1067-C1-2274 **Jason H Martin*** (Jason.H.Martin@asu.edu), RIMSE, Arizona State University, P.O. Box 873101, Tempe, AZ 85287-3101, and **Michael C Oehrtman** (Michael.Oehrtman@unco.edu), Campus Box 122, University of Northern Colorado, Greeley, CO 80639. *Overcoming Conflicting Imagery in the Development of an Understanding of Taylor Series Convergence.*

We present results from an exploratory research study and a subsequent teaching experiment revealing key aspects of university students' reasoning and learning about Taylor series. A detailed analysis of responses on questionnaires and clinical interviews revealed many students applying conflicting imagery from previously developed function and sequence concepts on tasks related to Taylor series. For example, some of these conflicting images were adaptations of stretches and shifts of graphs of functions. Others reflected convergence to a horizontal asymptote with significant confusion between the index and independent variable. The teaching experiment directly addressed these inconsistencies, highlighting visual attributes of pointwise convergence and establishing a coherent language based on approximation and error analyses. We scaffolded tasks to develop an image of pointwise convergence as convergence of series along vertical number lines corresponding to particular values of the independent variable. The students in the teaching experiment internalized these images and approximation language that supported sophisticated reasoning about the structure of Taylor series. (Received September 22, 2010)