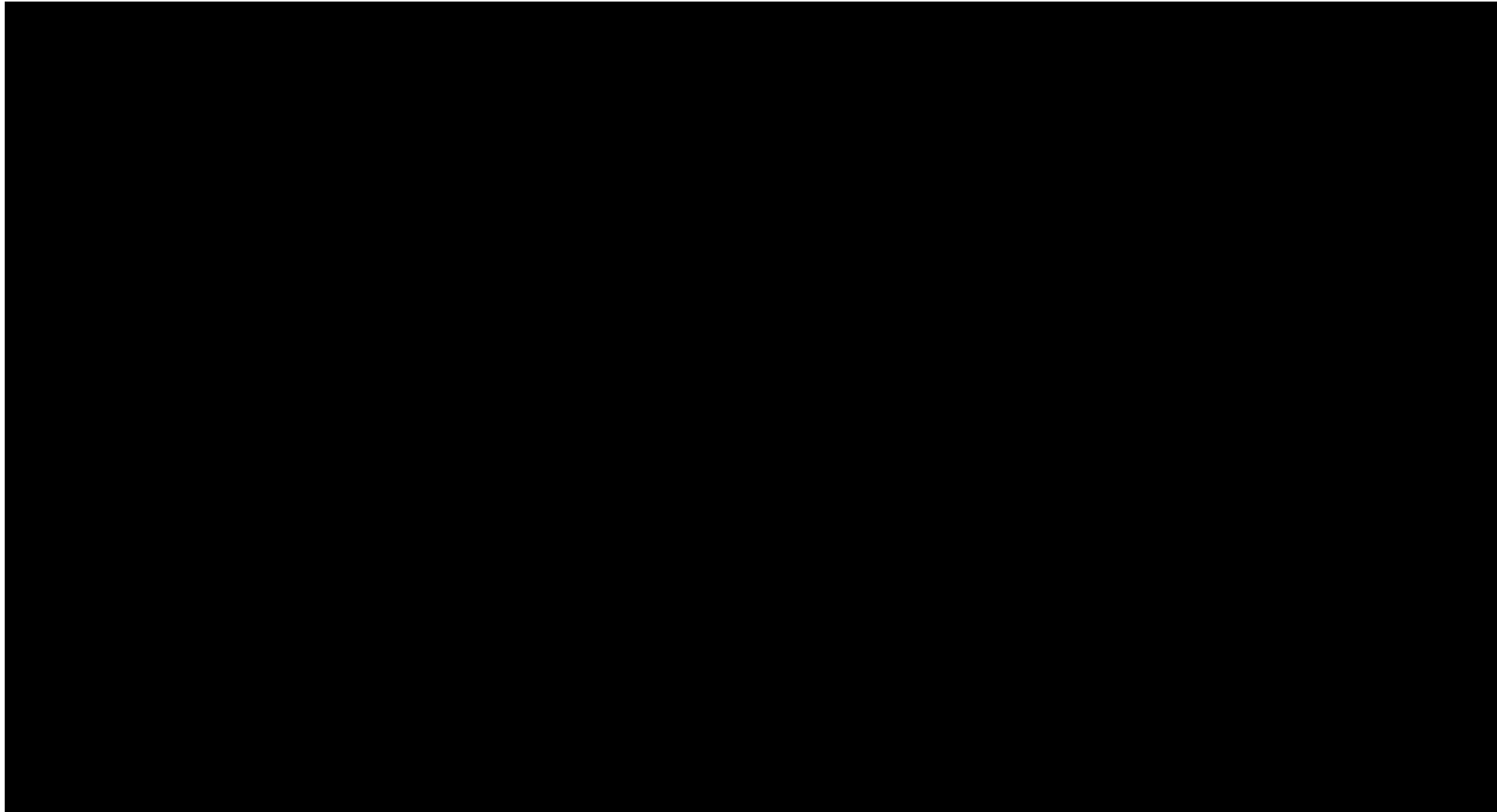
## Watching a Mathematics Lesson

- Pamela: School Fundraiser
- Fourth Grade Mathematics
- Watch the clip
- What stands out to you?





**Pamela:**  
**School Fundraiser**



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**Pamela:**  
**School Fundraiser**

- Talk to the people around you
  - What stood out to you in this clip?
  - Did people notice the same things? Focus on different things?



