

Characteristics of Visualizations and Texts in Elementary School Biology Books

David Menendez

University of Wisconsin - Madison, Madison, Wisconsin, United States

Taylor Johnson

University of Wisconsin - Madison, Madison, Wisconsin, United States

Ryan Hassett

University of Wisconsin - Madison, Madison, Wisconsin, United States

Ashley Haut

University of Wisconsin - Madison, Madison, Wisconsin, United States

Olympia N. Mathiaparanam

University of Wisconsin - Madison, Madison, Wisconsin, United States

Martha Alibali

University of Wisconsin-Madison, Madison, Wisconsin, United States

Karl Rosengren

University of Rochester, Rochester, New York, United States

Abstract

A breath of research has investigated how characteristics of visualizations and characteristics of texts influence learning and generalization. Given that students integrate information from visualizations and text, we investigate how the characteristics of the text depends on characteristics of the visualization. We focus on two characteristics of visualizations (perceptual richness, and whether they display variability), and one characteristic of the text (use of generic language). We found that the majority of visualization were detailed photographs and do not display variability. Most of the text used generic language, but we found that some visualizations qualified these generic statements with more specific phrases. The use of generic was more common for visualizations that display variability and photographs. Our study highlights the importance of investigating what students are normally exposed to and suggest that future research on multi-media learning should place close attention to the characteristics of the text that accompany the visualization.