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UCA Research in STEM Education Seminar

SPEAKER: Dr. Jason Martin
With research by Katie Burden
UCA Department of Mathematics

Title: What Might Students See When Viewing
Interactive Graphs? The Case
of Jeremy and Integrals.

Date: Tuesday, September 12, 2017

Time: 1:40 – 2:30 p.m.

Place: MCS 115



ABSTRACT: A virtual manipulative's (VM's) ability to show continuous change in real time shows promise to be especially advantageous for learning calculus. Katie Burden's thesis explored how VMs might support understanding by detailing five case studies of students interacting with contextual and graphical representations. For this presentation, focus is placed on the interesting case of Jeremy who viewed a graphical VM and saw attributes of the image as related to the definite integral. We ask, what might students transfer from problem to problem while interacting with VMs graphically modeling similar attributes of problems related to the same calculus concept? Results indicate that what Jeremy saw greatly influenced his reasoning. In particular, his reasoning appeared as a consequence of the shapes he saw and his reasoning on multiple tasks was influenced by his transfer of his perceived shape onto subsequent graphs. As the interviews progressed, Jeremy's reasoning evolved and became increasingly more consistent based upon what he saw.