

# Why Use Talk in Mathematics Classrooms?

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## Five Reasons Talk Is Critical to Teaching and Learning

For the past two decades, the National Council of Teachers of Mathematics (NCTM) has encouraged teachers to use classroom discourse in math classes, to support both students' ability to *reason mathematically* and their ability to *communicate that reasoning*. When teachers commit themselves to *teaching for understanding*, classroom discourse and discussion are key elements in the overall picture.

Why do educators and researchers think that classroom talk has the power to improve both students' learning and ability to reason and teachers' ability to teach? Let's look at what we consider to be five major reasons that talk is critical to teaching and learning.

### Five Major Reasons That Talk Is Critical to Teaching and Learning

1. Talk can reveal understanding and misunderstanding.
2. Talk supports robust learning by boosting memory.
3. Talk supports deeper reasoning.
4. Talk supports language development.
5. Talk supports development of social skills.

### Reason 1: Talk can reveal understanding and misunderstanding

If students talk about the content they're studying, we can see more clearly what they don't understand . . . and what they *do* understand. This helps teachers adjust their teaching. Some call this *formative assessment*. Getting students

to talk about mathematical content is one of the best ways to engage in formative assessment. An additional benefit is that students may *themselves* realize what they don't understand and what they do understand. This allows them to adjust their own reasoning, and over time it may improve their metacognitive abilities.

## **Reason 2: Talk supports robust learning by boosting memory**

Talk is a rich source of information and plays a part in many kinds of memory. When we hear about and *talk* about concepts, procedures, and applications, our memories have more to work with. In classroom discussions, as multiple students discuss the same content, everyone benefits by hearing that content verbalized in different ways, particularly students who may need more time to process mathematical ideas. The social aspects of talk also help students remember content and argumentation: If the teacher makes a claim, some students remember it; some don't. If a student makes a claim and another student contests it or agrees with it, the whole learning event becomes more memorable because of its social significance.

## **Reason 3: Talk supports deeper reasoning**

Learning to reason well takes time. Both children and adults need practice to work out the logic of their ideas and to put together a persuasive argument. And practice with reasoning requires that we have other people to reason with—people who can respond to our own reasoning and share their reasoning with us. In the classroom, teachers can give students that practice by using talk in strategic ways.

## **Reason 4: Talk supports language development**

When talk is used intensively in classes, students may get a richer sense of what words and phrases mean and of when to use them. Their control of complex grammar also improves, in speaking and in reading. For students who are English learners, this is particularly crucial.

## **Reason 5: Talk supports development of social skills**

When teachers use classroom talk a great deal, it gives students a chance to learn about respect and kindness. They learn that it takes time to understand somebody else's reasoning, and that they have to be patient as others struggle

to clarify. They also learn that they have to work to make their *own* reasoning clear. Over time, this improves students' social skills and ability to be patient and cooperative with others—and with themselves.

### Teacher Reflection: The Benefits of Productive Talk

***Mrs. Rowan***

I've seen connections between what we talk about during class discussions and students' work on written assessments. I have seen students use strategies on tests that they were not using prior to doing a turn and talk or math discussion. And I've also seen students doing a lot better on assessments. From talking to each other, they know different ways of solving problems, not just the one way that I showed them.



### The Typical Classroom

Researchers have found that few American classrooms display consistent or even occasional use of student talk. Instead, most classroom talk consists of the teacher lecturing, asking students to recite, or posing simple questions with known answers. Of course, lecturing, recitation, and quizzing are useful instructional tools. They form the bedrock of most teachers' instructional practice and we would not want them to disappear. However, they have limitations, as do all forms of talk! Our purpose here is to focus on the benefits of discussion.

## I Don't Have Time—and What If No One Talks?

Most teachers would agree that the five reasons discussed on the previous pages make sense. So why do so few teachers use talk extensively in their classes? We have learned in our work that many teachers find that creating a discourse-intensive classroom is difficult, because they encounter many obstacles. Here are a few of the most frequent responses—have you heard yourself or your colleagues say something similar?

### Common Obstacles to Using Talk Extensively in Classrooms

- We don't have time! It takes time to conduct discussions, and I have a curriculum pacing manual I have to keep up with.
- What if I ask a question and I can't understand what the student is saying? I'll feel like an idiot and the student will be embarrassed. I don't want either of us to feel put on the spot.
- What is there to talk about in math? You have the correct answer. What's to discuss? It's not like a poem or a short story.
- What if no one talks?
- Some of my students are too shy to talk in front of everyone. Some have language-based learning disorders. And some of my students are English language learners. I *can't* ask them to talk.
- I have these two bright students who could talk and discuss for hours. What if they just hog the floor, as usual? I don't want to shut them down, but I want the others to talk too.

These obstacles are real problems, but there are solutions for them. All of the components of *Classroom Discussions in Math* are developed to help you work through these obstacles and bring all of your students into the conversation.