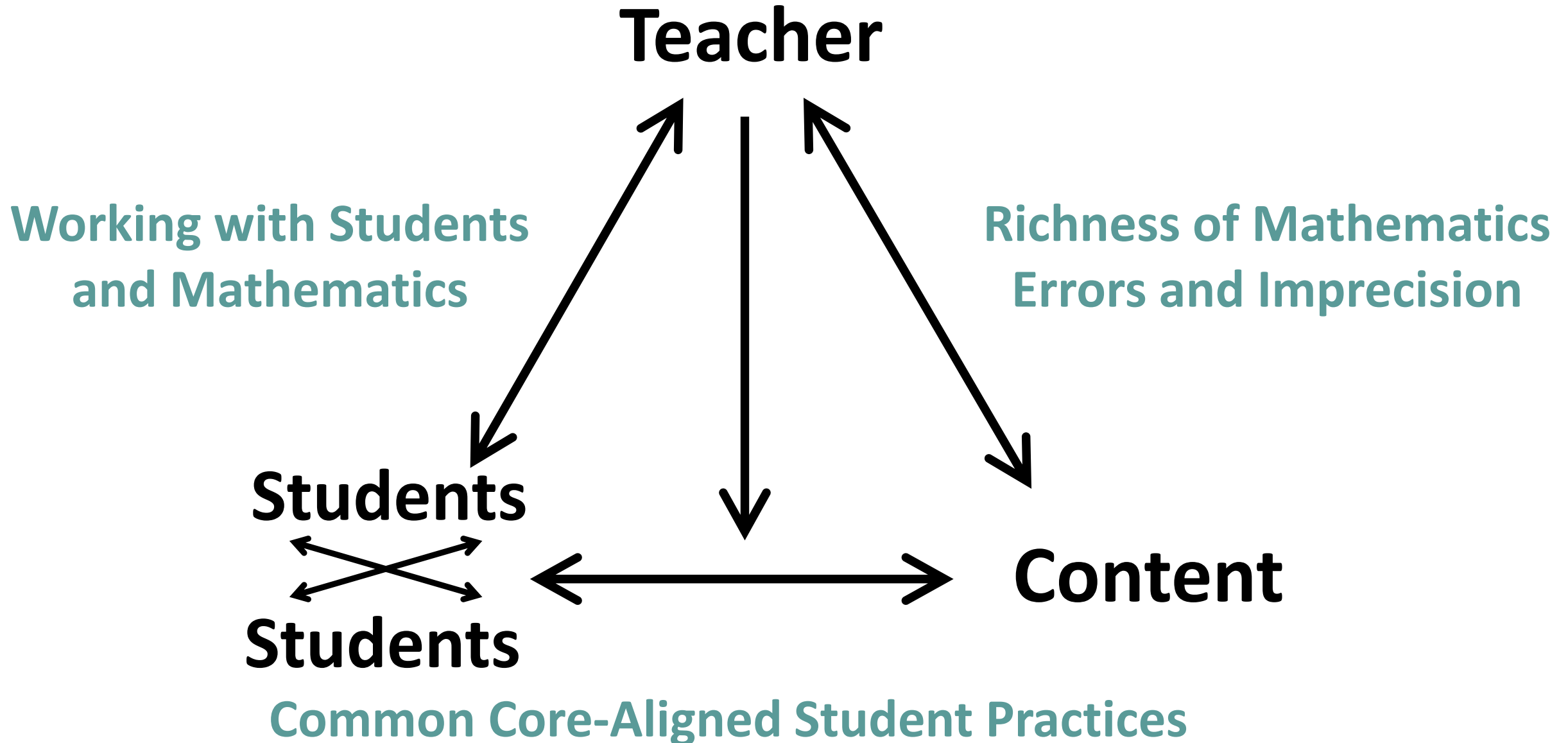
Talking about a mathematics lesson can be complicated

For instance, some responses to this instruction have included:

- “She used student work to make her mathematical point”
- “The teacher did all the talking.”
- “She connected the students’ representations back to the problem and talked about the meaning.”
- “It was unclear what point she was trying to make- was the point to solve the problem efficiently or to model it correctly?”

