Introduction
The use of Accelerated Math math management software was beneficial to high school students; test scores increased and attitudes toward math improved.

Main Findings
• High School students using Accelerated Math gained more on the SAT 9 than students not using the program.
• Student attitudes toward math improved with Accelerated Math.
• Parents felt their children were learning more with Accelerated Math.

School Profile
Buhler High School, Grades 9–12
Students: 777
Buhler, Kan.

Demographics:
Free or reduced lunch: 13%

Race/Ethnicity:
- White: 94.6%
- Hispanic or Latino: 2.3%
- Black/African American: 1.7%
- Asian or Pacific Islander: 1.4%

Educator Background
Terri J. Gaeddert has 10 years of experience teaching mathematics in grades 9–12. She received her bachelor’s degree in secondary education from Chadron State College, Chadron, Neb. In addition to teaching, Gaeddert is currently serving as a technology specialist for her school, and will receive her Masters of Arts in Teaching from Friends University, Wichita, Kan.
Study Description
This study evaluated the effectiveness of a learning information system, Accelerated Math, in high school pre-algebra, algebra, and geometry courses. For each subject, the study compared changes in student achievement, student attitudes, and parent attitudes of a class using Accelerated Math to a class receiving traditional instruction. The 3.5-month study included 50 students in the intervention (Accelerated Math) classes, 53 students in the control (traditional instruction) classes, and 3 teachers. The intervention and control classes for each subject had the same teacher and studied the same topics. Students in the control classes continued to receive instruction through the traditional method of teacher lecture followed by student assignments, while students in the intervention classes were enrolled in the appropriate Accelerated Math libraries and progressed at their own rate through the appropriate objectives. These students received most of their instruction in small groups or individually from the teacher.

At the beginning and end of the study, each student was tested with the Stanford 9 Achievement Test (SAT 9) and STAR Math computer-adaptive math test. SAT 9 is a paper-and-pencil norm-referenced test. Students in pre-algebra and algebra took Task 1, while students in geometry took Task 2. STAR Math is a norm-referenced test that uses Adaptive Branching® technology to accurately assess students’ mathematics skills in 20 minutes or less.

Results
Students using Accelerated Math scored about the same as students in the control classes on the SAT 9 and STAR Math pretests. However, students using Accelerated Math experienced more improvement in SAT 9 and STAR Math post tests than students in classes using traditional instruction. Across all three subjects, students in Accelerated Math classes gained 12 percentiles on the SAT 9, while students in the control classes gained only 3.8 percentiles. Looking at grade equivalent scores on the SAT 9, students in Accelerated Math classes gained a full grade equivalent in just 3.5 months, while students in the control classes gained only 0.3 grade equivalents. Similarly, on STAR Math tests, students using Accelerated Math gained 9.5 percentiles while students in control classes gained only 1.2 percentiles. Differences in test score gains were particularly striking for students in algebra and geometry. The graph on the front shows the SAT 9 percentile rank gains by class.

Students also responded to attitudinal surveys at the beginning and end of the study. Pre- and post surveys were identical except students using Accelerated Math answered four additional questions that specifically related to the Accelerated Math program. The surveys asked students to indicate their level of agreement or disagreement to statements about attitudes toward math. Overall, on the survey before Accelerated Math implementation, students in the Accelerated Math classes responded more negatively than students in the control classes to statements such as “I learned more math this year than last year” and “The pace of this class is just right.” However, at the end of the 3.5-month study students using Accelerated Math showed more improvement in attitudes toward math than students in the control classes.

Parent surveys also indicate positive attitudes toward Accelerated Math. Before implementation of Accelerated Math, 25% of parents of intervention group students and 33% of parents of control group students agreed with the statement, “My child is learning math better this year than last year.” After Accelerated Math implementation, 56% of parents of intervention group students agreed with the statement compared to 40% of parents of control group students.

Conclusion
The author of this study concludes that using a computer managed learning system, in particular Accelerated Math, can be beneficial for high school students. Students in the intervention group showed greater gains in basic mathematical skills as well as algebraic and geometric skills. Furthermore, students and parents believed they did better with Accelerated Math than they did with traditional instruction. In light of these positive findings, the author recommends further research in more schools as well as with more advanced high school courses.