

# Visualizing the Future Symposia Research Proposal

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In my current position as Data Services Librarian, I work primarily with undergraduate students from across the social sciences and the humanities. As a liberal arts institution, Middlebury College seeks to give the students exposure to a breadth of subjects in addition to the depth they will experience in their major(s). Like many higher-ed institutions, Middlebury also requires all students to take a first-year course that introduces them to academic writing, reading, and critical thinking. While students who then major in subjects that already focus on working data learn how to produce *as well as* critically evaluate data visualization, this training is largely centered in courses taken only by students in the major. The training is often highly specialized and less holistic as a result, with students experiencing very different outcomes in their ability to work with visualizations.

When working with upper-level students on capstone projects or other larger scale research, we see wide variability in their ability to produce and/or analyze data visualization. Students who want to work on digital scholarship projects or need to critically examine data visualizations in publications can be at a disadvantage depending on their major. Including some level of data visualization instruction in required first-year classes should lead to a broader group of students who are more able to make and critically consume data visualization.

In order to assist in the process of making data visualization instruction a part of these required first-year classes, I propose using ethnographic methods to evaluate:

- a. What is already being done by faculty to include data visualization in their first-year courses.
- b. What impact this has had on students, from a faculty perspective and (if possible) a student perspective.
- c. What gaps there are in faculty experience with respect to data visualization that can be addressed by librarians.
- d. What can be generalized beyond the particular first-year courses from (a) above.

Several faculty at Middlebury College, across a variety of disciplines, have begun including data visualization work in their first-year courses. I will conduct semi-structured interviews with these faculty about their experiences teaching these courses, as well as collecting instructional artifacts (syllabi, assignments, student work), as appropriate. To assist in the generalizability of my findings, I will also reach out to faculty and librarians at peer institutions (one other liberal arts or primarily undergraduate institution, as well as a larger, more research-intensive institution) to find out what is being done there. After compiling these data, I will code for themes and patterns which can then be extracted and used to craft a set of recommendations for how and why we can teach first-year students about data visualization in the context of college reading and writing. These recommendations can then be used to further both local work at Middlebury as well as broader national work. These recommendations and best practices can be used by librarians and faculty to both encourage broader adoption of visualization instruction for first-year students as well as to instruct others on *how* to go about this. More widely, these suggestions and best practices can be fed into the bigger *Visualizing the Future Symposia* outcomes, to provide a foundational rung in the curriculum and modules developed out of the project.

Several questions will need to be addressed as this study begins, including:

- a. How can we be sure to include the perspectives of non-quantitative disciplines in our sample?
- b. How can we be sure to include not only the *production* of visualization, but also critical analysis, in our plan?
- c. How can we be sure to address data visualization apart from the tools used, in order to facilitate broader interest and adoption?

By addressing these questions up front, and seeking buy-in from faculty who are already interested in teaching first-year students and interdisciplinary approaches, I believe we can build a strong set of recommendations for teaching our first-year students about visualization. Since some other parts of the *Visualizing the Future* modules will be geared towards upper-level undergraduate or graduate students, these recommendations will also help us build a holistic approach that will help support the student throughout their academic career.