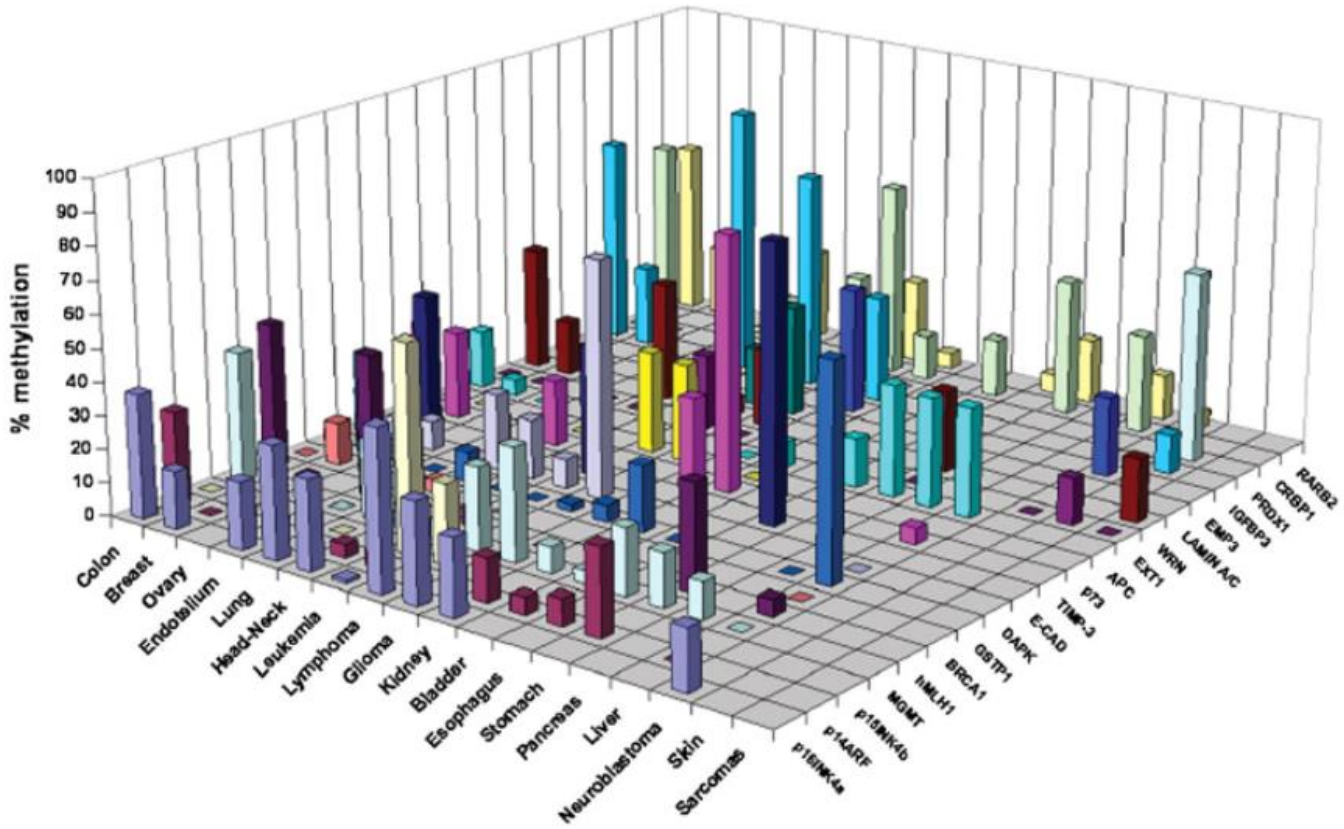
Figure 1

A CpG Island Hypermethylation Profile of Human Cancer



Note. This graph shows a profile of CpG island hypermethylation in human primary tumors. The Y-axis shows the frequency of hypermethylation for each gene in each primary. Graph adapted from Esteller, M. (2007, April 15). Epigenetic gene silencing in cancer: the DNA hypermethylome. *Human Molecular Genetics*, *16*(R1), R50–R59. https://doi.org/10.1093/hmg/ddm018

Part 1. Graphic Inquisition

1. Gestalt principles & visual structure: People tend to dislike pie charts and three-dimensional figures. It makes decoding difficult and makes it complicated to read off values. This 3D-structure makes it hard to distinguish the percentage of each bar. Some bars are hidden behind others. This graph, on one hand, might have enabled to show more data at once, but makes the comprehension more difficult on the other hand.

2. Decoding & operations: For me the gridlines aren't helping to easily read off the values. It's making the graph look busier. For decoding purposes, this isn't handy.

3. Chartjunk & data-ink ratio: There is quite a lot of text on the graph, which is distracting. The colours of the bars are probably supposed to differentiate between the bars, but are actually distracting and standing out.

