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Kien H. Lim* (kienlim@utep.edu), Department of Mathematical Sciences, 500 W. University Ave, University of Texas at El Paso, El Paso, TX 79968-0514. *Helping Pre-Service Teachers Address their Tendency of Overgeneralizing Proportionality: Using Non-proportional Situations and Focusing on Quantities and Relationships.*

Many pre-service teachers have a disposition to spontaneously proceed with an action that comes to mind without analyzing the problem situation, especially in the domain of ratios and proportions. Research has shown that students tend to overgeneralize proportionality in solving missing-value problems. A study involving two sections of a math course for pre-service 4-8 teachers was conducted to investigate the short-term impact of using non-proportional missing-value problems to minimize their improper use of proportional strategies, and to explore the possibility of helping them improve their disposition—from being impulsive to being analytic—in one semester. Lessons were designed whenever possible to help them become cognizant of their impulsive disposition. For example, non-ratio comparison problems were posed after they had experienced working on problems that involve comparing ratios. Quantitative reasoning was emphasized throughout the semester. Some test items were designed to be superficially similar but structurally different from those done in class or homework. Results show that students' tendency to overuse ratios and proportions was reduced in one semester and that the use of non-proportional situations did minimize students' overgeneralization of proportionality. (Received September 08, 2009)