Can data be manipulated through the use of visual design?

Victoria Coleman
Longwood University

Can Data be Manipulated through the Use of Visual Design?

Visualizing data is important when interacting with large amounts data. This applies in any and all fields of work including history to economics to basic science. An advantage of visualizing data is that it provides an easier mechanism to comprehend, analyze, and understand more information.

For example
Which set of information (below) is easier and faster to comprehend.

Out of 261 people surveyed, most of them having worked or are working in academia, government, private sector and NGOs. 85% of them were between the ages of 26 and 55 years old, and alost 75% of them had a masters or doctoral degree. Over 80% of the people who answered the survey had a background related to science or technology. The majority of them (95%) declared using data (in any form) in their work.
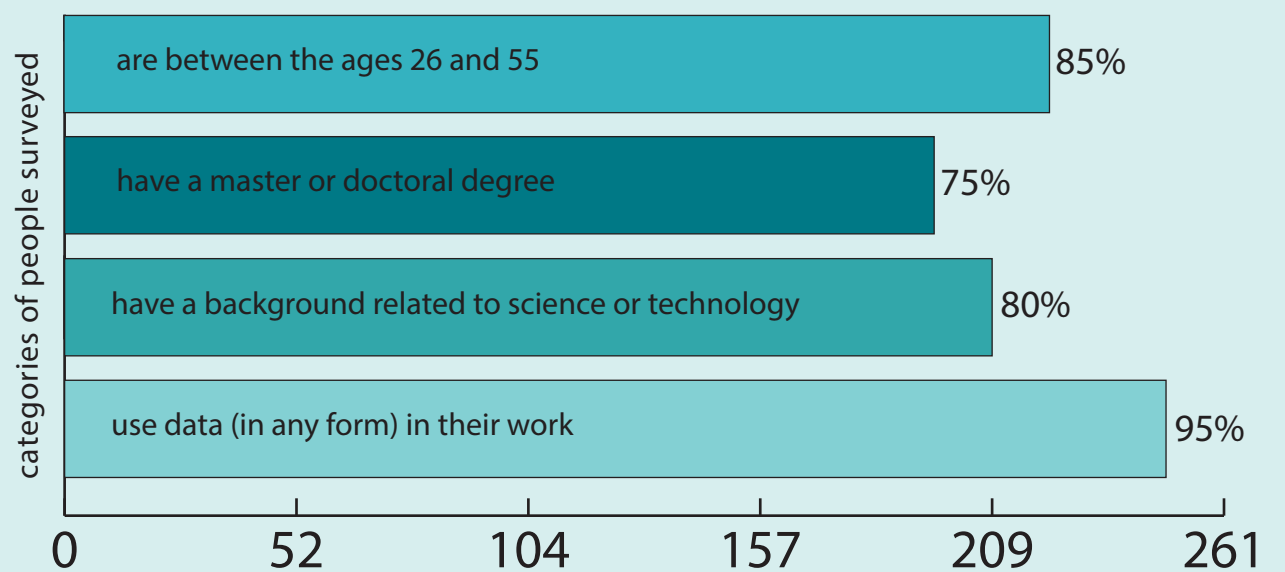

The fact that the audience is forced to trust the information provided can be seen as a negative to visualized designs. The visual designs (graphs, charts, tables, etc.) are created from data sets, survey results, and research done by the creator; however, the audience has to trust that those sources are credible and accurate due to them not having direct access. It is difficult for the audience to research what is being presented due to the fact the sources are not normally sited in the visualized designs.