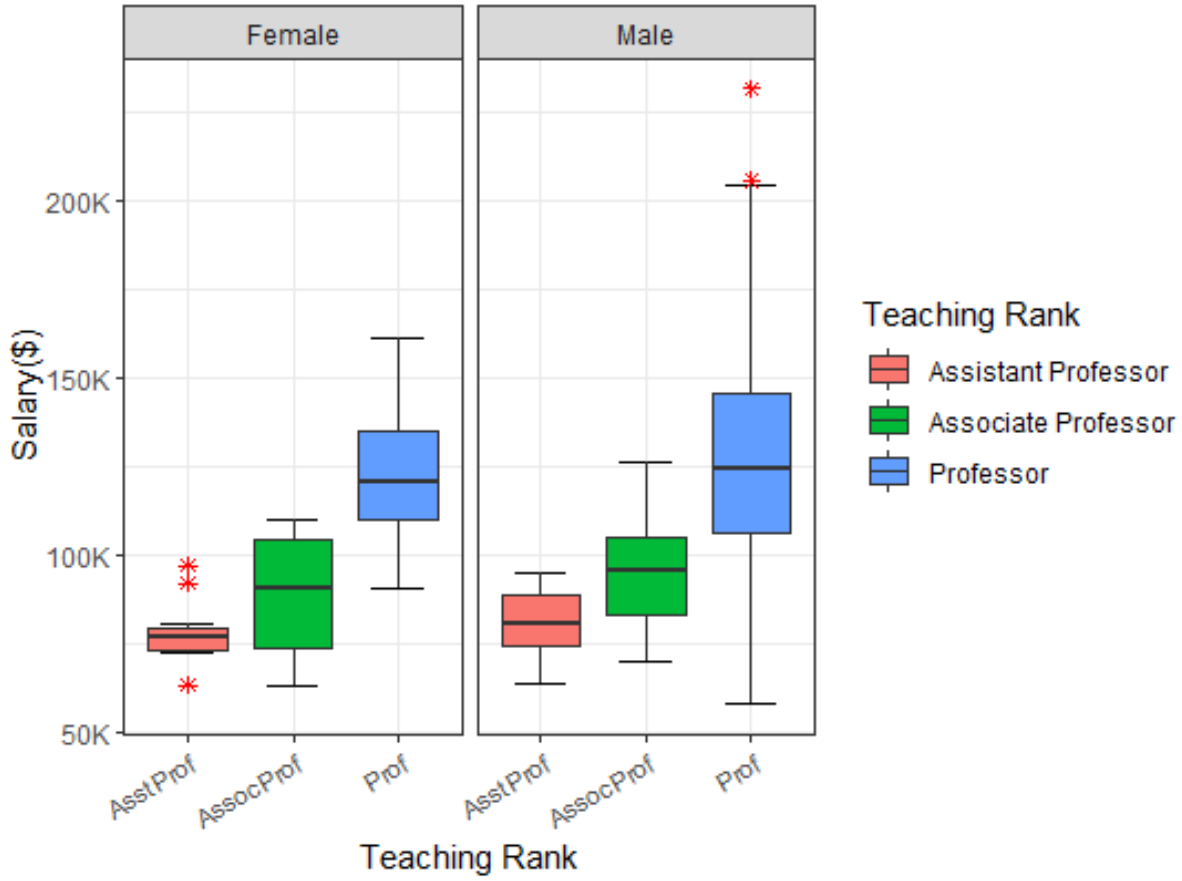
4. Graphical data integrity & lie factor: The chosen format and design might not be the best way to represent the data. There is too much information in one frame. The labelling isn't very clear. What do the unnamed axis represent? It's hard to differentiate between the values of the (hidden) bars, it isn't keeping the data intact.

5. Annotation & stand-alone readability: The annotation is incomplete, only the y-axis is labelled. There is no legend to explain what the colour of the bar stands for. This figure also scores low on stand-alone readability. It's unclear what the graph represents, understanding it requires some text references. There are also many abbreviations (e.g. EXT1, E-CAD, …) .

Part 2. Graphic design

Figure 2

Academic Salaries (2008-09) of Teaching Staff Classified by Gender



Note. 'Salary' is an aggregation of the monthly salary (in dollars) over a period of nine months (2008-2009). The teaching rank classifies the academic staff of a college in the U.S. in three categories: 'Assistant Professor', 'Associate Professor' and 'Professor'.

This graph displays the salary distribution for the female and male academic staff of a college in the U.S. I opted for a box plot graph, because it gives a quick overview of the dataset. Also, because it makes comparing distribution between two groups (e.g. male-female) easier.

The axis have the same scale for both facets to make it easier to read off values. For readability purposes, I decided to rename the ticks of the y-axis: 100K is easier and faster to read than 100000. For visual purposes, I decided to make a distinction between the three different teaching ranks by using colours for the boxplots.

The red asterisks represent outliers. Not all the outliers were included in this graph, just so that the proportion of the boxplot in the graph wouldn't shrink. I signalled the outliers, but didn't add their value to avoid creating Chartjunk. The numbers would be distracting and wouldn't really create meaning. It's the overall picture we're looking at, not specifically individual cases.

The graph shows that the median for the male teaching staff is higher than the female teaching staff for all three ranks. What pops up is that there is a wider distribution for the male professors' salaries. This means that there is a big difference between the minimum and maximum salary for this particular group (e.g. male professors).
If we compare the teaching staff among themselves, meaning in the same group or facet, we notice that there is an observable difference between their salaries. The median for a professor's salary is respectively higher than the median for an associate professor's and assistant professor's salary.