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**Cody L. Patterson\*** ([cody.patterson@utsa.edu](mailto:cody.patterson@utsa.edu)), Department of Mathematics, One UTSA Circle, San Antonio, TX 78249. *Functions, Rates, and Quantitative Reasoning: From Proportionality to Exponential Growth.*

In their work with functions, middle and high school mathematics classes engage in a considerable amount of cross-representational activity: for example, sketching a graph of a linear function given an formula, or producing a formula for an exponential function given a table of values. However, this work is often disorganized and skill-oriented, focusing on mastering techniques for translating from one representation to another rather than on developing key ideas about functions that emerge from and support such translational activity. In this talk, we explore how work with linear and exponential functions can be structured around the key ideas of initial value and rate of change or growth factor, and how these ideas can be developed through quantitative reasoning. (Received September 22, 2015)