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Alvarez. *Preservice Secondary Mathematics Teachers' Conceptions of Functions and Equations.*

Research supports that future secondary mathematics teachers must learn specialized knowledge for teaching mathematics (MKT), connect advanced mathematics topics to school mathematics, and engage in inquiry-based learning. During an early undergraduate mathematics course experience with an eight-week unit on functions from an advanced perspective, participants (n=24 mathematics majors seeking secondary mathematics teaching certification) completed a ten-item pre- and post-assessment on functions and equations. We highlight a research-based exploration that illustrates an inquiry approach to addressing MKT and connections between advanced mathematics and school mathematics, focusing on distinctions between the concepts of function and equation. In addition, we discuss six think-aloud, hour-long interviews on functions and equations. Open coding techniques were used to identify emerging categories that describe participants' distinctions between the concepts. Preservice teachers struggled to explain connections and differences between the two concepts, which has implications for curriculum revisions that address this MKT. (Received September 19, 2017)