

1046-U1-1871 **Paul C Dawkins*** (rdawkins@uta.edu), 3908 Rustic Forest Trl., Arlington, TX 76016. *Bringing a Formative Approach to Definitions in Undergraduate Real Analysis: Theoretical Considerations and Preliminary Results*. Preliminary report.

”Despite being the dominant mode of teaching advanced mathematics for many decades, the [Definition-Theorem-Proof] format has been widely maligned by mathematicians and mathematics educators alike” (Weber, 2004, p. 116). This form of instruction poorly reflects how proof is developed historically (Alibert & Thomas, 1991) which, according to constructivist theory, parallels how individual learners attain these concepts (Piaget & Garcia, 1989). However, seeking viable, research-based alternatives for instruction in undergraduate Real Analysis presents a special challenge. As a part of a larger study directed toward this goal, we will discuss preliminary findings from a case study on one Real Analysis course that emphasized the development and motivation of definitions more than their final form. A significant amount of class time focused on students developing their own understanding of the central ideas that the formal definitions are meant to capture, before providing a formal definition. A linguistic, conceptual, and cognitive characterization of the instruction and the evidence of its efficacy regarding comprehension, recall, and affective factors will be described via analysis of results from intensive instructor and student interviews and classroom observations. (Received September 16, 2008)