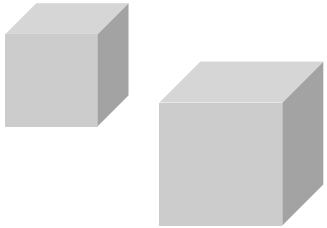
VISUALIZATIONS

WHAT WORKS WITH HUMANS?

"Participants were more accurate when they compared the **sizes of bars** of unequal lengths. **Squares** and **circles** were not much different. All three shapes fared better than cubes."

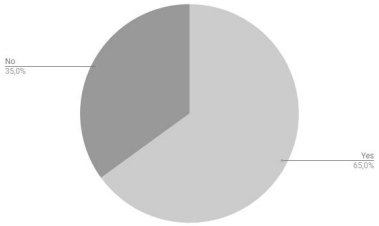
Great choice!

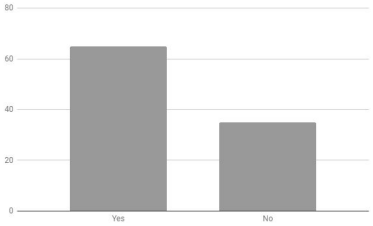
Works ok!



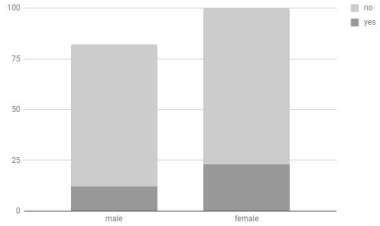
Don't

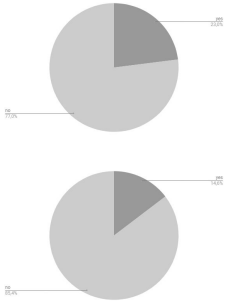
"[..] pie charts were read as easily, quickly and accurately as bar charts, but as the **number of components in the chart increased**, bars become less efficient encoding the data. The opposite was true for pie charts."





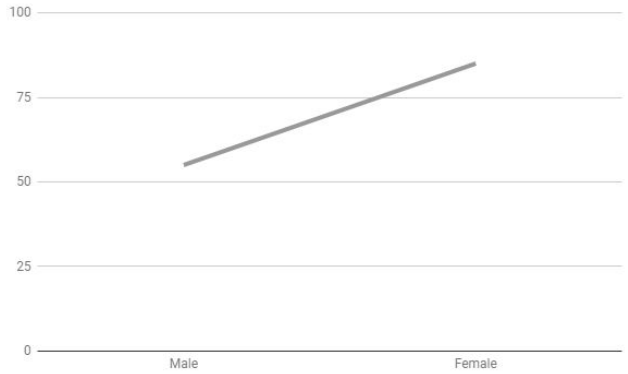
Pie charts work well for proportions



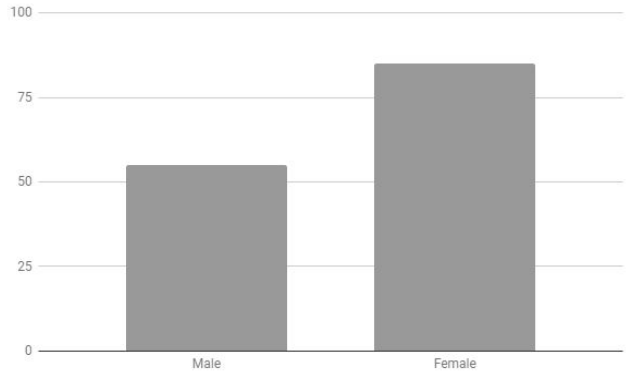


Bar charts are better for segment-to-segment comparisons

"People have a hard time seeing messages in line charts **beyond trends**."

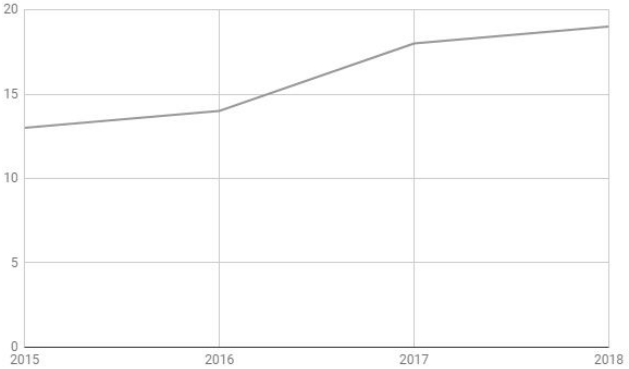


Use line charts for trends

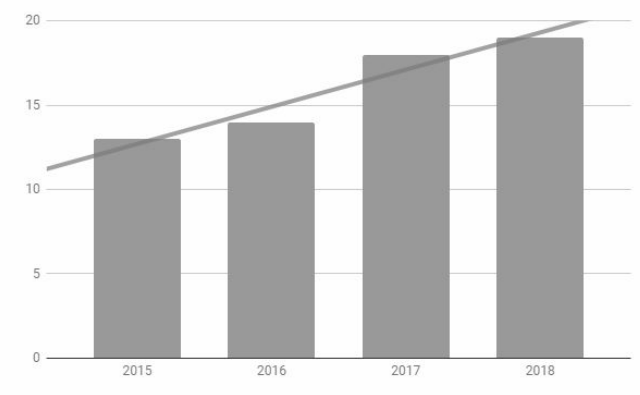


Use bar charts for contrasts

"[...] any chart allowing the reader to see a **real or imaginary trend line** was the **best at communicating change**"

