

1135-J5-1816 **Natalie LF Hobson*** (natalie.hobson@sonoma.edu), Mathematics and Statistics Department,
1801 E. Cotati Ave., Rohnert Park, CA 94928. *“The slope is increasing!”– Students’ takeaways
from Calculus.*

The mathematics of relationships between continuously changing quantities is at the essence of the study of Calculus, rate of change and covariation being central concepts discussed in most Calculus courses. What understandings of rate of change and covariation do successful students come away with? What are the consequences of how students might come to think about these ideas? In this study, using clinical interviews, I explore and describe the covariational reasoning of a mathematics education doctoral student with two years of high school teaching experience. In analyzing the participant’s activity, I identify and describe three different ways of reasoning that the participant came to use while engaging in tasks in which the student graphically represented dynamic situations. The ways of reasoning constituting the model of his thinking provide evidence to suggest he did not have a connected meaning of covariation as a relationship between changing quantities. In this talk, I illustrate these ways of reasoning and present some common curricular treatments of rate of change. In doing so, I highlight certain associations we often teach in Calculus that do not seem to provide students the opportunity to develop ways of reasoning about relationships between varying quantities. (Received September 25, 2017)