(A)

(B)
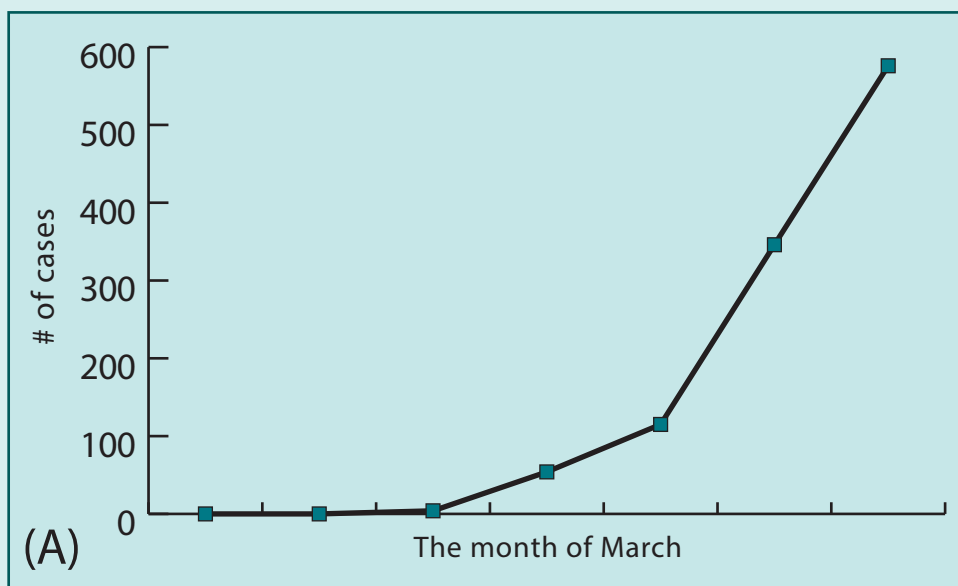
A designer could very easily manipulate the data they found into forms that better suit their argument or stand point, misleading the audience.

I have taken a data set of the state of Minnesota's COVID cases for the month of March. I manipulated the data to appear to spike quicker in the graph A than in graph B. I used the same data in both graphs, the only difference being the y-axis.
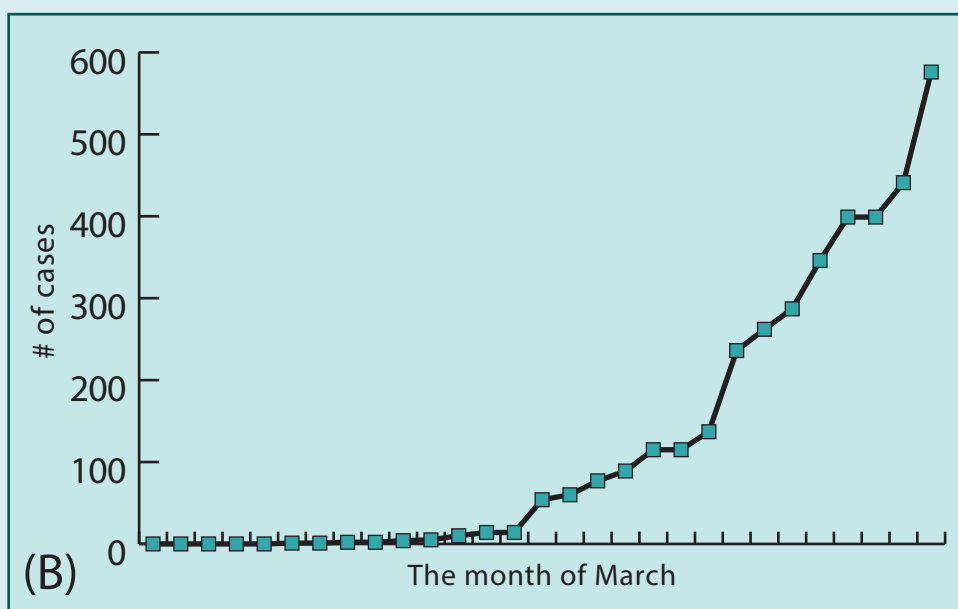
A quick glance at these graphs would make the audience think the numbers spiked faster in graph A, but upon a closer look you can see the y-axis of graph A is much shorter than graph B.

My manipulation was in graph A I used every 5th day, while in graph B I used all of the 31 days in March.