

Section 5.4: Misleading Graphs

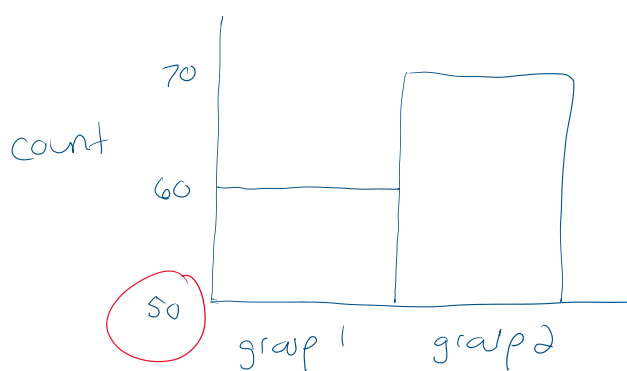
Thursday, March 07, 2024 2:18 PM

ways that graphs can mislead (or at the very least, be badly designed) include

but are not limited to:

① manipulating the vertical scale

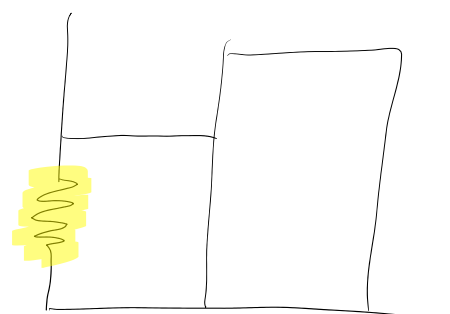
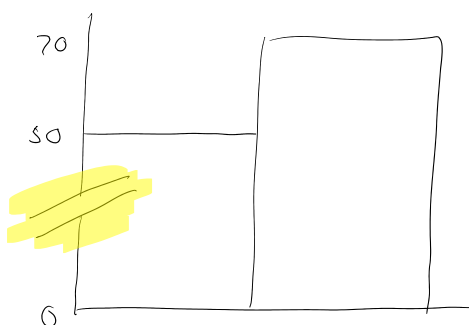
a) suppressing zero (also known as truncating zero)



← casual glance says that the second group has twice as many individuals as the first group

truncating or suppressing the zero because the origin isn't shown

if you must, better to do this:





b) inconsistent scales / poor graphics

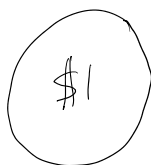
- when graphing software is not used

170% 300% 410%



300% is almost twice the size of 170% but the height of the 300% bar does not reflect this

2 pictographs - use images to display the relative sizes of categories



← the diameter of the large coin is about twice the smaller coin

BC

Alberta

amount of student debt

- we humans tend to use areas to compare the relative sizes of objects but that is not necessarily how these are plotted

but the area is about 4 times the area of the smaller coin

if you must, then do



BC

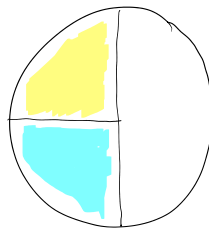


Alberta

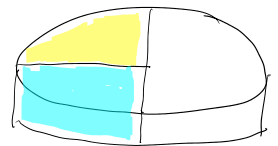
use multiple images to show relative size, rather than scaling a single image

3 inappropriate 3D

pie charts:

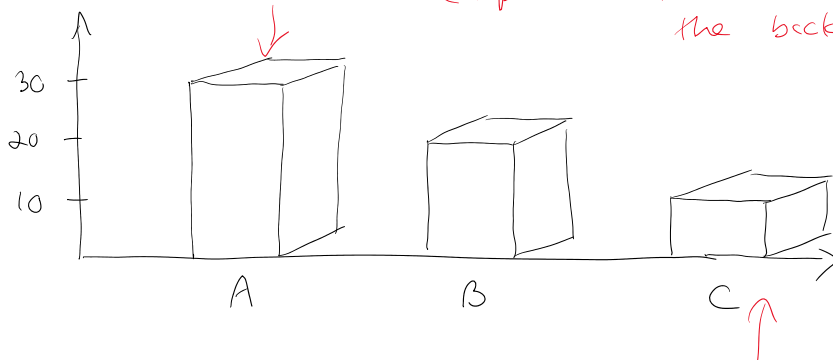


versus



it can be very difficult to estimate the relative sizes of each portion due to the perspective

bar charts

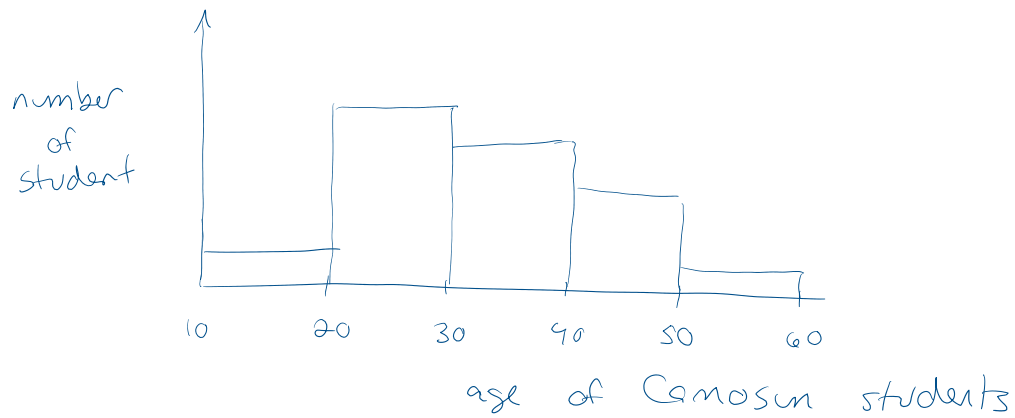


is it the front face that should be compared with the scale?
the back face?

also, the 3D makes the one look larger
" - - - - " ->

... makes this one look larger than it actually is

④ poorly defined categories



which students are aged (0-20 years old?)

- the chances of a Camosun student being younger than 15 years old is so very small that having a bin from 10-20 is misleading