Dawson Education Service Cooperative

Thinking Mathematically for Common Core State Standards (CCSS) in Grades 3-5 is a mathematics partnership designed to improve teacher content knowledge, enhance teacher classroom practices, improve student achievement, and build a sustainable partnership for continued professional development opportunities for mathematics teachers in grades 3-5. The project's partners are Henderson State University (HSU), Dawson Education Cooperative, Teacher Development Group, and 30 teachers (grades 3-5) from eleven school districts in the Dawson Education Cooperative service region.

The project will begin its second year of implementation in August, 2012. It provides a sustained program of training that includes summer workshops, workshops embedded in the school year, and on-site, classroom-based workshops. The project includes content-based pedagogical training as well as classroom mentoring and observation to support changes in classroom practice. Classroom observations will provide opportunities for lead partners to refine ongoing training and future workshops to address specific deficiencies in content knowledge or classroom practice demonstrated by participants. The project's primary goal is to increase teacher content knowledge related to grades 3-5 Common Core State Standards for mathematics and improve teacher classroom practice in teaching mathematics. The secondary goal is to improve student achievement for students of participating teachers on the relevant standards-based Arkansas mathematics examinations.

Specific objectives of the *Thinking Mathematically* project are:

1) Teachers participating in the project will demonstrate increased content knowledge related to the CCSS in grades 3-5 mathematics compared to teachers in a control group, as measured by the Diagnostic Mathematics Assessment for Elementary teachers;
2) Participants will incorporate cognitively guided instructional practices in classroom instruction as measured by the Reformed Teaching Observation Protocol and a locally-designed observation rubric;
3) A statistically significant percentage of the approximately 3,700 students taught by participants will demonstrate greater achievement on the Arkansas Augmented Benchmark Examination in mathematics compared to students of teachers in a control group.

The project's evaluation plan is a quasi-experimental design with a comparison group of 30 teachers. The comparison teachers were matched to the experience of the participants with an attempt to match for both average length of teaching time and variation of experience within the sample. RTOP was used in year 1 to assess teaching practice for 21 of the 30 participants, using a combination of classroom visits and videography of instruction. Participants and comparison teachers have also completed the Diagnostic Mathematics Assessment for Elementary Teachers to measure teachers' content knowledge and to track growth. Students of both participating teachers and comparison teachers are tracked for performance on the State Benchmark Exam.