**Can we develop a common language and common lens for discussing the mathematics in the lesson?**

# The Mathematical Quality of Instruction (MQI)





### Richness of the Mathematics

- Captures the depth of the mathematics offered to students
  - Linking Between Representations
  - Explanations
  - Mathematical Sense-Making
  - Multiple Procedures or Solution Methods
  - Patterns and Generalizations
  - Mathematical Language

### Common Core-Aligned Student Practices

- Captures the ways in which students engage with mathematical content
  - Students Provide Explanations
  - Student Mathematical Questioning and Reasoning
  - Students Communicate about the Mathematics of the Segment
  - Task Cognitive Demand
  - Students work with Contextualized Problems



**Using the MQI to  
Describe Instruction**

Describe this clip using language from two different MQI codes:

1. Mathematical Sense-Making (Richness of the Mathematics)
2. Students Communicate about the Mathematics of the Segment (Common Core Aligned Student Practices)





**Using the MQI to  
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Describe this clip using language from two different MQI codes:

1. Mathematical Sense-Making (Richness of the Mathematics)
2. Students Communicate about the Mathematics of the Segment (Common Core Aligned Student Practices)



- What might this clip have looked like if it had been stronger on Students Communicate about the Mathematics of the Segment? **What would the students be saying or doing?**
- **What would the teacher do to achieve that?** What could Pamela do to elevate the student communication in this clip?

Discussion Note: Don't reinvent the lesson or describe an entirely different way to teach the topic, rather, try to describe incremental improvement on this code for this clip, using the language of the MQI as a guide

We just:

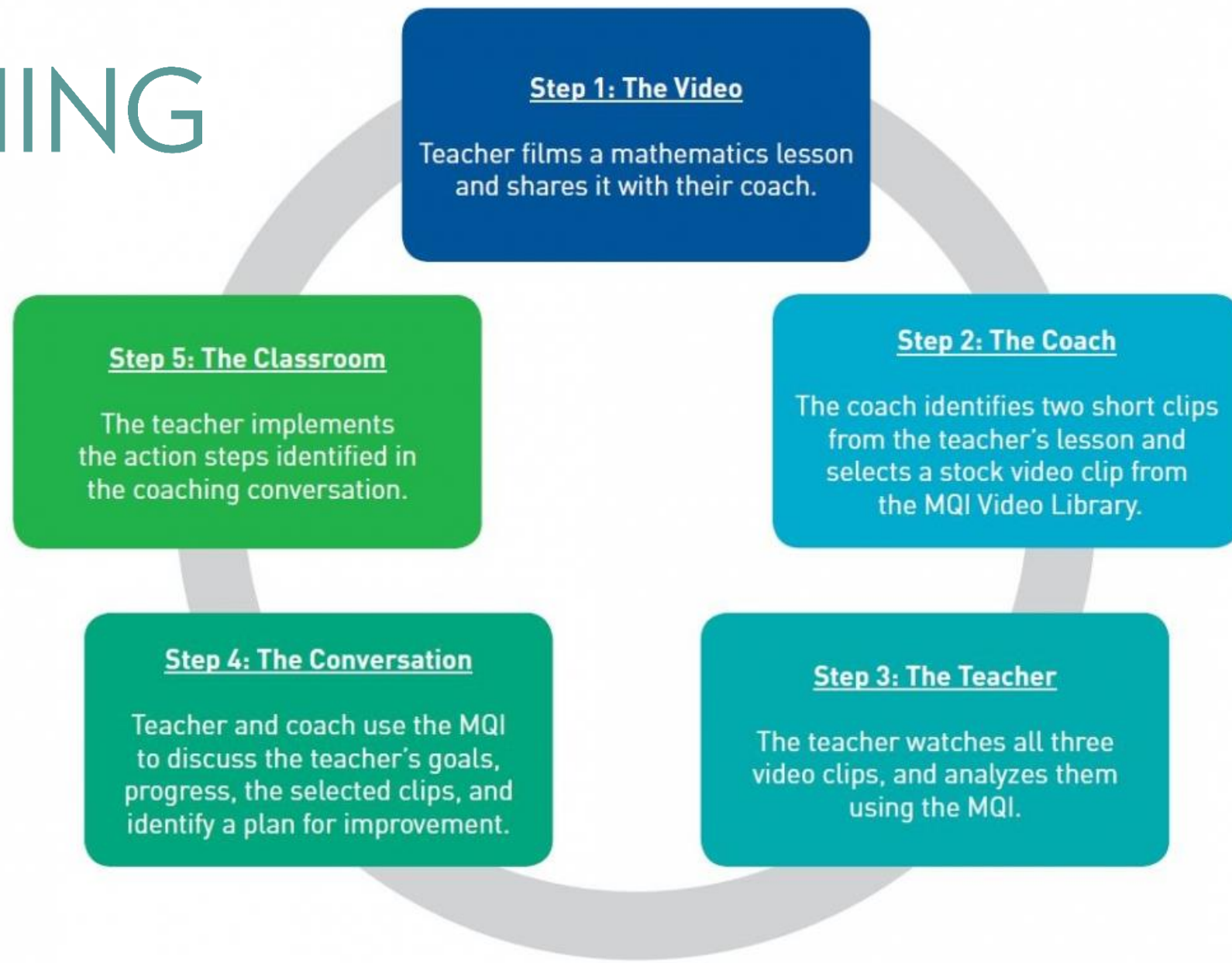
- Watched and discussed a clip
- Described it using the MQI and evidence from the video and transcript
- Discussed how it could have been stronger on one particular MQI code
- Discussed what a teacher might do to achieve that stronger instruction

