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James A. Mendoza Álvarez* (james.alvarez@uta.edu), Box 19408, Department of Mathematics, The University of Texas at Arlington, Arlington, TX 76019-0408, and **Andrew Kercher** and **Kyle Turner**. *Learning from Lessons that Focus on Applications to Teaching in Undergraduate Abstract Algebra.*

The Mathematical Education of Teachers as an Application of Undergraduate Mathematics project provides lessons integrated into various mathematics major courses that incorporate school mathematics teaching connections as a legitimate application area of undergraduate mathematics. In Abstract Algebra, undergraduates engaged in three different lessons aiming to enhance understanding of connections between undergraduate mathematics and school mathematics. In this paper, we use thematic analysis of hour-long interviews with four faculty and 20 undergraduates across four different institutions to describe what undergraduates who use the lessons understand about the connections and about the mathematics in the lesson as well as what faculty who use the lessons understand about these connections. We explore evidence that undergraduates understood the abstract algebra concepts and made connections between abstract algebra and secondary school mathematics. We also see examples that convey that faculty understood the connections. Using these lessons strengthened their understanding of how to incorporate applications to teaching into an undergraduate course in abstract algebra and the potential for these applications to support undergraduate student learning in a robust manner. (Received August 04, 2020)