1145-H1-1765   **Monica VanDieren*** (`vandieren@rmu.edu`) and **Deborah Moore-Russo**. *Using Mindmaps to Uncover Conceptual Understanding of Vectors.*

We investigate students' communicated understanding of vectors by examining how their mindmaps change over time in a multivariable calculus class. A mindmap is a visual network of connected and related concepts typically with one image or topic centrally located. Mindmaps can be used both as formative and summative tools of assessment. Through this open-ended instrument, we conduct a qualitative analysis to explore the connections students make between different aspects and multiple representations of vectors. While mindmaps may not perfectly represent student understanding, they provide insight to a student's thoughts. Knowledge about the connections and representations that students communicate can inform pedagogical practices and the development of digital environments to help students coordinate their ideas and representations into a connected, coherent understanding of topics. (Received September 24, 2018)