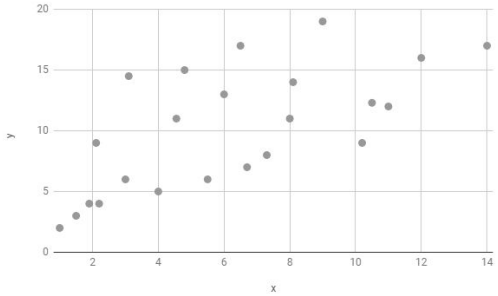


Use line charts for trends

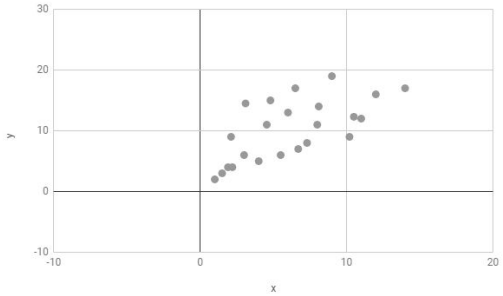


Include trends lines in bar charts for developments

"When the same correlation is represented in two graphs, but in one graph the **scale is blown out** so the point cloud becomes very small, people perceive it as having **a higher correlation**"

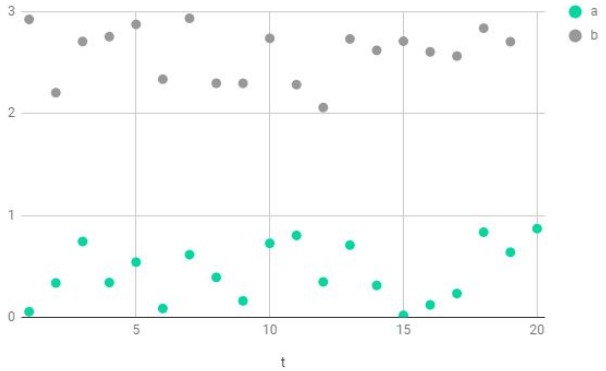


Lower perceived correlation

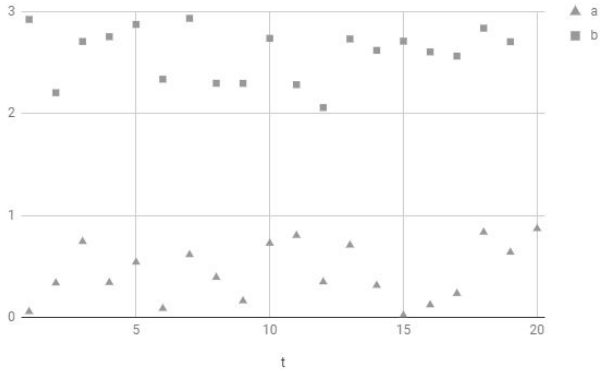


Higher perceived correlation, same data

"[...] humans can most accurately discern **variations in color** in scatter plot symbols"

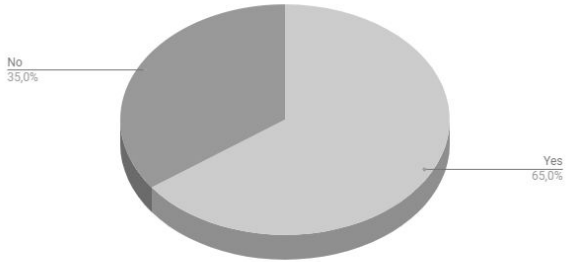


Use color to discern data series



Symbols work, but not as good

"[...] 3D graphics, while glitzy and sexy, **do not convey any additional information** and force the reader to deal with redundant and extraneous cues."



Don't use 3D, unless the third dimension conveys information

"[...] a **latency of a half a second** with interactive graphics has profound effects on the way a viewer engages with the graphic"

"[...] a one second delay was found to be **unusable**."

REFERENCES

Fundamentals of Data Visualization - Chapter 5
https://serialmentor.com/dataviz/directory-of-visualizations.html

Data Visualisations: Contributions to Evidence-based decision making
https://social.shorthand.com/SciDevNet/3geA2Kw4B5c/data-visualisation-contributions-to-evidence-based-decision-making

39 Studies about Human Perception in 30 Minutes
https://medium.com/@kennelliott/39-studies-about-human-perception-in-30-minutes-4728f9e31a73