

The effect of an intelligent tutoring system (ITS) on student achievement in algebraic expression.

Abstract

In this experimental study, use of Computer Assisted Instruction (CAI) followed by use of an Intelligent Tutoring System (CAI+ITS) was compared to the use of CAI (CAI only) in tutoring students on the topic of Algebraic Expression. Two groups of students participated in the study. One group of 32 students studied algebraic expression in a CAI learning environment, while the other group of 30 students was in a CAI and ITS (CAI+ITS) environment. Before the experimental treatment began, subjects were given a pre-test on algebraic expression. A posttest was also given at the end of the study. The experimental treatment was administered in eight sessions with one hour per session. For the first stage of the study, both groups of subjects studied algebraic expression in a CAI environment. In the second stage, subjects from the CAI group continued with a tutoring session using the drill and practice section of the CAI package, whereas subjects from the CAI+ITS environment continued their learning using the ITS tutorial. The results of the study showed that there was a significant difference in the students' achievement in algebraic expression between students who learned with CAI+ITS and who learned with CAI only as the delivery system. The findings of the study indicated that CAI+ITS was more effective in helping students learn algebraic expression as compared to using CAI alone. This study suggests that educators and software developers should focus on the development of ITS based learning tools or integrate ITS elements in courseware development rather than developing a mere CAI tool.

Keyword: Intelligent tutoring system; Computer assisted instruction; Mathematics learning.