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Making Sense of the Infinite: A Study Investigating the Learning and Teaching of Infinite Series.

A recent study investigated student understanding and learning of infinite series. The first step in the study involved using a Series Understanding Survey (SUS) to assess second-semester calculus students' conceptual understanding of series. Follow-up interviews were conducted with four students. Results from this initial investigation suggested that students struggled with understanding basic definitions of series, visualizing series, and selecting appropriate convergence tests. Results from this investigation also suggested that traditional instruction may contribute to students' difficulties in acquiring a meaningful understanding of series concepts.

The second step of this study used results from the survey instrument to create and implement a teaching experiment on infinite series. The experiment compared computational performance and conceptual understanding of two groups of calculus students. One group received traditional instruction on series; the other group received instruction which included classroom reform strategies such as writing during class, working in pairs, and an emphasis on visualization. Results from the SUS and course exams will be shared along with samples of teaching materials. (Received September 26, 2006)