

Math Discourse

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ALTHOUGH IT WAS NEARLY 27 YEARS AGO, I'll never forget the first time a school administrator observed me teaching in my high school math classroom. He said, "Joanie, you have done a great job of getting your students to talk during your Geometry class. Unfortunately, they aren't talking about Geometry." Although I was disheartened, I knew he was right, and I set out to shape my chatty students into articulate math speakers. I had some small successes that first year, and ever since then, articles, workshops, and PLC conversations about math discourse have always caught my attention.

In NCTM's *Principles to Actions*, we are given the guidance of the eight Mathematics Teaching Practices. These instructional strategies are proven effective in supporting student learning of math, and *Principles to Actions* helps us know how to work these strategies into our practice. Here, we are reminded that meaningful mathematical discourse serves to build shared understanding of mathematical ideas. In other words, the goal is not to have students just speak about math, but to use their discussions to further enhance how and what they think about the important mathematical concepts they are learning.

For instance, when each student in a small group presents his or her solution strategy to the rest of the group, one at a time and without discussion, the students are speaking about math. However, it is unlikely that their learning is impacted by this talk because they aren't asking questions, analyzing, rephrasing, or agreeing or disagreeing with what they've heard. If instead, after each student presents, the other students ask for clarification or make connections to their own strategies, they can build a deeper understanding of the mathematics being discussed. As an added bonus, this type of discourse builds students' confidence, enhances relationships, and supports a culture of learning in the classroom.

During my first few years of teaching, I had a hard time knowing how to make the right changes in my

instructional strategies and classroom policies and procedures that would allow student discussions to be productive and supportive of learning. Now, however, we have great information available to us, such as Parrish's *Number Talks* books, Smith and Stein's *Five Practices for Orchestrating Mathematical Discussions*, NCTM's *Principles to Actions*, and other important resources that ask for justifying student thinking and using that to help students learn how to question, listen, and learn from one another in addition to their teacher.



An additional benefit of meaningful student discourse is its role as a formative assessment. When our classrooms have structures in place where students talk about their thinking, respond to one another, and make connections out loud, we can better identify their pre- and misconceptions and know what they need next in their developing mathematical thinking. Discourse allows us to differentiate our instruction and select our next instructional moves to be sure all students are learning and progressing.

As you kick-off the 2016–17 school year, this issue of *Colorado Mathematics Teacher* is rich with ideas for you to grow in your discourse facilitation. Be sure to share these articles, the books mentioned above, and other tools in your PLCs to facilitate your own meaningful mathematical discourse.

I hope the new school year holds great experiences for you and your students, and I look forward to seeing you September 22–23 at our annual conference!