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Implementing Creative and Active learning environment in mathematics education classes for future teachers through incorporation of Tablet PC technology

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We will present innovative technological approaches utilized in mathematics education classes at the University of Texas at El Paso. Mobile Lab of Tablet PCs has been used for several semesters in mathematics education classes for future teachers.

The technology-enhanced mathematic methods course for pre-service teachers was designed in the following way. During their senior year pre-service elementary teachers were enrolled in mathematics content and mathematics methods as well as in internships at local elementary schools. Mathematical content study involved series of rich, discovery-based mathematics investigations. During mathematical methods class students had the in-depth discussions on topics in the methods textbook. Future teachers discussed and prepared innovative technology-enhanced mathematical lessons. Students used Tablet PCs to conduct explorations and investigations; they researched and created unique virtual manipulatives, interactive games to be used in the mathematical lessons. This technology's wireless capabilities allowed students to receive a fast evaluation feedback through the WebCT discussion and "Discourse" software. Students taught mathematical lessons in local elementary schools during their internship, in the after-school mathematics program for gifted and talented children, and during Parent Power Night organized several times during semester.

This approach helped bring active learning and creative approaches to teaching and learning mathematics in mathematics education of future teachers. Evidence of future teachers' improvement of mathematical conceptual understanding through examples of students' works, reflections, and pre/post-test will be discussed.