Data Communication & Visualization

Pictorial Superiority Effect: our visual dominance impacts memory.

Only 3-5 pieces of new information can be stored to long-term memory at a time.

Graphic elements are good at grabbing attention.

Graphic design helps readers digest our information.

The more they digest, the more they will retain in their long-term memory.

Graphics

Use large, full bleed images.

Emotional connections assist in recording information into long-term memory

Repeat image or pieces of it to create a consistent visual message or brand.

Develop icons for quick visual communication.

Use logos to cutout extraneous details whenever possible.

Atomic theory of development: don't overwhelm working memory by presenting one piece of information at a time.
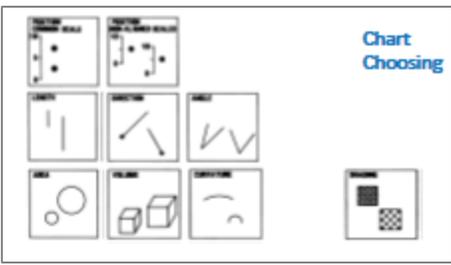
Give audience handouts if information is critical.

Image sources:
Images.google.com
Morgue File
Library of Congress
Usa.gov/topics/graphics

Area is hard to interpret accurately. Humans are better at judging length.

Pie charts produce errors in interpretation.

Graph as high up in the hierarchy as possible.

Bubble, volume, and curvature charts result in more errors in interpretation.

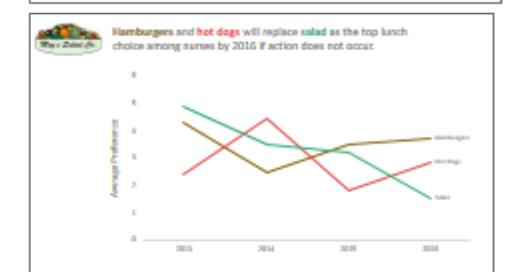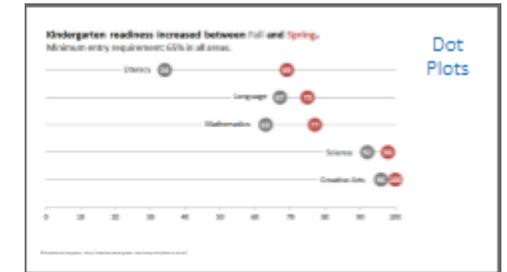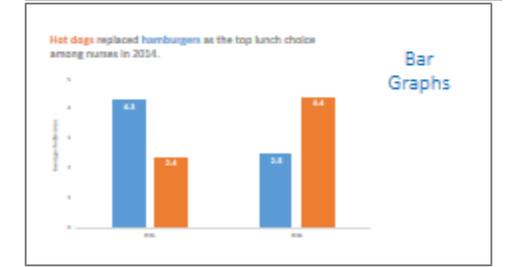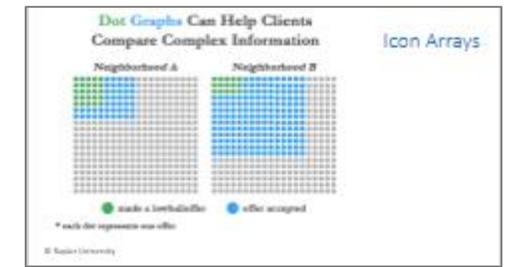Position on a common scale is the easiest for us to interpret.

Length, direction, and angle are the next easiest.

Icon arrays require the least amount of data or number literacy and are great for highlighting key numbers.

Bar/column charts are ideal for comparing a max of 2 things.

Use dot plots to highlight gaps between points.

Small multiples are great for complicated data sets! Helps you isolate overall trends easily.

Color (and Font)

Color is PRE-ATTENTIVE!

Color subliminally tells us that something is more important than the surrounding items.

Choose one light, one dark, and one emphasis color.

Control the colors to make your key points more clearly understood; don't rely on defaults.
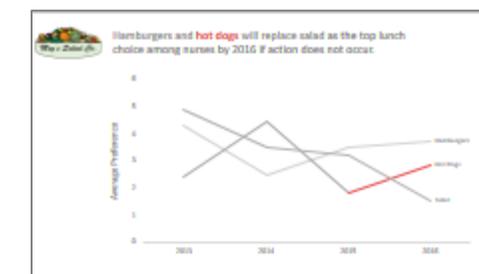
Color can be a barrier for working memory. Legibility hurts comprehension.

Color Resources:
Adobecolor.com
Design-seeds.com
Colourlovers.com
Vischeck.com
Colororacle.org
Colorbrewer2.org
Achronism.com
Cjolliffe.com/resources/CJGA-color-theory.pdf

Font Resources:
Myfonts.com/whatthefont
www.fontsquirrel.com
Make a Power(ful) Point

Putting It Together

Data dashboard and infographics are popular for combining individual data visualizations.

The principles of simplify and emphasize are key.

Ease of interpretation should rule over flashy design.

Data Visualization Resources & Tutorials for APIC Attendees:

- Juice Labs Chart Chooser: http://labs.juiceanalytics.com/chartchooser/index.html
- Make simple icon arrays at: iconarray.com
- http://stephanieevergreen.com/ - free blog with tutorials!
- Tutorial on Dot Plots in Excel: http://stephanieevergreen.com/easy-dot-plots-in-excel/
- Small Multiples: http://stephanieevergreen.com/declutter-dataviz-with-small-multiples/
- Tutorial on directly labeling items: http://stephanieevergreen.com/directly-label/
- Presenting Data Effectively: Communicating Your Findings For Maximum Impact (2013)
- http://makeapowerfulpoint.com/
- http://www.presentationzen.com/ (also a book)