Project Proposal: Empathy and Accessibility in Data Visualization

Representing data in forms other than graph or pie charts can be a challenge for students and faculty alike who may rely on these traditional methods for visual dissemination. However, not only must we find additional methods or tools for data visualization, we must also help students and faculty gain the foundational knowledge to analyze and create thoughtful visualizations for empathy, accessibility and readability. Empathy, accessibility, and readability are vital to the representation and understanding of data. One issue in the field of data visualization is people's inability to understand or connect numbers with consequences or information. This is common with big issues such as climate change and individual issues involving personal risk assessment. Creating empathy and understanding on both sides, the creator and user, allows for a better understanding. During the Tapestry Conference at the University of Miami, Matthew Kay spoke about the uncertainty in data visualization, how people may interpret a hurricane track incorrectly due to the visualization or may not have the means to understand the risk factor for a surgery given by their doctor to make an informed decision. This visualization of the data can lead people to make uninformed decisions since people may not grasp how these numbers or images affect them or others on a personal level. A risk characterization or communication theatre may be one solution to the risk factor issue. It illustrates risk rather than simply stating it. Therefore, understanding human behavior is critical when thinking about empathy in creating visualizations because both the creator and the audience need to understand human behavior to be able to make informed decisions based on the data. Furthermore, ensuring these visualizations are accessible and readable are also part of the bigger picture and a topic I would like to explore.

After seeing many PowerPoint Presentations that do not take into consideration color blindness or visual impairments, I began researching accessibility in design and visualizations, primarily with PowerPoint. I created presentations to get students and faculty thinking about how they can create simpler, better, and more accessible presentations for a wider audience using websites such as Web Aim and the Penn State Accessibility site as well as books by Cole Nussbaumer Knaflic, Edward Tufte, and Alberto Cairo. At the institutional level, we plan to continue researching and developing workshops to provide additional assistance in cultivating these skills for all students, faculty, and staff. This includes creating workshops on accessible pdf's, website features, and more. Additionally, one of the Reference Department's strategic goals is to explore gaps in data visualization support. As a result, we are currently undertaking steps to create a more accessible website, conducting research on data sonification (data represented through sounds), and looking for other ways to provide this kind of support and identify the best options for services. Therefore, this is relevant not only to my own interests and career path but to my institution as well.

While tools are important to learn and know, they often change and require extensive training. Providing the groundwork for understanding how to create accessible data visualizations can be worthwhile for instructors and students in the long-term. My personal plan for addressing this issue is to continue researching, attend conferences, webinars, and pursue any learning opportunity related to the topic while working on workshops for faculty and staff. Professionally, I plan to apply what I learn to an archive I am helping create in Mukurtu for indigenous peoples. We are working with a faculty member from the school of social work using indigenous knowledge practices and will need to create a public facing website for that which has prompted discussion on additional accessibility issues related to language, tribal customs, and access to technology. All of these which have an impact in the design and teaching of data visualization. Ultimately, I hope to gain the expertise and knowledge to create a curriculum for workshops on

accessibility and empathy, especially within a predominately white institution such as the University of Denver.