

Department of Mathematical Sciences Colloquium

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Teachers' Personal Content Knowledge and Their Students' Emergent Content Knowledge: Illustration of a Theory

Few studies using qualitative methods have examined the interrelationships between teachers subject matter knowledge and students developing subject matter knowledge. This study was developed from a theory on the interrelationships between teachers content knowledge of rational numbers and students emergent conceptual knowledge of rational numbers. Two teachers were chosen from among four candidates based on the differences in their written responses on a test of fraction knowledge and their location in the same school system. The case studies of these two teachers were generated from data collected through: observations and videotapes of each classroom, interviews with the teachers and selected students, and teachers and students responses on a test of rational number knowledge. The cases were compared and contrasted to illuminate and illustrate the theoretical model of interrelationships and intervening contributions and limitations of interrelationships between teachers content knowledge of rational numbers and students emergent conceptual knowledge of rational numbers. The cases suggest that interrelationships between teachers content knowledge and students emergent conceptual knowledge are weak. Teachers content knowledge contributes but is not equivalent to their pedagogical content knowledge. Their pedagogical content knowledge mediates/filters the impact of teachers content knowledge on their design of the instructional environment. The varieties of students emergent conceptual knowledge across and within the instructional environments do not replicate the teachers content knowledge. This suggests that students prior knowledge/predispositions/experiences could be an intervening contributor to students emergent conceptual knowledge.

**Friday, February 24, 2006, at 3 pm in Bell Hall 143
The University of Texas at El Paso**

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

For further information, please contact Dr. Pavel Šolín, Bell Hall 220. Phone: (915) 747-6770, email: solin@utep.edu.