How to Graph Badly or What NOT to Do

This section begins with an explanation of chart junk and how it is grossly overused in many modern charts. It goes into detail about how some people want to make their charts look “fancy” of “creative” and so they add a bunch of fluff. What they end up with is a chart that is so packed full of different fonts, shading and other distractions that viewers are overwhelmed with so many visual cues it is hard to see the data. Another common graph making mistake is when the data is overanalyzed. Although a person may really want a chart to fit a certain trend, they must let the data speak for itself and be accurately represented.

Wainer then describes some of his rules for bad graphs. One of these rules is to maximizes the data density. When making charts or graphs it is important that every point of ink matters. Wainer then discusses the concept of data hiding. This primary occurs when a graphed data has gridlines behind it. The gridlines distract the viewer from various trend lines and data points. It is best to avoid grid lines all together.

Wainer also states that is it much better to represent data using length instead of area because humans can more accurately estimate the former. When using area to represent data there is a high chance that the visual will misrepresent the actual data. Wainer then discusses how and when labeling should be used. He states that labeling should be used in complicated graphs to help the view understand the data faster. However, and overuse of labeling will result in a confusing visual. This reading concluded by discussing what should be emphasized in a visual. It is important that the correct elements in a visual are emphasized. This can be done through shading, bolding and the use of different colors.

The Gospel According to Tufte

This article begins by describing the concept of the data ink ratio. The data ink ratio is the amount of ink on a visual that represents data, compared to the rest of the non-data ink in the visual. The main point of this concept is to “eliminate the fluff” in visuals. Another way to emphasize the data is to make it clearly visible to the user. One way to do this is to bold trendless and get rid of the background grid lines. A second way to further emphasize the data is to get rid of the non-data. A simple way to achieve this is to half frame graphs instead of full framing them. The goal of presenting this data is to take a minimalist approach. However, a too minimalist approach can cause the view to become confused and it may take longer for them to interoperate the visual. Making visuals is similar to writing essays in that they must be revised and edited before they are finished. One way we can revise visuals is to include helpful captions where needed to explain complicated relationships.

As with any data visual, the goal is to display as much information in the easiest format to the viewer that will make sense. While having a data dense visual is good, we must be careful not to go overboard. A common mistake in making visuals is trying to pack too much information into one visual. Sometimes it may be better to turn an overcomplicated visual in a simplified table. We must be careful in our visuals to be very clear and simple.

This reading then discusses multifunctioning graph elements and small multiples. Multifunctioning graph elements are basically a hybrid between tables and graphs. Small multiples are multiple graphs with small differences between each graph. It is very similar to a frame by frame short animation. This method of visuals has been used for hundreds of years and is an effective way of showing multiple changes in various elements of data. The article then discusses layering and separation of graphs. This method can be used to emphasis a certain point on a graph. One way to better emphasize an aspect of a visual is to use word labels instead of numbers/letters and a key. A great example of a poorly emphasizes visual is tennis spectator syndrome. Tennis spectator syndrome is when the view has to constantly refer back to the key or legend to make sense of each data point.

The article then describes how our visuals should always be horizontal when feasible. The width to height ratio for visuals should be 3-2. This is because humans have evolved to recognize horizontal visuals and shapes. Also with the advent of widescreens, projectors and monitors being wider than they are tall, a 3-2 aspect visual will not get distorted in this format. Lastly, this article talked about the use of color. Tufte states that while color is an excellent emphasis tool, the overuse of color can be quite confusing to the viewer. It is better to use shading with one or two colors rather than use “all the crayons in the crayon box.” By using a limited number of colors the viewer can more easily decipher the visual.