This is the same process that teachers and coaches do together during their coaching cycles.

# MQI COACHING

## Coaching Cycle

As part of a year-long experience, teachers learn about the MQI rubric, use it to critically analyze video, and then work with an MQI-expert coach to improve their own instruction.



# MQI COACHING

## Theory of Action

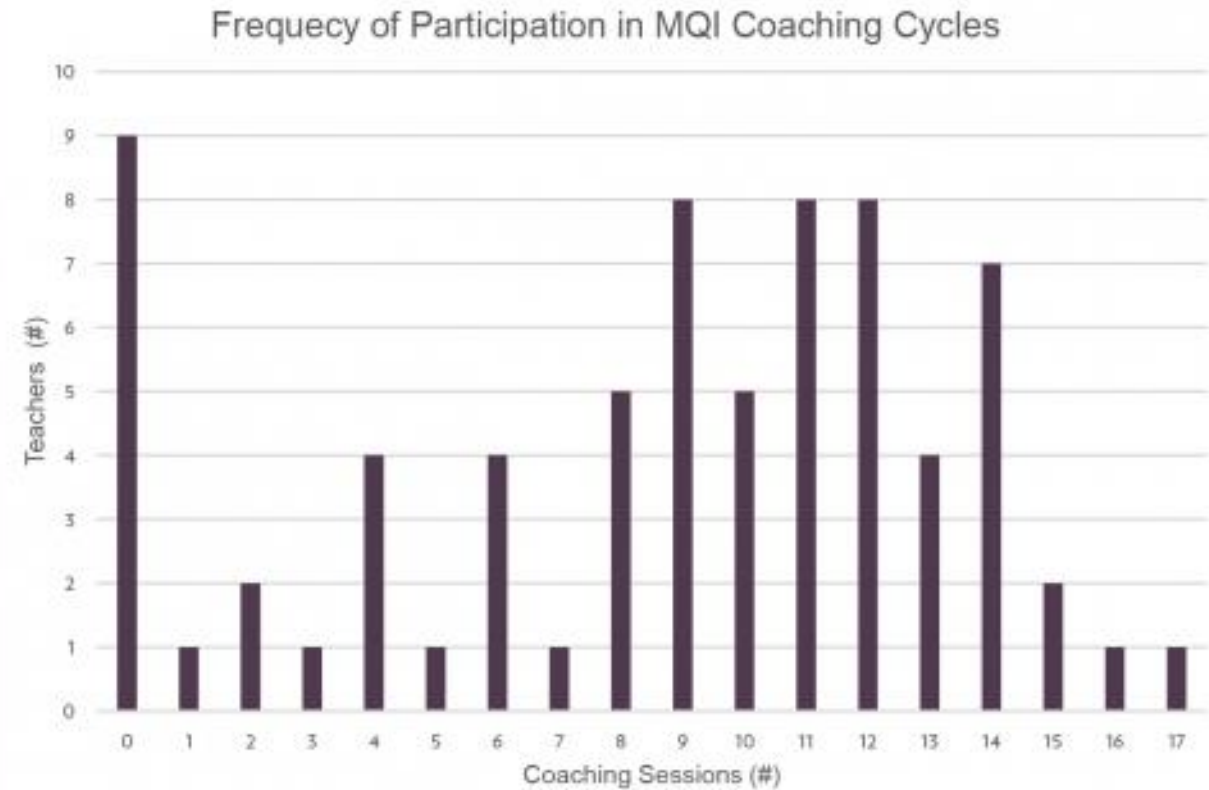
- The MQI provides teachers with a framework for planning, enacting, and reflecting on their mathematics instruction.
- Watching and evaluating stock video clips from our library allows teachers to see a wide range of practice.
- Stock video also serves as a norming process for when they look at videotape of their own instruction.
- Teachers will watch video of their instruction, and they will use the lens of the MQI to evaluate and reflect on their own practice.
- Teachers and coaches will collaborate to produce specific and actionable steps for improvement.
- Goals and action steps will be guided by the MQI, but chosen by the teacher.



