



## A Math Teacher's Perspective on Infusion

### "Let The Kids Do The Talking"

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One of the changes recommended by the math reform movement and the National Council of Teachers in Mathematics (NCTM) encourages teachers to create a classroom environment where students can engage in meaningful content discussions and share solution strategies to mathematical problems. This belief is based on one of the five goals of the NCTM standards, which states that "students will learn to communicate mathematically." I try to get my students talking to each other about their thinking before I stress written communication. The underlying norm (established the first day of class!) is that there are many ways of solving math problems, and that ALL ideas are important and that it is important to communicate those ideas to each other. Hopefully, some of the following techniques that I use will be helpful in your classroom.

- I spend time at the beginning of the year providing students with the opportunity to get to know each other i.e. name games, a variety of seating arrangements, discussions of popular nonthreatening topics, etc. I find that students are more willing to share their mathematical thinking when the climate feels safe and familiar.
- I have desks arranged in a "square" horseshoe enables students to look at each other when they are talking...we can also easily regroup desks for small group discussion.
- With the help of a trained mediator, we give students some specific active listening training, and practice how to function in small groups. I have developed a checklist of group behaviors as well as mathematical requirements so that students can monitor their progress.
- Students are discouraged from raising their hands when others are talking, as this can invalidate the importance of the speaker. (This one is very tough for kids...they pride themselves in waving their arms wildly if they think they have the answer!)
- Students are encouraged to question and respond directly to each other, not the teacher. In fact, I try to remove my body from the front or center of the room when kids are talking about their strategies.
- I stress the importance of listening to each other so as to make kids accountable.
- I require them to repeat, justify, refute, or write in their notebooks "what

Mary just explained."

It's hard to get kids to the stage where they realize that the importance of listening isn't just to be "polite", but it can actually help them solve a problem because someone else's ideas are useful.

It's not easy to be vigilant about employing these techniques when as teachers we are under such pressure to cover large amounts of material. It seems so much more efficient just to do the talking ourselves! However, there is great satisfaction in hearing students engaged in meaningful, thoughtful and civil discourse. As a result of working with my students in this way, I have noticed that kids become involved and interested when they are "debating" constructively with each other. As a result, more students tend to be on task. Talking about their strategies also paves the way for learners to explain their ideas in writing, another piece of communicating mathematically. This kind of educational practice should have useful application in whatever content you are teaching.