

## **EVIDENCE-BASED PROFESSIONAL DEVELOPMENT PARTNERSHIP WITH MIDDLE SCHOOLS TO IMPROVE STUDENT TEST ACHIEVEMENT**

Lawrence Lesser  
University of Texas at El Paso  
[Lesser@utep.edu](mailto:Lesser@utep.edu)

Mourat Tchoshanov  
University of Texas at El Paso  
[mouratt@utep.edu](mailto:mouratt@utep.edu)

Effective professional development (PD) is grounded on best practices (Ball & Cohen 1999, Clarke 1994) and evidence (Holcombe 2004, Love 2002) and has student learning and achievement as the ultimate goal (Guskey & Sparks 2004, Smith 2001). Under a 2005-06 Texas Education Agency grant, we developed evidence-based PD using item analysis of data from the state's high-stakes mathematics test (TAKS: Texas Assessment of Knowledge and Skills) for middle school students' achievement in mathematics. The 23 participating teachers are from high-need (based on % of students not passing mathematics TAKS) and low-SES (based on percentage of students participating in free or reduced-price lunch) schools. These schools' student bodies are about 80-90% Latino/Hispanic.

Our 14 PD workshops engaged teachers in analyzing student error patterns and adapting pedagogy. Each session was launched by teacher reflections upon low-performing items from 1 of the 6 TAKS objectives. Teacher exploration of items went beyond teaching-to-the-test to unpacking big conceptual ideas and strategies (e.g., multiple representations) to help improve achievement on a much larger collection of items, and situate this understanding in a larger set of curriculum objectives and in the K-12 continuum.

We used these measures: (1) TAKS is administered in mathematics at Grades 3-11, and satisfactory performance on grade 11 is required for HS diploma. [www.tea.state.tx.us/student.assessment/](http://www.tea.state.tx.us/student.assessment/); (2) Teacher Observation Protocol (teacher lesson observations were accompanied by journal reflections and observer instruments informed by issues addressed during the workshops); (3) Teacher Knowledge Survey (TKS) of TAKS-like problems for teachers to solve, identify big ideas, and explain how they would teach them; (4) Teacher Reflections after each workshop session, focusing on any changes in teaching.

Our results include solid improvement in student TAKS scores. The TKS revealed lowest performance on the "patterns, relationships, and algebraic reasoning" and "measurement" objectives, which are the lowest performing two TAKS objectives for MS students!

### **References**

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