Effects of a Case-Based Reasoning System on Student Performance in a Java Programming Course

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ABSTRACT

The purpose of this study was to determine if a case-based reasoning tool would improve a student’s understanding of the complex concepts in a Java programming course. Subjects for the study were randomly assigned from two sections of an introductory Java programming course. Posttests were used to measure the effects of the case-based reasoning tool (CBJava) on learner competency. Results of the study using a Mann-Whitney U test indicated a significant difference between the group who used CBJava on complex questions and the group who did not (m rank = 11.50; U = 3.500, p < .05, M = 22.71 vs. M = 17.88). No significant difference was indicated between the groups on simple questions. Recommendations from this study include supporting complex content through examples, providing a case-based instructional aid for complex topics, and extending CBJava’s framework to support other courses and disciplines.

Keywords: Distance Education, Java, Case-based Reasoning