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Dynamic 3D Imagery in Calculus III: Student responses and learning gains. Preliminary report.

The ability to visualize certain mathematical objects can be an important contributor to learning. With the rise of free software and online applets, students and instructors can quickly generate dynamic images of three-dimensional objects including vectors, planes, and quadric surfaces. This talk reports on a classroom teaching experiment which took place over the course of a semester, in which students regularly produced and analyzed computer-generated 3D images. Students' affective responses and learning gains were analyzed in terms of several factors to better understand the benefits and constraints of using such software. (Received September 26, 2017)