1106-A5-2424 **Catherine Case*** (ccase@ufl.edu). *Students' Conceptual Understanding of Inference: Connections between Randomization-Based and Traditional Methods.*

At the recommendation of several prominent statistics educators, most notably George Cobb (2007), randomization-based inference methods have begun to replace or complement traditional inference methods in many introductory statistics courses. To explore whether complementing traditional inference with randomization-based methods aids conceptual understanding of the core logic of inference, task-based interviews were conducted with seven AP Statistics students familiar with both inference methods. During the interviews, students were asked to "think aloud" as they used traditional inference methods (z-tests or t-tests) and simulations (using coins, cards, and computer applets) to estimate p-values and draw conclusions about statistical significance in the context of real research studies. Students were then prompted to compare and contrast the approaches, describing the connections perceived between the two. Analysis of students' written work and verbal explanations suggests that although each method presents its own set of challenges, there are advantages associated with complementing traditional inference with randomization-based methods. This session will present these findings and discuss implications for effective teaching of inference. (Received September 16, 2014)