Research Interests: Students' and Expert Explanations of Graph Construction and Reasoning in the Biological Sciences

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Goals: The goal of this project is to understand the types of concepts and reasoning implemented by undergraduate students, graduate students, and professors when creating and choosing appropriate graphical representations of biological data. The results from this project will allow me to interact with and instruct students and educators, both at the high school and collegiate level, providing them with a robust method of explaining graphical design and the development of graphical reasoning. This will help in fostering a greater understanding of how best to represent and share data. This will improve learning, development, and success of students.

Methods: I will conduct semi-structured, think-aloud interviews. I will use a mixed methods approach to collect quantitative and qualitative data. I will utilize the grounded theory method of data analysis until I have reached saturation with my results guided by the CRM model (fig. 1).

Expected Outcomes: The findings from this study will provide a rich source of insight to improve instructional approaches and assessment at the undergraduate and secondary school levels.

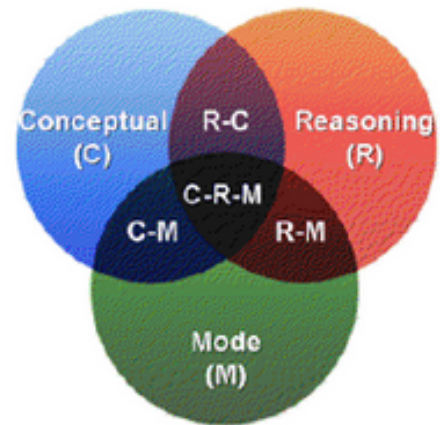**Collaborators:** Stephanie Gardner (sgardne@purdue.edu), Nancy Pelaez (npelaez@purdue.edu), Trevor Anderson (ander333@purdue.edu)

Figure 1: CRM model from Schonborn and Anderson (2009).

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