

The Impact of Instruction Designed to Support Development of Stochastic Understanding of Probability Distribution

Preliminary Research Report

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Abstract:

Large numbers of college students study probability and statistics, but research indicates many are not learning with understanding. The concept of probability distribution undergirds development of conceptual connections between probability and statistics and a principled understanding of statistical inference. Using a control-treatment design, this study employed differing technology-based lab assignments and investigated the impact of instruction aimed at fostering development of stochastic reasoning on students' understanding of probability distribution. Participants were approximately 200 undergraduate students enrolled in a lecture/recitation, calculus-based, introductory probability and statistics course. This preliminary research report will discuss the framework used to develop the stochastic lab materials and preliminary results of an assessment of students' understandings.

Key words: Probability distribution, stochastic reasoning, technology-based instruction, instructional intervention.