Developing Web-Based Materials for Electronic Learning

Background:
The eMath initiative is one of the first national efforts to create and deliver innovative multimedia instructional mathematics developed by middle school mathematics teachers. eMath meets state standards for middle school math through its development of state-of-the-art, customized program that changes fundamentally how teachers use multimedia and web-based resources in middle school mathematics classrooms. In particular it has looked to fundamentally change how middle school teachers teach mathematics and how teachers and students engage in the learning process.

Partner schools from seven rural, small school districts in East Texas teamed with the parent company of eSchool Online, ACTV Net, Inc., to produce 30 mathematics modules (10 per grade level) and three staff technology staff development modules that target student learning in identified areas of student high need and teacher professional development. The program uses blended technologies such as video, web-based material, collaborative exercises and imbedded assessment. The math content is being delivered through eSchool Online software optimizing the Internet to deliver not only instructional material but also professional development to approximately 8000 students and 85 educators (teachers, math specialists, administrators, and library media specialists).

Aspects of the Initiative:
The impact of this initiative is felt by teachers and students moving toward an engaged learning and problem based learning model. Each teacher accesses the curriculum through 30 interactive modules delivered on demand via the Internet. This integrative web portal provides for email, program resources, teacher administration, instructional and unit development and a proven project based learning model. Videotapes clips using real life situations are used to demonstrate the mathematics concepts. Module development is targeted toward Texas State performance standards Math objectives 9, 11, 13 as well as the development of algebraic concepts. Students and parents access the modules from their school libraries, classrooms, computer labs, public libraries, ad hocme computers.

Also a select group of 14 teachers have been involved in the development of all the materials through inception to completion. Middle School mathematics teachers were developers of the content of the discovery based materials, its formatting and presentation style. Working with and through math experts from across the state the teachers developed the materials and took enormous ownership in the project. All materials were matched to the instructional learning styles of middle school students and were scrutinized for appeal to all ethnicities and gender.

Presentation information
Initial first year data will be presented. Research questions that will be addressed from data collected from school district administrators and eMath middle school teachers are:
a) what types of changes in thinking about mathematics pedagogy have teachers had since beginning the development of these materials; b) has the interaction between teacher and student changed since beginning this initiative and if so why; c) what types of skills do classroom teachers need to have to develop online materials; and d) what is it or what was it that significantly changed the way you taught mathematics?