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Computer Graphics 1
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Wednesday, March 21, 2018

Literature Review 2

What makes a visualization memorable? Michelle et al. claim in their paper *What makes a Visualization Memorable?* That the visualization community has recently witnessed a divide over the value and impact of excessive chart annotation and decoration. The conventional view held by experts is that a visualizations should not include chart junk and should "show the data as clearly as possible without any distractors" [1]. However, some researchers claim that chart junk can possibly "improve retention and force a viewer to expend more cognitive effort to understand the graph, thus increasing their knowledge and understanding of the data."

In *Memorability of Visual Features in Network Diagrams*, Marriott et al. investigate the cognitive impact of various layout features-symmetry, alignment, collinearity, axis alignment and orthogonality. In their research participants were asked to study, remember and draw a series of small network diagrams, "each to emphasize a particular feature" [2]. It was noted those who were exposed to more diagrams of different types were more likely to recall less when they were asked to draw.

Marriott et al. claim that visualization relies on the human viewer building "an internal cognitive structure" [2]. Better understanding of the internal representations provides fundamental insight into the effective use of the network diagrams for information visualization.

When trying to build and preserve a user's mental map, Marriott et al. try to understand which visual features should be preserved during a visualization, because as noted by Michelle et al., when there's more charts and visualizations, a user is incapable of making a lasting memory of a visualization. They try to limit how many changes in a visualization that a viewer can notice.

Both these papers try to establish, in a way, how users build an understanding when viewing and internalizing a graph drawing. They also tend to agree that it’s not the number of charts that make a visualization memorable, but the nature and density of information in the diagrams.

In their analysis, Michelle et al. found that visualizations are usually combined into one to explain scientific phenomena, and these are more commonly found in scientific publications. These visualizations are usually designed to stand alone and are thus fully responsible for telling and encompassing the whole story. However, to bake a regular story, non scientific and infographic media such as newspapers limit the use of information-heavy visualizations and stick to basic charts that tell a specific story. These tend to paint a basic and clear picture that’s likely to stick with the viewer. Marriott et al. discovered that when they asked users to redraw the visualizations they’d been exposed to, the participants did not try to preserve the features they were exposed to but only tried to redraw the basic charts that were shown to them and made a more lasting impression.

From the experiments carried out in both papers, I can conclude that chart density may work to explain more scientific phenomena but even then, a smaller number of charts provides a better chance for the viewer to remember than more or a more dense chart thus making for a more memorable visualization.

References

What Makes a Visualization Memorable?

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journal={IEEE Transactions on Visualization and Computer Graphics},
title={What Makes a Visualization Memorable?},
year={2013},
volume={19},
number={12},
pages={2306-2315},
keywords={data visualisation;Amazon;Mechanical Turk;data understanding;data-ink ratios;government reports;infographic sources;memorability scores;news media sites;scientific journals;visual densities;visualization community;visualization type;Data visualization;Encoding;Information technology;Taxonomy;Data visualization;Encoding;Information technology;Taxonomy;Visualization taxonomy;information visualization;memorability;Artificial Intelligence;Cues;Humans;Image Interpretation, Computer-Assisted;Memory;Pattern Recognition, Visual;Task Performance and Analysis;User-Computer Interface},
doi={10.1109/TVCG.2013.234},
ISSN={1077-2626},
month={Dec},}

Memorability of Visual Features in Network Diagrams

@ARTICLE{6327253,
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journal={IEEE Transactions on Visualization and Computer Graphics},
title={Memorability of Visual Features in Network Diagrams},
year={2012},
volume={18},
number={12},
pages={2477-2485},
keywords={data visualisation;graph theory;interactive systems;network theory (graphs);cognitive impact;graphs;interactive network-based visualisations;network diagrams;parallel edges;static network-based visualisations;task enabled visual processing;visceral level;visual feature memorability;Algorithm design and analysis;Educational institutions;Image edge detection;Layout;Shape;Topology;Visualization;Network diagrams;diagram recall;experiment;graph layout;perceptual theories;visual features},
doi={10.1109/TVCG.2012.245},
ISSN={1077-2626},
month={Dec},}