



# INNOVATION ABSTRACTS

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## ORAL PRESENTATIONS IN MATH CLASSES

I can remember taking a freshman college algebra course. While sitting in the midst of 200 other students, my mind tended to flow freely to any topic other than mathematics. This trend continued through Calculus I, where my instructor, although very interesting and articulate, made great conversation with the chalkboard. Of course, I had great teachers who, through their strong encouragement and skills of persuasion, convinced me to pursue teaching. The teachers who made the greatest impact on all of their students were those whose communication skills enhanced the content of their courses. Clearly, their ability to communicate effectively made all the difference.

Believing that students should develop these skills, as well, I began requiring class presentations. While student presentations may be standard procedure in some math classes, I had not encountered them before my own courses in graduate school. As we all do on occasion, I stole this idea and modified it to fit my needs.

The premise of the project was to have students work on some of the more challenging problems in the exercise sets and then present their results to the class. I teach 18-to-20-year-old students primarily, and they have little ability to communicate mathematically. Most of them are well-versed in manipulation skills (as in, give me a problem and I can solve it), but most have limited synthesis skills (as in, this is my problem and here is how and why I can do this).

Initially, the presentations were used to generate oral communication between and among the students. However, over time I became dissatisfied with the results of the presentations and the discussions. Some students would simply write the problem on the board and expect the others to know exactly why they followed a particular procedure. Little effort was made to explain why they did what they did or where we learned the specific procedure. Another disturbing feature of the process was that students were waiting

until the end of the semester and cramming the problems in at the last minute, just to get the grade. Furthermore, I had no particular way to grade their efforts; therefore, grading was completely subjective, and I tended to be lenient. The immediate effect was that it raised many students' grades artificially. I knew that something was wrong with the process but had no immediate solution.

Thank goodness for that in-service day! While I am not a big fan of faculty in-service, this one caught my attention. Our English and Speech Department faculty had been working on improving student communication across campus—they presented rubrics used in their disciplines for papers and speeches they graded, and they described general guidelines for oral and written presentations that could be used when and if the rubrics would not work in other disciplines. This was not the first time that I had heard of rubrics nor was it the first in-service I had attended. This one seemed to be exactly what I was looking for!

As a result, I developed the following rubric for my class presentations and have been using it with some great results. My students receive immediate feedback in the areas where they need improvement and those in which they excel. Students are required to work more diligently to keep up with the material, and they appear to develop a deeper knowledge of the concepts. Moreover, now I can better justify the grades I assign to student work. The feedback, positive and negative, helps students improve their communication skills.

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PRESENTATIONS	1	2	3	4	5
<b>Speaking</b>					
Eye contact					
Vocabulary					
General presentation					
Volume					
Comments					
<b>Writing</b>					
Legible					
Pace					
Diagram					
Comments					
<b>Knowledge of Material</b>					
Correct solution					
Persuasive					
Confidence					
Comments					
<b>Evidence of Research</b>					
Notes					
Reference to book, etc.					
Application to outside academia					
Comments					
<b>Total</b>					

5—**Knowledge:** The student uses correct mathematics and persuades the audience of the correctness of the solution.

5—**Research:** The student has rehearsed the presentation so that the use of notes is unnecessary. Proper references to theorems in the text and outside references are noted.

5—**Speaking:** The student uses appropriate language and vocabulary, and draws the attention of the class by speaking with a clear voice, good eye contact, and limited use of book or notes.

5—**Writing:** The student writes legibly and uses a variety of color when appropriate. A diagram is included if necessary. The writing is paced such that all students may follow the presentation.