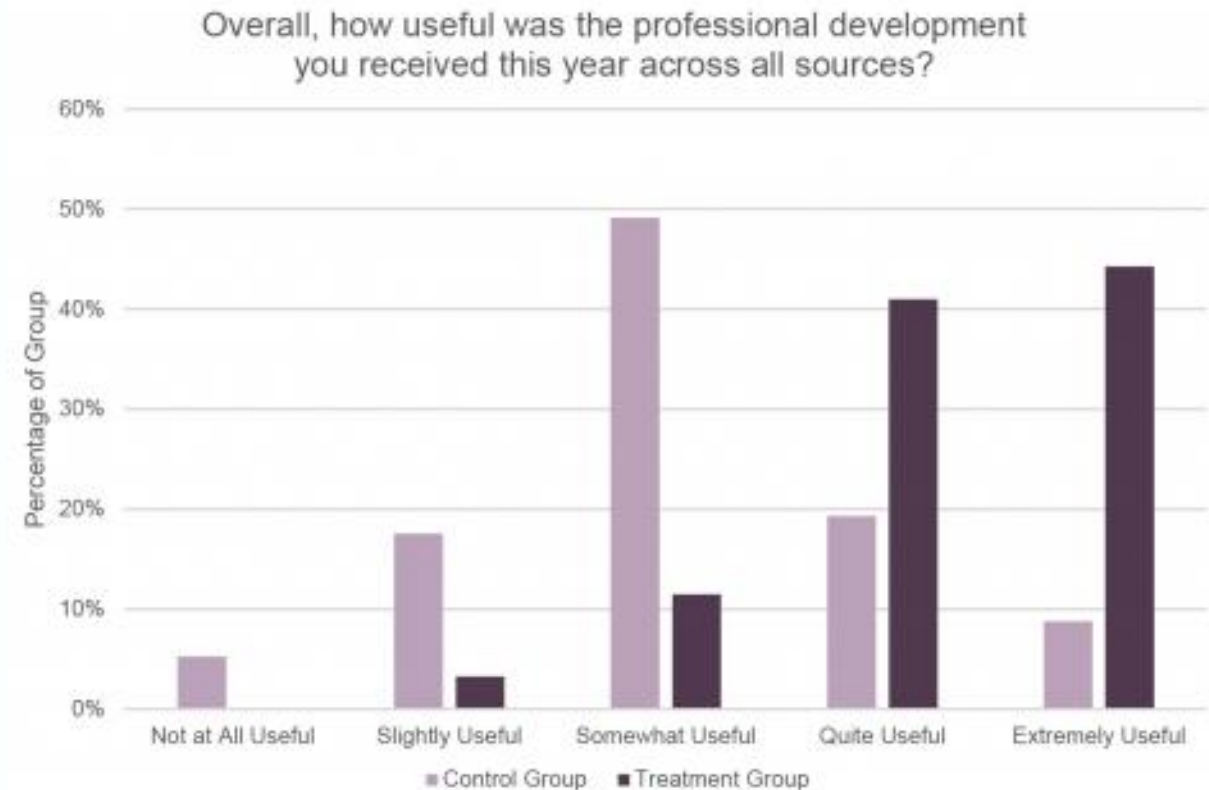
- 2013-14: District outreach, teacher recruitment, and coach training
- 2014-15: Coaching intervention and data collection
  - Recruited 142 math teachers from 2 districts in the Midwest
    - 1:1 Coaching for treatment teachers
    - Teacher and student surveys for all participating teachers' classes
- 2015-16: Follow-up data collection
  - Teacher and student surveys
  - Classroom video
  - Student assessment
- 2016-17: Data analysis and findings dissemination



