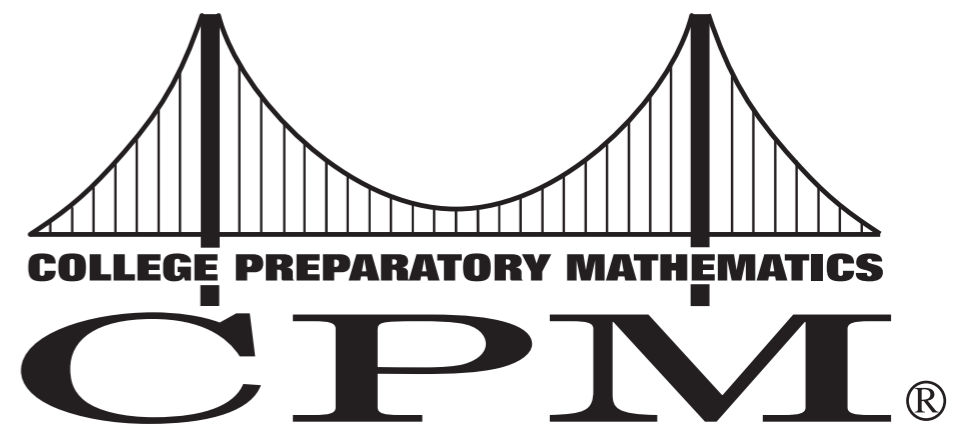


Mathematical Discourse: More than Just Talk

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Mathematical Discourse

- Part of learning mathematics is learning how to *talk* mathematics (“Speaking Mathematically,” Pimm, 1987).
- *Mathematics is discourse* (Sfard, 2008).

Quote

- ““Who needs the most practice talking in school? Who gets the most?” Exactly. The children need it, the teacher gets it.” (John Holt, How Children Learn)

Goals of the Session

- To analyze the power of mathematical discourse and consider ways to make mathematical discourse more powerful.

Discussion

- DYAD: What is mathematical discourse? And why should we encourage students to engage in this form of discourse?

More to Consider

- Is math talk only communicative in nature? Are there other purposes?
- ❖ Why does asking a student to talk about what a problem is asking often answers his or her question?
- ❖ Is “discussion” a means or an end?

Discussion

- How can a teacher fuel rich exchanges without dominating the discussion?
- What barriers hinder rich math talk?

Participant Sharing

- Barrier: Mixture of languages
- Strategies: Appreciating all contributions (building trust)
- Strategies: Having teams take turns going out and listening to other teams
- Strategies: Building explicit classroom norms and expectations

More Part. Sharing

- Using Participation Quizzes (where teacher makes notes of team discourse as students work)
- Teacher modeling of discourse

More to Consider

- Encouraging students to talk mathematics implies that...
 - ✦ **Someone is listening.** What needs to be done to develop active listeners?
 - ✦ **There is something to talk about.** What aspects of solving problems or participating in tasks require discussion?

More to Consider

- What classroom rules / guidelines encourage mathematical discourse?
 - ✦ Respect other's math talk.
 - ✦ You can change your mind at any time.
 - ✦ It is okay to talk about a problem or task even when you are still confused.
 - ✦ Talk so that others understand what you are talking about.

Closing Remarks

- Students should know **why** they are being asked to talk math.
- Math talk requires students to externalize ideas that otherwise might only remain internal and less organized.
- Math talk allows each of us to learn the multiple ways of seeing / thinking about a problem or idea.
- Discussion should not be the end in and of itself

Closing Remarks

- Discussion should not be the end in and of itself
- Merely answering questions does not count as math talk. To be a participant in discourse, one must ask and answer questions.
- Developing discursive “habits” take time - perhaps years.
- Getting students to argue about mathematical ideas requires the center of power (the decision of what is right and what is wrong) to lie with the students.
- Metadiscursive discussions are necessary.

Thank You

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