DSI: Data Visualization

Assignment 3
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Ultimately, I don't think either Figure 1 or Figure 2 discussed in Assignment 2 represent an accessible, reproducible, and equitable data visualization. I think both data visualizations struggle for similar reasons. First, I think Figure 1 is not accessible because it uses very small font for labels. We know that small font can be particularly challenging for some to read, and it doesn't appear that this text reaches the 12 point requirement (Zogheib, 2023). Additionally, if we run this image through a colour blindness simulator ("Coblis - color blindness simulator", 2023), we can tell that this visualization does not use a good colour palette for those who suffer from red-green colour blindness (Zogheib, 2023). Furthermore, I especially think this is an inaccessible visualization because it does not provide intuitive alt-text for those who are unable to see the image (Zogheib, 2023). In addition to inaccessibility, this visualization also suffers from a lack of reproducibility. We know from Healy (2018) that reproducible data visualizations should have accompanying code that was used to produce the visualization. Figure 1 does not have any accompanying code and furthermore the 'source' website does not clearly describe where the data comes from. There are multiple ways that this visualization could be improved. First, a descriptive alt-text could be added to this visualization that would allow for increased accessibility (Zogheib, 2023). Specifically, it could include the 4 levels of semantic content: elemental, statistical, perceptual, and contextual (Lundgard & Satyanarayan, 2022). Another way that this visualization could easily be improved is by increasing the font size (Zogheib, 2023).

I also do not think that Figure 2 is a good example of an accessible, reproducible, and equitable data visualization. I think Figure 2 is not accessible because if we run it through a colour blindness simulator ("Coblis - color blindness simulator", 2023), we can tell that this visualization does not use a good colour palette for those who suffer from red-green colour blindness (Zogheib, 2023). Furthermore, if we look at the contrast between colours used in this visualization ("Contrast checker", 2023), we find that colours used to differentiate years of experience and some colours used to differentiate salary range do not have sufficient contrast according to Web Content Accessibility Guidelines (WAI, 2023). Furthermore, Figure 2 does not contain any helpful alt-text that describes the visualization for those unable to see the image (Zogheib, 2023). In addition to inaccessibility, this visualization also suffers from a lack of reproducibility. We know from Healy (2018) that reproducible data visualizations should have accompanying code that was used to produce the visualization. Figure 1 does not have any accompanying code and furthermore the 'source' website tells us the page no longer exists, which means we cannot access the raw data. There are multiple ways that this visualization could be improved. First, a different colour palette could be used that is both red-green colourblind friendly and has starker contrast (Zogheib, 2023). Furthermore, for reproducibility purposes, this visualization would benefit greatly from a linked source that contains the raw data used in this visualization (Healy, 2018). Additionally, the creators of this visualization should include the code that was used to

produce this visualization (Healy, 2018). Finally, a descriptive alt-text could be added to this visualization that would allow for increased accessibility (Zogheib, 2023).

References

Coblis - color blindness simulator. Colblindor. (2023). Retrieved March 27, 2023, from https://www.color-blindness.com/coblis-color-blindness-simulator/

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WAI. (2023). *WCAG 2 Overview*. Web Accessibility Initiative (WAI). Retrieved March 27, 2023, from https://www.w3.org/WAI/standards-guidelines/wcag/

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