

**Department of Mathematical Sciences
Colloquium**

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**CO-VARIATION AND INVARIANCE IN PROPORTIONAL AND
NON-PROPORTIONAL SITUATIONS**

In learning proportions students must understand what makes a situation proportional. If all the missing-value problems encountered by middle-school students involve proportional situations, then there is no need for students to check the equivalence of the two ratios in the proportion they set up. The use of non-proportional situations presents a need for students to analyze the problem situation, determine the manner in which quantities co-vary, and identify the relationship that is invariant.

This talk is based on my article “Burning the Candle from Just One End” that appears in the *Mathematics Teaching in the Middle School* journal (a pre-print version of this article can be downloaded from http://works.bepress.com/kien_lim/11). In this talk, I will also present results from an *action research*, that was conducted in Fall 2008, to (a) investigate the short-term impact of using non-proportion problems to minimize pre-service teachers’ improper use of proportional strategies, and (b) explore the possibility of helping these students improve their disposition, from being impulsive to being analytic, in one semester. Towards the end of the talk, I plan to have a conversation with the audience on the challenges UTEP faces in helping our prospective teachers overcome beliefs such as “doing mathematics means following rules laid down by the teacher, knowing mathematics means remembering and applying the correct rule when the teacher asks a question, and mathematical truth is determined when the answer is ratified by the teacher” (Lampert, 1990, p. 31).

**Wednesday, April 8, 2009 at 3pm in Bell Hall 143
The University of Texas at El Paso**

Please note the unusual time for the colloquium.

Refreshments will be served in front of the colloquium room,
15 minutes before the start of the colloquium.

