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## The effects of computerized instruction in intermediate algebra

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## Abstract

This study was designed to measure the effects of a reform oriented computer assisted instructional environment R-CAI on community college students' procedural skill acquisition and conceptual understanding. Also examined were the effects of a computerized instructional environment on students' attitudes toward mathematics; The R-CAI involved the use of Prentice Hall's Interactive Mathematics with lessons created to provide opportunities for students to learn within "real world" contexts. Using these activities, students collected information, analyzed data and applied mathematical concepts; After controlling for initial differences, it was concluded that students taught by the R-CAI environment significantly outperformed students taught by the Traditional Algebra (TA) instructional environment on the Conceptual Tests demonstrating their ability to apply the mathematics within a context. Additionally, the focus on applied mathematical concepts yielded equivalent results on the Procedural Skill Test, hence, procedural skill was not sacrificed for the conceptual understanding gain. The R-CAI students still maintained the same level of procedural skill while surpassing the Traditional Algebra students in conceptual understanding; Lastly, students' attitudes toward mathematics were measured at the beginning and end of the semester. Statistically, the students in the R-CAI environment reported a significant increase in mathematical confidence and a significant decrease in mathematical anxiety at the end of the semester as compared to their initial attitudes toward mathematics. The students in the TA environment yielded no significant difference in attitude toward mathematics.

## Keywords

Algebra; Community College Students; Computer-assisted Instruction; Computerized; Effects; Instruction; Intermediate; Intermediate Algebra; Situated Learning

## Controlled Subject

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Freshmen Enrolled in a Developmental Mathematics Course. *Journal of College Reading and Learning*, 39 (1), 35-53. Retrieved January 9, 2019 from

<https://www.learntechlib.org/p/72383/>. Introductory and Intermediate Algebra builds a strong foundation for continued studies in mathematics and abstract and reasoning skills. Topics are broken down step-by-step with a plethora of examples so students grasp algebraic concepts easily. A few of the topics covered are linear systems broken down by methodology, percentages with applications, and overall strategies for factoring. Many sections contain questions at the end of exercises that ask students to take a more in-depth look at common mathematical concepts. Formats: Software, Textbook, eBook. Product. A self-paced intermediate algebra course with computer tutorial software as the mode of instruction was implemented at a private four-year liberal arts college in the fall semester of 1998. The course was designed to provide a review of algebra for students whose mathematics placement test scores indicated that they were not prepared for college level mathematics. The purpose of his qualitative study was to investigate the impact of this computer assisted instruction (CAI) on students' knowledge of mathematics prerequisite to college algebra.