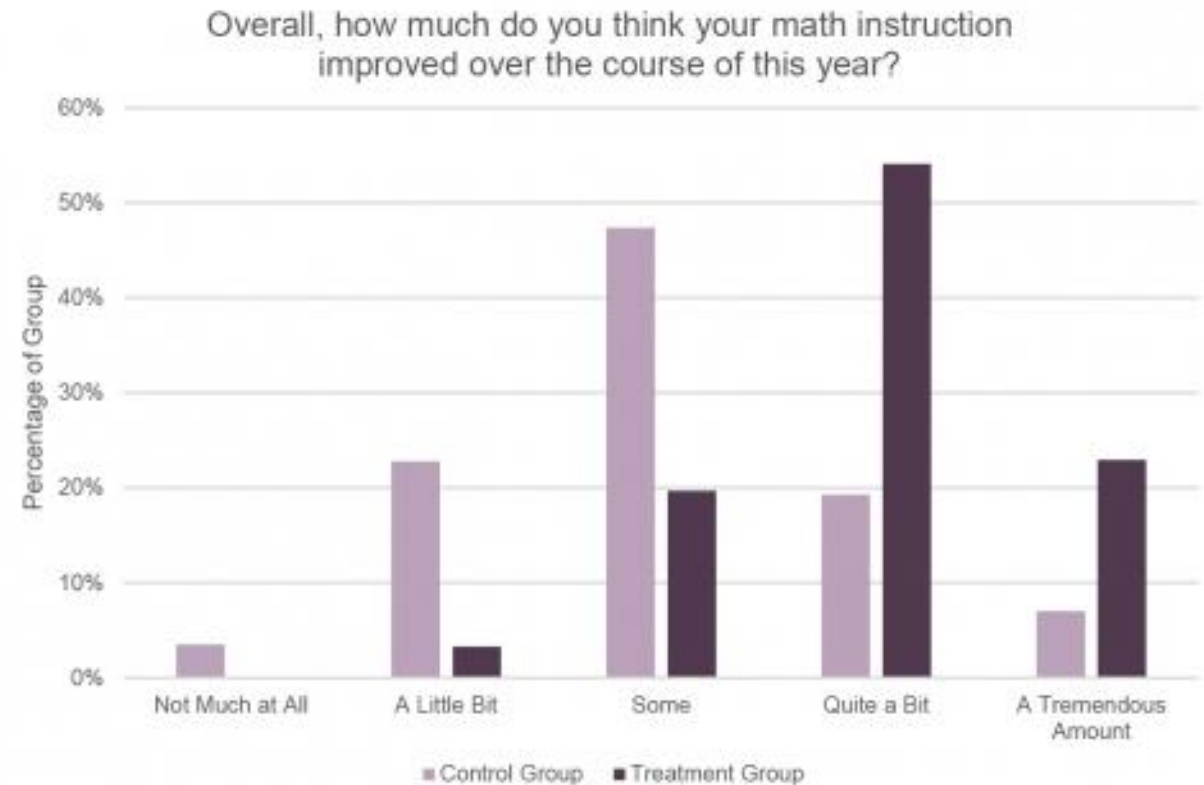
Most teachers participated in 10 or more MQI Coaching cycles.



Teachers who received MQI Coaching tended to find their professional development significantly more useful than control teachers.

