

## EXPLORING STUDENT THINKING IN SECONDARY GEOMETRY THROUGH LESSON STUDY

### Six Focal Teacher Discourse Moves (TDMs)

**Waiting.** Waiting (i.e., using “wait time”) to provide students with time to process teacher questions and think about their responses is critical to PRODUCTIVE and POWERFUL DISCOURSE. Although teachers are probably aware of the benefits of waiting after *asking a question*, a lesser-known form of wait time (i.e., Wait Time II) involves waiting *after a student responds*. When this second form of waiting is added, students’ responses can become more complex (Rowe, 1986), and students may be more likely to respond directly to their peers’ contributions.

**Inviting Student Participation.** Inviting student participation can take on multiple forms and address a variety of goals. For example, a teacher may wish to solicit multiple solutions or strategies for the same answer. Or a teacher may be looking to determine the variety of answers at which the students arrived. One main goal of inviting is to make diverse solutions available for public consideration, a key practice related to orchestrating productive discussions (Smith & Stein, 2011). Other goals could be more social nature, such as including multiple students in the discussion.

**Revoicing.** Revoicing occurs when a teacher restates or rephrases a student’s contribution. More specifically, revoicing has been defined as “the reuttering of another person’s speech through repetition, expansion, rephrasing, and reporting” (Forman, McCormick, & Donato, 1998, p. 531). An essential ingredient of what we call “full revoicing” lies in the second part of the teacher’s contribution (O’Connor, 2009). Full revoicing occurs when the teacher checks back with the original speaker and offers an explicit opportunity to respond to questions such as “Did I get that right?”

**Asking Students to Revoice.** This move is similar to the revoicing move described above except that the students are asked to do the revoicing. It requires that students listen to each other and allows students opportunities to revoice ideas in their own words.

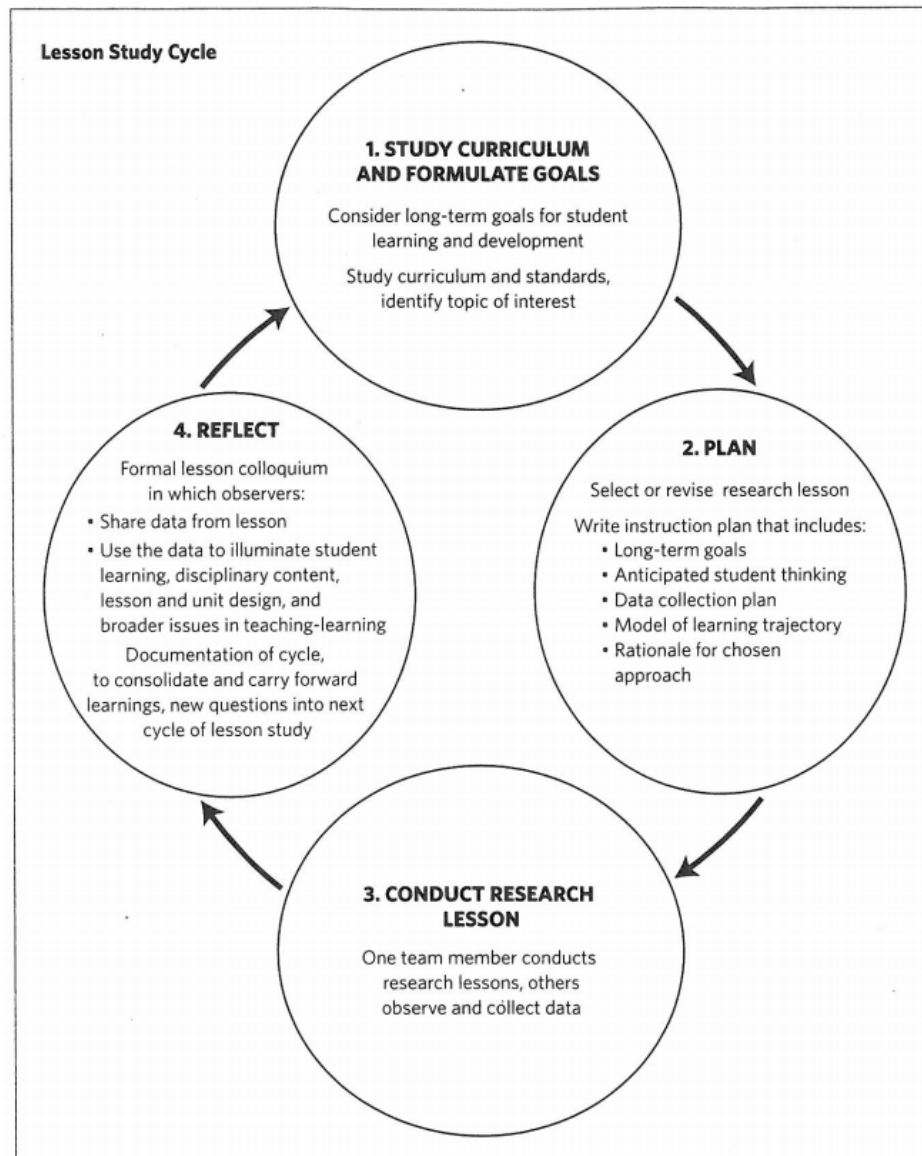
**Probing a Student’s Thinking.** This move is about following up with an individual student’s solution, strategy, or question. The goal here is to have the student elaborate on his/her ideas. For example, the teacher might ask “how”, “why”, or invite the student to come up to the front of the room to provide additional information such as a diagram. Probing may stem from a teacher’s genuine desire to know more about the student’s thinking, or it could be used to make a student’s thinking explicit for the benefit of the other students.

**Creating Opportunities to Engage with Another’s Reasoning.** This move involves asking students to engage with another student’s idea. For example, the teacher might ask the class to use a particular student’s strategy to solve a similar problem or to agree or disagree with a solution. Another form that this move might be to ask students to add on or revise another student’s explanation or conjecture. Effective use of this discourse move could be enhanced by the prerequisite use of other discourse moves and works best when students are actively listening to each other.

These *Teacher Discourse Moves* (Herbel-Eisenmann, Steele, & Cirillo, 2013) were adapted from the “talk moves” in: Chapin, O’Connor, & Anderson (2009).

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**Proof in Secondary Classrooms Project (PISC) – PI: Michelle Cirillo, University of Delaware**  
NCTM Annual Meeting April 27, 2018 3:00 PM – 4:00 PM



**Source:** *Lesson Study: Step by Step: How Communities Improve Instruction* (Lewis & Hurd, 2011)

### Additional Resources

- Curcio, F. R. (2002). *A user's guide to Japanese lesson study: Ideas for improving mathematics teaching*. Reston, VA: National Council of Teachers of Mathematics.
- Fernandez, C., & Yoshida, M. (2004). *Lesson study: A Japanese approach to improving mathematics teaching and learning*. NY: Routledge.
- Gorman, J., Mark, J., & Nikula, J. (2010). *A mathematics leader's guide to lesson study in practice*. Portsmouth, NH: Heinemann.
- Stigler, J., & Hiebert, J. (1999). *The teaching gap*. New York: The Free Press.

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