

1086-VB-2293 **Dov Zazkis*** (zazkis@gmail.com). *The Effects of GSP-Based Applets on Students' Understanding of Graphical Calculus Concepts.*

Calculus students' resistance to and difficulties with graphical approaches to calculus are well documented in the mathematics education literature. This is particularly concerning because many educators and education researchers regard reasoning with visual representations to be an essential component of gaining an understanding of calculus that goes beyond symbol-pushing. I will present a series of Geometers Sketchpad-based applets and accompanying activities that were used as part of a technologically enriched Calculus I course. Videotapes of individual student problem-solving interviews and in-class group activities reveal that these activities had profound effects on students' approaches to and dispositions regarding calculus problems. These applets were not simply disposable crutches used to learn; they became mental objects students could think with and facilitated a diverse range of student approaches to graphing and non-graphing problems. I will describe these varied student approaches and the student reasoning that accompanied them as related to the concept of derivative. (Received September 25, 2012)