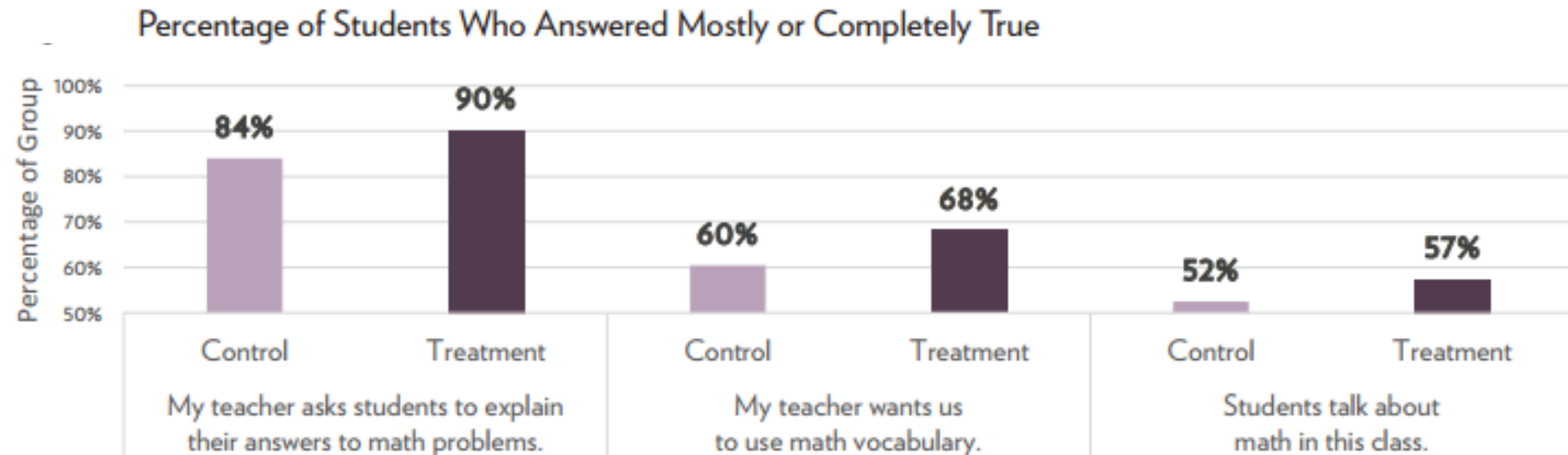


**MQI Coaching teachers thought that their math instruction improved significantly more than control teachers.**



Students of teachers who received MQI Coaching reported that:

- their teachers ask more substantive questions,
- their teachers require more use of mathematical vocabulary, and
- students talk more about math in class.

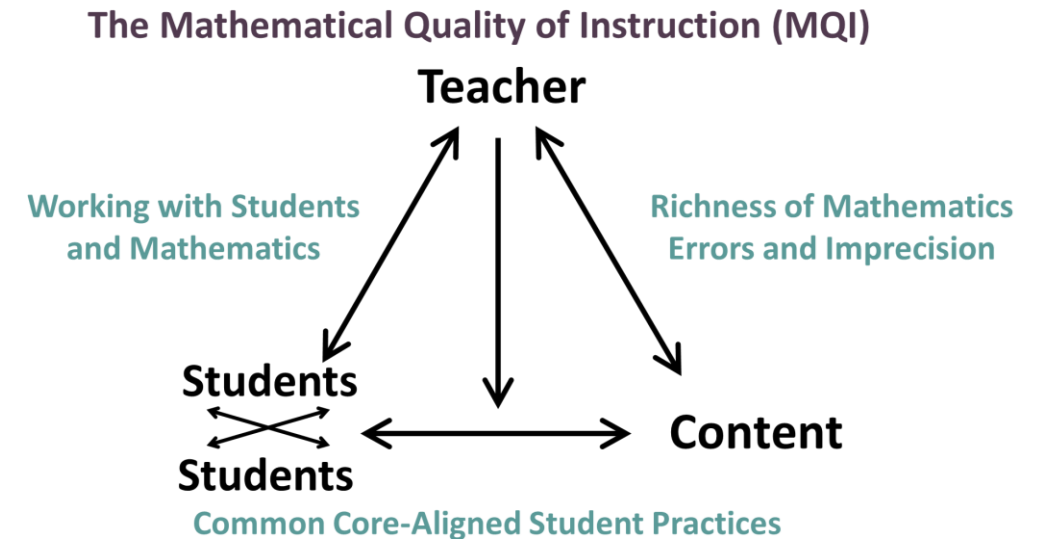


*Note: All differences between control and treatment groups are statistically significant.*

The year after the coaching intervention, we collected video of 5 mathematics lessons each from treatment and control teachers.

Treatment teachers' instruction scored statistically significantly higher (0.6 SD higher) than control teachers on 3 MQI domains:

- Common Core-Aligned Student Practices
- Working With Students and Mathematics
- Richness of the Mathematics



# MQI COACHING

Thank you! Please reach out if you have any questions.  
[www.mqicoaching.org](http://www.mqicoaching.org)

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